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Updated Project Information Document (PID)

Report No: AB127

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Region	Latin America and Caribbean Region
Sector	Roads and highways (70%); Sub-national government administration (30%)
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Project	P035740
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Borrower(s)	GOVERNMENT OF PERU
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1. Country and Sector Background

Urban Public Transport Sector Reforms in Metropolitan Lima since 1980.

■ The 1980s: An Overly Regulated Period

The migratory processes and the intense industrial centralization trend, along with rapid urbanization, contributed to the growth of the city of Lima, which in 1981 reached 4.6 million out of 17 million in Peru. The completely regulated urban transport services in Lima, in the 1980s were scarce, slow, unreliable, insecure and very badly maintained. Service was provided by large publicly owned omnibuses (80 to 100 passengers), private (micro)buses (20 to 100 passengers), colectivos (large cars that accommodate five or six passengers) and taxis. While publicly owned buses had fixed stops along well-defined routes, private (micro)buses stopped at will trying to accommodate the needs of the boarding/alighting passengers.

In July 1980, the registered fleet of vehicles counted 1,574 buses, 7,101 microbuses, 560 collectives and 718 taxis, plus an unknown number of private cars (estimated to be higher than that of registered units) that also operated as taxis. In 1985, public transportation accounted for 74% of motorized trips, with an average of six million trips daily, of which 4.4 million (three out of every four trips) were served by public transportation.The modal share of public transport even rose to an impressive 89% of motorized

trips in the early 1990s.

The largest buses belonged to the largest state-owned bus firm, ENATRU, which operated more than 600 units with a single driver-fare collector. These buses were generally in better condition than the other types of units. Most of the microbuses were small units, and more than 70% had 26 seats or less. They also tended to be older vehicles: 35% were more than 15 years old. The physical condition of these units was inadequate. Taxis also played an important role in public transportation and taxi tariffs were negotiable, as the cars were not equipped with meters. In terms of service, several slums *("pueblos jovenes")* in the periphery Metropolitan Lima were not served by public transportation, forcing users to use mototaxis or to walk considerable distances to board the buses.

Urban transport routes were conceived in terms of connecting the slums with the economic centers where most formal employment was located (businesses, industrial district), rather than connecting these residential areas to the places where services (health, education, etc.) were provided.

■ The 1990s: Deregulation and New Challenges

In the 1990s, the Lima-Callao metropolitan area further consolidated its status as the critical hub of Peru's economic, political and social life. It currently concentrates about one third of the country's total population (about 7,700,000), half of the national production, and 68% of the motorized vehicles.

The trade liberalization and economic recovery measures adopted in 1992-93 brought about a shift towards privatization and deregulation of the transport sector. This change, along with the lifting of the imports ban (which limited new vehicles imports) and the massive layoff of public sector workers, caused mixed results in the provision and quality of public transport services.

Between 1990 and 1999, the number of motorized vehicles in the city doubled, and the trips in public transport units decreased from 89% to 81%. Still, more than nine million trips were made daily using motorized vehicles in Lima, of which 80% were made using public transportation. However, as a result of deregulation 98% of the public transport vehicles were independently owned and operated, at a ratio of 1.25 vehicles per owner.

In a parallel fashion, the number of units dedicated to provision of taxi service jumped from 10,000 to approximately 150,000 cars and an increasing number of moto-taxis, most of which offer this service informally, and are not registered or licensed in any way. From the perspective of the user, the de-regulation of public transport has been perceived as an improvement in terms of public transport service frequency and access. Whereas in the 80s and early 90s large crowds of people were observed at the bus stops, the increase in supply caused waiting times to be reduced to 5-8 minutes. Almost all destinations are now within 500 meters of a bus service, and more than 80% of passengers reach their final destination without transferring. Most of the large buses of the past have been replaced by small minivans *("combis")* which have small capacity, drive over the speed limits, provide low quality service in terms of comfort, and lack periodical vehicle maintenance due to reduced or limited profitability. ENATRU no longer exist as a single company, and its large units were sold to individuals and transport micro-enterprises that now operate independently.

Finally, the peri-urban slums of Metropolitan Lima that were previously disconnected from the network of public transportation were now served but with severe limitations in terms of reliability, personal security and road safety. Most of these these slums are now large suburban areas, some of them with populations of over one million people, requiring an adequate and efficient urban transport system.

■ **Restructuring of urban transport sector in Metropolitan Lima.**

The population of Metropolitan Lima is expected to approach 8 million by 2004, but with approximately 110 inhabitants per ha. population density is low (Bogotá 200p/ha). It is the fifth largest metropolis in Latin America, and although the average yearly income is approximately US$2,200 per capita, more than half of Lima's population is considered poor. Most of Lima's poor live in the periphery of the city - either in the northern or southern 'cones', and one of their major concerns is the lack of access to job opportunities and centers of economic and social activity.

In Lima, the number of cars, which had remained stable through most of the 1980's at about 270,000, increased to about 1,000,000 by 2002. Over the last ten years, the number of public transport vehicles has increased from 10,5000 units to an estimated fleet of over 60,000 units with an average age of 16 years – many exceeding 25 years – making Lima's public transport fleet the oldest in Latin America. All motorized urban transport in Lima metropolitan area is by road with presently private cars covering 20% and public transport covering 80% of the total motorized trips, reflecting a decrease in public transport compared to 1990 when it was 89%. In addition, about one third of total daily trips is made on foot, primarily by the poor. Public transport is privately owned and includes buses, combis (12-passenger buses), coasters (approx. 35-passenger), micros, taxis, colectivos and moto-taxis and is operated in a deregulated environment. Together with private cars and buses, approximately 190,000 formal and informal taxis and 45,000 mototaxis cause high congestion, air and noise pollution levels which rank amongst the highest in the region, high numbers of traffic accidents and high operating costs. Recent studies sponsored by the World Bank indicate that an estimated US$500 million are lost every year in man-hours and operational costs due to congestion and inefficiencies of the urban transport system. Over-combustion of 13.2 million liters of gasoline and over-emission of 1,000 metric tons of air pollutants by an obsolete fleet are a constant health threat and a large source of GHG emissions. With over 70% of the national vehicle fleet concentrated in the Lima Metropolitan Area, the binomial oversupply-congestion prompts an excessive import of vehicle fuels, contributing significantly to the commercial balance deficit (*Municipalidad Metropolitana de Lima: Anteproyecto del Plan de Acción Municipal 2003*).

The afore described urban transport growth patterns are not sustainable and require a restructuring of the urban transport sector: average travel times and public transport expenditures are high with no reliable transport alternative for poor urban commuters who are concentrated on the periphery of Lima metropolitan area. Because of congestion, the average round-trip travel time to work for the poor urban worker is often between 1.5 to three hours a day. In addition, the quality of the services provided is low - vehicles are poorly maintained and drivers poorly trained -, personal safety/security of public transport is a major concern - especially for women -, and access to buses for mobility constrained persons is, at best, limited. The worsening of the quality of the public transport service is also a matter of a weak institutional framework and poor governance, which contribute significantly to infrastructure deficiencies. These limitations have generated the deterioration of accessibility and mobility, which affect commuters in different ways, especially low-income groups.

Confronted with the rapidly deteriorating urban (transport) environment MML in 1999 declared the urban transport sector an emergency sector (MML Council Agreement No. 05-99), defining as one of the strategic development objectives for the economic and social development of the city '*...the establishment of an integrated mass rapid transit system...*'.

2. Objectives

The main objective of the project is to assist the Municipality of Metropolitan Lima (MML) in enhancing the economic productivity and the quality of life within the Lima Metropolitan area through improving mobility and accessibility for the metropolitan population, especially in the peri-urban poor neighborhoods by establishing an efficient, reliable, cleaner and safer mass rapid transit system. The project forms the first phase of an integrated mass rapid tranport system in Lima using high capacity buses on exclusive, separated corridors with designated bus-stops and terminals, as well as a feeder bus route and bicycle network. The first phase provides services from Lima's historic center to the northern and southern cones of Lima with a population of approximately 3.5 million, of which 60% have per capita incomes of less than US$75 per month.

The specific project development objectives are to: (i) implement the new mass rapid transit system on the basis of a Public Private Partnership (PPP) with concessioned buscorridor/feeder routes operations and fare collection system; (ii) improve access within low income areas through facilitating the use of low cost transport alternatives, such as bicycles and walking; (iii) strengthen the local institutional capacity to regulate and manage the metropolitan transport system on a sustainable basis; and (iv) reduce the negative environmental impact of motorized transport in Lima.

To achieve its main objective, the project will implement (i) physical measures to rehabilitate and improve the existing road infrastructure, with emphasis on rehabilitation/construction of segregated bus corridors, feeder bus roads, bicycle paths and pedestrian facilities; (ii) traffic management measures to enhance transport and environmental conditions including road safety improvements, transport emission reductions and better access for vulnerable road users such as pedestrians, bicyclists and mobility constrained persons; and (iii) institutional measures to strengthen the Municipality of Lima's planning, regulatory, administrative and operational capacity in urban transport in the medium and long term. Supported by the GEF grant, the project also aims at reducing the actual oversupply in public transport which is generating (i) in large inefficiencies in public transport provision; (ii) urban congestion and adverse environmental and safety impacts; (iii) irrational and inefficient use of scarce road space; (iv) predatory and counterproductive competition; and (v) low average speeds and long travel times.

To facilitate and support successful implementation of the project components, the project will also assist the Municipality in designing and implementing a comprehensive public transport policy framework, which not only includes the restructuring of the public bus system, but also will provide the legal and regulatory basis for other public transport operations, such as taxis, colectivos and mototaxis.

3. Rationale for Bank's Involvement

The Bank has extensive experience in supporting projects on urban transport system. For example, in projects in Brazil and Chile the Bank supported the concept of physically separating buses from worsening traffic congestion. In Bogotá, the Bank is supporting a second phase of separated bus corridors as part of the very successful TransMilenio bus rapid transit system, which was first introduced in Curitiba. The proposed project for Lima has been designed along the lines of the TransMilenio in Bogotá. The experience gained in Brazil and Colombia in this sector will be key in assisting MML's efforts to improve the urban transport system. Bus Rapid Transit systems are being introduced rapidly all over the world as a low cost, effective mass transport alternative. Latin America remains the leader in applying this technology, with BRT's under preparation in Santiago, five secondary cities in Colombia, Mexico City and San Salvador.

The Bank has assisted the Municipality of Lima since 1995 to resolve the transport chaos in the city, but a previous proposal for a separated bus-corridor (Corredor Vitrina) was stranded because of lack of central Government support. It is worth mentioning that this is the first project granted to a municipality

in Peru since the 80s and therefore, it so represents a first step toward empowering and strengthening local governments toward sector development in strategic planning, and improving intra-governmental relations. This fits well within the decentralization strategy adopted by the Government of Peru.

The World Bank is presently administering three other GEF transport projects, based on OP 11, two of which are located in Latin America (Mexico and Santiago, the other one being in Manila). The sum of these project represents a valuable knowledge bank and experiences from these other cities will be quite useful in Lima, and vice-versa, since the overall objectives are the same and some of the components are similar. "Technical and political cross-fertilization" between those cities is already taking place through events sponsored by the World Bank, either at the decision-making level (official encounters between mayors) or at the technical and operation levels (meetings between bus operators from those different cities, seminars on BRT, etc.).

4. Description

The project will finance 28.6 km of segregated high-capacity busways, the first phase of a network serving primarily the low-income population who need an efficient and affordable public transport service. The busways will be built along existing road corridors and thus do not require land acquisition. Major terminals will be built at the northern (Independencia) and southern (Chorrillos) ends of the busway, providing easy transfer with feeder buses serving low-income growth areas at Lima's edge; feeder roads to the terminals will also bi improved, with particular focus on the accessibility by feeder buses, pedestrians and bycicles. The busway will also include 35 stations, resulting in an average distance of 753 m between stations.

While the physical infrastructure will be financed by MML and the proposed Loans, private concessionaires will finance the buses and bus maintenance equipment on the facilities provided under the Project. The fare collection system will also be concessioned and operated privately; the Project will specify an integrated fare collection system for the busway and feeder services; prepare the business plan for the bus service concessions; support the creation and strengthening of an operations entity; and assist in the development of an efficient organizational structure for the municipal management of traffic and transport. Within the framework of the latter, the project will assist the municipal transport agencies in developing well-defined responsibilities, coordinated management and resource utilization, and performance monitoring and control mechanisms of traffic and transport.

Road safety will be addressed under a separate component, and safety audit recommendations will be incorporated in the design of the busways and associated road improvement. Air quality monitoring will be greatly improved by expanding the rudimentary monitoring system that has been built up under the Bank-assisted Clean Air Initiative for Latin Cities.

1.1 Mobility and Environmental Improvements (US$99.82 million)

This component comprises primarily infrastructure works to implement the busways along existing road corridors: (i) construction of 28.6 km of segregated busways; (ii) repaving of mixed-traffic lanes adjacent to the new busways; (iii) signposting and road markings along the corridors; (iv) traffic signal improvements along and in the immediate vicinity of the corridors; (v) bus stations and terminals; (vi) bus depots and workshops, excluding equipment which will be financed by the bus concessionaires; (vii)control center, to monitor and direct operations on the busways; (viii) paving and other improvement of feeder roads to the two bus terminals, with an approximate lengthe of 50 km; this will include the construction of sidewalks and bicycle paths to improve the access conditions for non-motorized transport investments under GEF grant; (ix) road safety measures along the corridors, its feeder roads, and the streets in its area of direct influence; and (x) improvements to pedestrian and vehicular circulation in five

sensitive areas, and recovery of public space, within emphasis on the interfare between the corridors, pedestrians and busway users.

The proposed busway operations, including all physical works, will be based on 'inclusive design' principals that take into account the needs of vulnerable (e.g., women, elderly, children) and handicapped (i.e. mobility and visually impaired) public transport users. Some of the important measures foreseen include: i) adequate dimensions of sidewalks for wheelchair access; ii) special signage indicating disabled access; iii) access ramps of no more than 8%; iv) in the case of elevated bus stops, elevators; v) all pedestrian bridges will include or be retrofitted with access ramps; vi) at the terminals, if bathrooms are included in the final design, special stalls will be installed; and v) measures for deaf and blind passengers including sounds indicating oncoming buses, a contrasting color scheme, and textured surfaces.

In addition to the above, this component includes (xi) relocation of a flower market in Barranco and assistance to informal street vendors which will be affected by the corridor improvements, (xii) environmental mitigation at the end-terminal in the south which is close to the environmental sensitive Pantanos de Villa swamps in southern Lima; (xiii) implementation and initial operation of an improved air quality monitoring system; (xiv) development and partial implementation of a road safety strategy; and (xv) a pilot project that will enhance the introduction in Peru of more environment-friendly vehicle scrapping methods (co-financed with the GEF operation).

1.2 Social Mitigation and Community Participation (US$5.75 million)

This component addresses the stakeholders of the urban transport program and comprises four activity areas: (i) community consultation, including users and operators, to enhance awareness and ownership of the new system, including road safety education during the implementation and early phases of busway operation; (ii) mitigation of the negative impacts on current bus operators; for those who will re-enter the sector through retraining of drivers and conductors and small-scale enterprises loans to provide services linked to the new system (e.g. cleaning and routine mantenance activities), for those who will exit the sector through retraining and outplacement programs in collaboration with existing programs of the Ministry of Labor; and (iii) technical support to operators outside the system to strengthen their managerial and professional capacities, including route planning, service provision, maintenance, road safety, knowledge of laws and regulations, etc.

1.3 Institutional Strengthening (US$3.67 million)

This component addresses the regulatory, monitoring, and control functions of urban public transport and supports: (i) the development and implementation of a public transport policy, including its regulatory and policy-setting framework, as well as its administration, operation,
monitoring and control; (ii) the formal creation, technical assistance and training of PROTRANSPORTE, the entity responsible for implementing the busway operations; (iii) technical assistance and training of EMAPE, the entity responsible for implementing the physical works under the Project; (iii) technical assistance and training of DMTU and the police, focusing on public transport regulations, and its monitoring, control and enforcement; and (iv) monitoring and evaluation of the busway operation and the Project.

1.4. Studies and Construction Supervision (US$8.58 million)

This includes (i) supervision of the physical works described above; (ii) economic feasibility and environmental studies as well as the preparation final engineering designs to expand the busway network

beyond the 28.6 km funded by the Project, and (iii) social impact assessments of the new system, in coordination with the urban poverty reduction strategy under preparation with Bank support. The latter forms part of a comprehensive monitoring and evaluation mechanism that will use qualitative and quantitative indicators for each of the sub-components. Techniques to be applied include user scorecards to measure public transport performance; beneficiary assessments using structured interviews and focus group discussions; poverty impact assessments using household surveys and linked to qualified data from the aforementioned methods

1.5. Program Administration (US$5.58 million)

This component, entirely to be financed from counterpart funds, includes the operational expenses of the institutions responsible for administering the Project and for implementing the busway operations, i.e. PROTRANSPORTE and EMAPE.

1.6. Grade Separation at Plaza Grau (US$10 million)

Later in 2003, MML will initiate the re-construction at the Plaza Grau, one of Lima's busiest intersections and a key node of the busway to be financed under the Project. A grade separation of conflicting traffic movements is required in order to insert the busway on the northernmost end of the Paseo de la República, thereby reducing the car traffic lanes from three to two in each direction. This component will be entirely funded by the Municipality, but is a part of the overall Project.

A. Mobility and environmental improvements
B. Social mitigation and community participation
C. Institutional strengthening
D. Studies and construction supervision
E. Program Administration
F. Reduction in the public transport fleet
G. Bikeways component

5. Financing

Source (Total (US$m))
BORROWER ($44.40)
IBRD ($45.00)
INTER-AMERICAN DEVELOPMENT BANK ($45.00)
GLOBAL ENVIRONMENT FACILITY ($7.93)
Total Project Cost: $142.33

6. Implementation

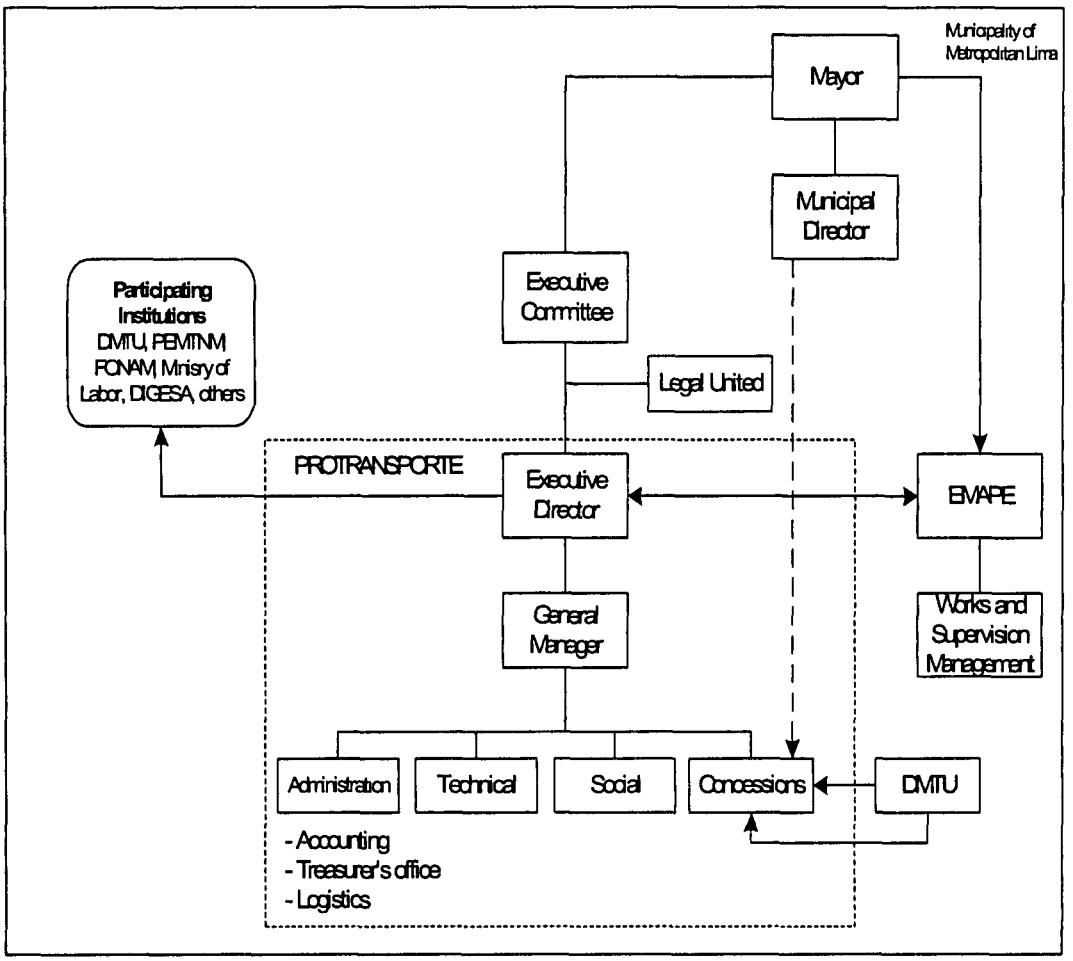
It is envisioned that the proposed project will be implemented within the 5 year election cycle of the present Mayor of Metropolitan Lima. The Municipality of Metropolitan Lima will be the Borrower and the GoP will be the guarantor. MML will assume the foreign exchange risk associated with the proposed loan. The Loan and the Grant will each have one executing agency: (i) PROTRANSPORTE for the Limabus project and (ii) FONAM for the GEF project. For the Limabus project, the procurement and supervision of civil works will be delegated to EMAPE, while the procurement of goods and consultant services will be done by PROTRANSPORTE. For the GEF grant, part of the procurement and supervision of civil works (bikeway network rehabilitation and extension) will be delegated to the Programa de Transporte No-Motorizado de la Municipalidad de Lima (see details in the procurement plans). The GEF sub-component aiming at mitigating the social impacts of the public transport supply rationalization component will be procured and supervised by PROTRANSPORTE together with the matching sub-component of the WB-IDB loan. None of the implementing agencies has experience in working with multilateral institutions and a preliminary procurement assessment shows that both institutions will need training and adequate staffing to meet the Bank's procurement requirements. The same observation is valid for EMAPE, the agency that will be responsible for procurement of civil works. At appraisal, a detailed procurement capacity assessment will identify the staffing and training needs of PROTRANSPORTE, EMAPE and FONAM, to be implemented before project effectiveness.

PROTRANSPORTE will be responsible for the financial management of the loan proceeds and FONAM will be reponsible for the financial management of the GEF grant. Both agencies will establish special accounts and financial management will be consistent with the new Financial Management Guidelines fot Financial Management Assessment, Project Implementation and Supervision.

PROTRANSPORTE will be responsible for concessioning the buscorridor and feeder route operations to the private sector: this needs to be done in close coordination with DMTU, the agency responsible for concessioning the present bus routes in the MML area. Coordination procedures and agreements will be included in the operational manual which will be presented in draft at negotiations.

The current MML administration is preparing various institutional reform measures aimed at creating a more effective and efficient operational structure, which among other things, would facilitate greater private sector participation, inter-agency coordination and public transport priority. Appropriate provisions will be included in the legal agreements to ensure that none of the reforms or streamline measures would have an adverse impact on the proposed project and/or GEF grant.

Esquema de Ejecución
Proyecto LIMABUS



7. Sustainability

a. The project serves as a pilot project in Metropolitan Lima to create behavioral changes in people's mobility patterns, and therefore a strategy will be developed for dissemination at regional/global level, using electronic knowledge transfer instruments (CD ROM, Website, etc.), international conferences, cooperation with national and international NGO's, workshops, etc.

b. The sustainability of the program is expected to be guaranteed through the high level of local government commitment, the broad civil society support and the participation and support of formal private bus companies that are motivated by the rationalization and improved enforcement of public transport supply. It is expected that this will eradicate unfair and predatory competition, increase ridership and farebox revenues and reduce operating costs. Rationalization of public transport supply will be achieved through various measures described before, including the concessioning of bus routes on the separated bus corridors and feeder routes. This will make the formal public transport operations more profitable, inducing private sector investment in the

sector and strengthening the public private partnerships in bus operations.

c. The strengthening of the local authorities will facilitate the rationalization of public transport operations, the regulation of public transport operations, the enforcement of concessioned routes and the elimination of informal operations on these routes. The emphasis on better coordination within and outside the local government structure is expected to result in a more comprehensive urban transport planning, embedded in a metropolitan development strategy.

d. The project emphasis on improving access to and within poor neighborhoods combined with automotive air pollution mitigation measures is expected to improve the quality of life within the affected neighborhoods by improving mobility for vulnerable road users, improving road safety and reducing air pollution.

The GEF components sustainability depends on three conditions:

- **Early involvement and strengthening of the municipalities**

Since the beginning and the preparation phase, this project has been in touch with municipal districts and provincial municipalities to make sure they would be involved in the definition of the components that they will benefit from. The strategy to be used will be to initiate the execution of the project through FONAM, in co-management with the municipalities and progressively to let the municipalities responsible for the next implementation stages regarding the NMT component. In parallel, the institutional strengthening component will provide those municipalities with the technical capacities required to take over in a satisfactory and sustainable way the programs promoted by the GEF project when the project closes.

- **Civil Society Involvement**

Sine qua non conditions for this project to be successful include ownership and commitment to its goals at the citizenry level. The preparation phase of the project included several focus groups, in-depth interviews, etc. Then, during the project implementation period, local stakeholders will continue to be closely involved. Once the citizenry has changed its attitude vis-à-vis NMT and assimilated its advantages regarding air quality, the creation of citizens committees will be encouraged to keep reminding the municipalities that their constituents expect them to promote NMT.

- **Communication, Outreach and Advocacy actions.**

During project implementation, communication programs will target a variety of high-level actors (municipal authorities, local community leaders, the Church, local employers, etc.). in order to build support to the program at the decision makers level. Targeting executives and public authorities should raise the likelihood that the GEF-promoted actions will be replicated in some other parts of Metropolitan Lima and Peru.

8. Lessons learned from past operations in the country/sector

To build upon the experience of previous urban transport and urban projects around the world, an analysis of Implementation Completion Reports and Performance Audit Reports (ICR/PAR) was undertaken. This review recognized the trends and changes in project design after the ICRs/PARs were completed. The main lessons identified and incorporated to the design of the proposed project are:

3.1. Institutional Strengthening.

As demonstrated by the Curitiba and Bogotá bus rapid transit (BRT) systems, important sector reforms and operational improvements as proposed under the Limabus Transport project require visionary leadership with a willingness to take risks, long-term commitment and continuity. By prioritizing the project preparation – stopping competing civil works - and allocating adequate preparation resources, the newly elected Mayor of Lima has already shown his leadership and commitment. The key organizations dealing with urban transport at the municipal level must be reorganized and strengthened, and dialogue assured. To this extent, studies included in the institutional component must be carefully monitored and translated into action plans, which the Borrower must implement. The proposed project already has a fully operational entity named Protransporte, which is monitoring and evaluating the completion of critical studies required by the project as well as supervising the work of international consultants, gaining ample experience to manage the project.

3.2. Lack of Timely Counterpart Funding.

Lack of counterpart funding has greatly influenced the pace of project implementation in several projects and in some cases has even led to cancellation of components. An effort must be made to ensure that the adequate provision of counterpart funds is included in the annual budget of Metropolitan Municipality of Lima. PROTRANSPORTE is preparing a mechanism that will create a special account to obtain the local counterpart funds in a timely manner from the different sources of income that the Municipality, on a yearly basis, receives. The design of this mechanism will be analyzed during the appraisal mission and implemented during the execution of the project.

Apart from the lack of counterpart funds, several projects in Peru suffer from the disbursement capacity ceiling, agreed upon between MEF and the IMF. Basically, all projects have to compete under this ceiling – currently US$450 million - for their annual disbursements, which may result in insufficient disbursements to adhere to the project implementation schedule.

3.3. Slow Implementation.

This has been a frequent theme. Apart from the disbursement capacity problem, reasons have included a lack of familiarity with Bank procedures, overoptimistic scheduling at appraisal, lack of final engineering designs at appraisal, changes in political commitment, and lack of counterpart funds. These problems would be mitigated in the proposed project by such measures as:

i. Strengthening financial management capacity of PROTRANSPORTE and provision of training on Bank procedures;

ii. Requiring the submission of final engineering design for the first year of project works prior to negotiations; and

iii. Providing technical assistance as needed.

3.4. Monitoring and Evaluation mechanism in place.

Although most projects included a set of project monitoring indicators and targets, frequently implementation units did not use them for project management or as a monitoring tool as an "early warning device". This constrained effective implementation of the monitoring process and reduced ability to measure fulfillment of the development objectives or the performance of the other project executing agencies. The project is including a monitoring and evaluation investment component and will propose to create a specific unit within PROTRANSPORTE to be in charge of monitoring and

evaluation tasks.

The Bank has a long-standing involvement in the sector of air quality management, in general and its interrelationship with urban transport in particular. The first loan of that nature was approved in 1992, and it had the objective of reducing traffic-generated air pollution in Mexico City. Stemming largely from that participation, the Clean Air Initiative in Latin American Cities was set up in 1997, which has been highly successful in disseminating experiences among major cities, including Lima. Similar clean air initiatives have now been started in Asia and Africa. In addition, recent strategy papers on Pollution Management Masami Kojima and Magda Lovei, *Urban Air Quality Management – Coordinating Transport, Environment and Energy Policies in Developing Countries*, World Bank Technical Paper 508, 2001. and Urban Transport *Cities on the Move*, a World Bank Urban Transport Strategy Review, 2002. discuss extensively the effects of urban traffic on air quality. Urban transport operations in Bogotá, Buenos Aires, Lima and São Paulo include air quality management components in their design. Some of the lessons learned include:

3.5. Air quality management and urban transport development involve long-term issues that require long-term responses.

Changes in personal travel behavior – a key element to reduce traffic-generated air pollution – are unlikely to occur unless there is a long-term government commitment to sustainable transport. Similarly, improvements in air quality require a long-term vision such as has been spelled out in Mexico City with the publication of the Air Quality Management Plan for 2002-2010.

3.6. Planning for the long term, however, requires flexibility.

Mexico City experience has shown that, despite the best planning efforts in the preparatory stage, the need for adjustments in air quality activities becomes evident only during the plan implementation. Similarly, the Implementation Completion Report for the Bogotá Urban Transport Project states that "flexibility should be encouraged in some subcomponents, procedures or new technology areas. This occurred in the case of the Transmilenio components where adaptations had to be made in various areas (platforms, bike paths, bridges, surfacing materials, etc, and with very satisfactory results). Therefore, while each component of the proposed project has been defined in considerable detail, the Grant Agreement should leave room for modifications during its implementation.

3.7. The Bank's involvement should support an overall Government strategy.

This applies to most World Bank operations. The more successful urban transport and air quality projects, such as those of Bogotá and Mexico City confirm this maxim. The proposed GEF components would complement the overall project which supports the objectives of the Urban Transport Strategy of the Municipality.

3.8. Community Participation is Vital For Success.

The PAD for the recently approved GEF grant to support the introduction of climate friendly measures in transport of Mexico City stresses that a "participatory approach, incorporating public opinion in the project, is required to establish legitimacy of the project". Similarly, the Bogotá experience demonstrates the importance of community involvement which contributed to the public acceptance, even pride, for several "project outputs, notably TransMilenio and the bike paths". The proposed project – especially the components aiming at increasing bicycle use and at reducing public transport oversupply– was prepared in close consultation with civil society; this collaboration would continue during project implementation.

3.9. More construction of bikeways does not ensure the increased use of bicycles.

In 1996, about 46 km of Bank-financed bikeways were successfully implemented in Lima, connecting an industrial area with low-income residential zones. However, the number of cyclists did not increase significantly, as the project did not include a coherent strategy to overcome the cultural barriers inhibiting bicycle use. Even in Bogotá, where over 200 km of bikeways were built in the last four years, the growth in cycling has been modest, and the local Government intends to implement – under the next Bank-financed project – a promotional strategy to raise bicycle use. Therefore, an important component of the proposed project would start the cultural change process through a multi-pronged promotional strategy aimed at making bicycle use more attractive in the minds of the population.

9. Environment Aspects (including any public consultation)

Issues : The project is expected to positively affect the local and global environment through rationalization of key bus routes and traffic corridors, retirement of highly-polluting vehicles, improvements in traffic safety and upgrades to the urban environment throughout the city. First of all, the project will contribute to reductions in air pollution which will have a direct positive affect on public health. In 1998, more than 90% of medical admissions of children under 5 was due to respiratory infections, many of which can be attributed to air pollution and specifically to transport sector emissions. Secondly, the project will result in a reduction in GHG and more specifically in CO2 emissions. Recent trends in Lima show an increase in used vehicle imports, a significant increase in the taxi and small bus fleets, and a reduction in the public transport modal share. Thirdly, the project seeks to remedy many of the unsafe traffic patterns plaguing the city by redesigning key traffic nodes through rationalizing public transport routes and enforcing route concessions, improving flow patterns, and restricting illegal public transport along the corridor. Finally, the project contemplates many urban upgrades to improve areas surrounding the bus corridor, including commercial improvements, green spaces, architectural face-lifts, and enhanced protection of existing protected areas affected by the project.

Strategic EA

The SEA seeks to orient the environmental management of the program as a whole during the planning, construction and operational phases. The SEA analyzed the socio-political, regulatory and institutional frameworks and evaluated the potential economic, social, environmental and territorial implications of the program. Based on a detailed diagnostic at both the regional and specific levels, an integrated analysis was done based on alternative scenarios. A round of public consultation was held, including focus groups and in-depth interviews. Finally, the SEA presents a Management System for Environmental Management.

The SEA analyzed the following impacts, benefits and risks of the program:

- Alteration of land use in both urban and rural areas;
- Improvements to the competitiveness and economic efficiency of the city;
- Reduction in transport costs and impacts on external economies;
- Improvements in the quality of service and culture of transport;
- Involuntary displacement of businesses and people;

- Reduction in urban pollution;
- Improvements in public perception of the urban environment;
- Institutional and legal framework inadequacies; and,
- Strengthening of the urban transport system.

Corridor-specific EIA

Specific impacts related to the dedicated bus lanes were addressed through a site-specific Environmental Impact Assessment. The EIA presents an analysis of impacts related to the design of the corridor, and those caused from construction and operation. The EIA presents an EMP with specific programs to mitigate impacts.

Environmental impacts

Most of the environmental impacts which were identified in the EIA are due to the construction phase of the project. These include increased levels of air, soil water and noise pollution, limitations on traffic circulation, interruptions in services, harm to existing green areas, and others.

Possible impacts during operation include air, noise, soil and water contamination from the terminals and parking/maintenance areas, increased pressure on the protected area Pantanos de Villa, and increased accidents due to improper design.

Environmental benefits predicted by the EIA include a rationalization of the 'collective' transport system, a decrease in travel time, and the reduction of air and noise pollution.

Social impacts

The EIA identifies the main social impacts as those related to employment and social security. The impact on displacement and/or reduction of informal commerce is discussed.

Social benefits outlined in the EA include improved comfort and security for passengers, generation of employment during construction and operation, a new culture related to transport, and a new participatory civic culture.

Impacts on cultural heritage

The only archeological site proximate to the corridor is the Pampa Cueva, located at the intersection of Avenida Tupac Amaru and Avenida Las Americas. The culturally historical centers of both Lima and Barranco-Chorillos affected by the project are legally protected by the National Cultural Institute. The EIA does not predict that construction or operation to have a negative impact on any of these sites.

Environmental guidelines for bus scrapping

These guidelines were developed to ensure that the vehicle scrapping program is implemented in an environmentally-friendly manner, guaranteeing proper disintegration of the buses, reuse/rehabilitation of parts and final disposal.

Environmental impacts
Impacts possible from the physical scrapping of the buses include ground and water contamination from improper handling and disposal of liquid and solid wastes, including parts containing hazardous materials such as heavy metals, and improper management of recycling operations. Public safety could be affected should defective parts be allowed to re-enter the market after scrapping.

10. List of factual technical documents:

11. Contact Point:

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Note: This is information on an evolving project. Certain components may not be necessarily included in the final project.