

## MODERNIZATION OF SURFACE TRANSIT IN SANTIAGO, CHILE

(TC-00-09-02-4)

### EXECUTIVE SUMMARY

<b>Beneficiary:</b>	Republic of Chile	
<b>Executing agency:</b>	Ministry of Transportation and Telecommunications (MTT), through its Office of Transportation (SUBTRANS).	
<b>Amount and source:</b>	Modality:	Window 1
	MIF	US\$1,250,000
	Local:	US\$1,250,000
	Total:	US\$2,500,000
<b>Implementation:</b>	Execution period:	30 months
	Disbursement period:	34 months
<b>Objectives:</b>	To modernize the surface transit system in metropolitan Santiago, Chile by granting a new round of concessions to private operators. To that end, support and follow-up will be provided for the legal, regulatory, financial, technical, and operational aspects of bidding procedures to provide services.	
<b>Description:</b>	This project will help create a modern and efficient mass transit system in metropolitan Santiago, Chile by designing new private sector concessions for system operation. The operation will provide enhanced institutional and operational arrangements, and will encourage investments by the companies in vehicles, equipment, repair shops, and other permanent facilities, and in the technologies necessary to implement the system. To that end, the operation will develop the technical and financial bases that will reorganize mass transit by private sector concessions granted through competitive bidding, a process also supported by the project.	
<b>Special contractual conditions:</b>	As a condition precedent to the first disbursement, MTT/SUBTRANS will submit the terms of reference and schedule of the main activities to the Bank for the Bank's nonobjection. Upon project approval, MTT will receive US\$20,000 to hire a consultant to assist it in preparing the terms of reference for the main activities, which will not subject to any disbursement restrictions (see paragraph 3.25). A consultant will also be hired to conduct the mid-term and final evaluations of the main activities (see paragraph 3.27).	

**Environmental  
and social  
review:**

The Committee on Environment and Social Impact reviewed the project at its meeting on 2 February 2001. Its recommendations have been incorporated into this document (paragraphs 5.2 through 5.4).

## **I. COUNTRY ELIGIBILITY**

- 1.1 The Donors Committee declared the Republic of Chile eligible for all modalities of MIF funding at its meeting of 6 October 1993. The proposed project is consistent with Facility I criteria defined when the MIF was established, as it will contribute to the development and modernization of the legal, financial, and regulatory framework for a private competitive sector that provides urban surface transit services.

## **II. BACKGROUND**

### **A. The sector**

- 2.1 Private operation of urban buses is a longstanding practice in Chile, with three clearly delineated phases marked by different government regulatory policies. During the first phase, which ended in 1980, the State regulated the fares, routes, and schedules of urban buses in metropolitan Santiago. Regulation was based on controversial negotiations with business owners and their union representatives, and led to poor quality service and an undermining of the State's regulatory, supervisory, and control functions.
- 2.2 The second phase began in 1980, when urban mass transit was fully deregulated under the free market philosophy that was yielding positive results in other sectors of Chile's economy. It was believed that by granting full freedom to bus owners, the market would establish a balance between supply and demand, including the type of vehicles used, quality of service, cost to the consumer, geographical coverage, and frequency of service. However, deregulation resulted in the highest mass transit fares in Latin America and one of the lowest levels of service. In real terms, fares increased 200% during the period of deregulation while vehicle occupancy rates fell by half. Drivers of small buses (the predominant mass transit vehicle at the time) blocked traffic in their efforts to gain passengers, stopping anywhere on the road without regard to bus stop location. Consumers did not have access to a reliable information system since service was based on the *laissez-faire* approach: drivers could change their routes at any time or withdraw their vehicles from service whenever they saw fit. Most vehicles were purchased used from other countries, and were among the most highly polluting in the Southern Cone. Nonetheless, deregulation had a positive effect in that it cut passenger waiting times while expanding the area served.
- 2.3 The third phase began in 1990 when, through a combination of technical regulations and bidding procedures to provide service, minimal regulations were implemented to lend structure to the system. Vehicle specifications (technical features and dimensions) were introduced, as were bidding for the use of certain main roads in Santiago, mandatory removal from service of old and polluting vehicles (the State provided financial compensation to owners of 4,000 vehicles),

prohibitions against importing used vehicles, national registration of mass transit vehicles, and mandatory company affiliation to operate a mass transit vehicle. By the late 1990s, the State had reserved certain lanes for mass transit vehicles on some of the city's main streets.

- 2.4 The results of the third phase have been very positive, marked by a significant increase in vehicle quality and significant real reductions in fares (to US\$.50, one of the lowest fares in metropolitan areas in the Southern Cone). However, this progress has not produced a modern and efficient system. For example, the type of bus used has a conventional boarding system with high steps at the entrance and manual fare collection, making passenger access difficult and keeping buses at bus stops for a third of the total route travel time. The engine and emissions control systems are efficient only in comparison to the previous situation, and available technologies have not been incorporated. Routes have been established only along certain runs that correspond to the bidding for permits in the 1990s. Only a small number of lanes has been set aside for separate or priority bus schemes, requiring buses to travel in congested and slow traffic along much of their routes.
- 2.5 Public transportation is by far the predominant transit system for residents of Santiago. The city has 8,000 buses that carry approximately 5 million passengers daily. The metro and other public services carry an additional 1.6 million passengers which, taken together, account for 69% of all vehicular trips. The transportation structure is rounded out by 800,000 private automobiles that make 2 million trips daily.
- 2.6 The vehicular mass transit system business is characterized by a highly dispersed organizational structure with fewer than 1.5 buses per owner, making it difficult to introduce changes to the system's operational structure. The grouping of these owners into associations and routes that are not organized as businesses fails to take advantage of economies of scale and tax exemptions. Existing contracts have not been fully implemented, since most of the 311 routes are not set up as formal companies fully compliant with existing commercial laws. All these aspects limit financial regularization of the operating companies, and the ability of the granting and regulatory authority to intervene.
- 2.7 In the proposed system, capitalization of the companies will vary by the category of corridor (main, feeder, or cross-connector routes) served by the concessionaire. This will enable existing operators to organize and consolidate into companies that are compatible with their technical and financial resources.

**B. Prior experiences in the region**

- 2.8 The experience of Chile is well known in Latin America and throughout the world. Where urban mass transit services were deregulated, the result was poor quality and unreliable service, and high prices for the consumer. Therefore, effective regulatory

action is necessary to provide this essential public service efficiently; in practice, the differences relate to the level of the regulatory burden and who is in charge of operating the service. The experience of Latin America, unlike that of developed countries (United States, Western Europe, Japan) where public sector operation is the norm, has tended mainly toward services provided by private operators.

- 2.9 In the countries of the region, there are three distinct stages of development in urban mass transit services provided by private operators: (i) *low level of development*, marked by weak private operating companies with low capitalization and no access to credit, based on independent vehicle owners grouped into fragile service-provider associations; generally, permits are not guaranteed and government lacks significant regulatory, supervisory, and control authority; (ii) *intermediate level of development*, with medium and large-sized companies that have an adequate level of organization and capitalization, with solid permits and concessions, backed up by an adequate legal framework. Intermediate development qualification relates to the form of operations, in which mass transit vehicles are not given priority in the use of urban roadway infrastructure; and (iii) *high level of development*, perhaps the best example of which is Curitiba, Brazil, where a system defined by extensive planning and public sector regulation has created a reliable and widely accepted high-capacity system.
- 2.10 The significance of the scheme that the Government of Chile is seeking to implement is that for the first time, a large Latin American city will make the qualitative leap from a low level of development to a level between the other two more advanced levels. If the experiment proves successful, it may be emulated in other large and medium-sized cities throughout the region, both those that are presently caught in models of low development and relative inefficiency and those that are at an intermediate level of development, which must transition to a more complex model to keep mass transit from losing consumers to individual transportation options owing to an inability to satisfy increased demand.

### **C. Chile's strategy in the sector**

- 2.11 Urban mass transit is key to the government's strategy for restoring the economic efficiency of the city, which is now threatened by traffic congestion. This compels the population to resort to private means of transportation, further aggravating congestion and adding to environmental pollution and the high costs of urban operation. The pollution issue was studied in depth in the *Plan for Preventing Atmospheric Pollution in the Metropolitan Region* (1998, revised in 2000), while the cost issue was addressed in the *2000-2006 Santiago Urban Transit Plan*. The government is promoting the creation of a modern and efficient public transportation system, resulting in improved institutional and operating conditions and stimulating private investments in the sector.

- 2.12 To consolidate institutional management, one person is now in charge of the Ministry of Public Works and the Ministry of Transportation and Telecommunications. In the near future, these two departments will be combined, facilitating management of the transportation sector in terms of regulatory affairs, investment, and infrastructure management and in terms of the transportation services it provides.

**D. The Bank's strategy in the sector**

- 2.13 The Bank clearly supports active intervention in urban mass transit, for various reasons: (i) social equity and the fight against poverty: Urban mass transit is the transit option of choice for the low-income sectors. Improving its quality and supply while reducing costs expands the access of poor city residents to the job market and to social and community services; (ii) rational use of public space: Latin American cities generally have a limited number of urban streets and avenues. Expanding those roads is impossible without massive investment resources, which are generally lacking. If that space is allocated for private transportation, only a minority of the population will benefit from this public asset; (iii) urban economic efficiency: in these circumstances, reducing congestion and pollution caused mainly by private means of transportation is vital if cities are to function and maintain their competitiveness; and (iv) roadway safety: the number of private vehicles increases congestion and raises the risk of traffic accidents. The lack of adequate mass transit motivates low-income sectors to purchase old, polluting, and dangerous vehicles.
- 2.14 Therefore, the Bank clearly supports urban transit and roadway activities, provided that mass transit is the means of intervention.

**E. MIF experience in Chile and in the sector**

- 2.15 The Ministry of Public Works successfully completed a MIF technical cooperation operation (ATN/MH-5053-CH, Strengthening of the Public Works Concessions System, US\$1,468,000) which supported the government-backed *Public Infrastructure Concessions Program*. That operation yielded considerable experience in the area of complex concessions and privatization operations, management and preparation of bidding documents, concession contracts, negotiation processes, etc., which was a valuable learning experience for the task now facing the MTT which this project will support.
- 2.16 Concession of mass transit services involves work in an area that is conceptually and technically different from the infrastructure program referenced above in which, although examples of private sector involvement abound, the quality of regulation and the system for bidding on and awarding services is different, and is generally of low quality and reliability. This technical cooperation operation will provide experience in an area requiring divergent preparatory procedures intended for different publics.

### **III. THE PROJECT**

#### **A. Objective**

- 3.1 To modernize the surface transit system in metropolitan Santiago, Chile by granting a new round of concessions to private operators. To that end, monitoring and support will be provided for the legal, regulatory, financial, technical, and operational aspects of bidding procedures to provide services, until the private operators assume operations. This process is the core of the government's *2000-2006 Santiago Urban Transit Plan*, which is now in the process of receiving citizen input while its various subprograms are being worked out. The objective is to maintain or improve mass transit's share of daily trips within the city.

#### **B. Structure of the project**

- 3.2 The government is seeking to create a modern urban mass transit system; therefore it must define the basic parameters that make the system attractive to the private sector, leaving it up to the private sector to choose the most efficient way to address service specifications, and to provide and operate vehicles. These concessions must identify the routes along which the various companies may operate, the frequency of service, the technical specifications of the mass transit vehicles, fares and fare collection technology, operating costs and the estimated profitability of the routes, and the scheme for physical and fare integration. The government will also define an investment plan for improving public infrastructure and a timetable for making the improvements available, since these investments will affect the costs and feasibility of certain technologies and lines. These investments are not part of this project, and will be carried out simultaneously by the MTT.
- 3.3 The MTT has made significant advances in terms of the technical studies that support this project and make it viable, specifically the available detailed studies of demand for the various means of public and private transportation in Santiago, including mass transit and individual transportation options.
- 3.4 The proposed project includes all the components of a broad and ambitious urban mass transit reform program involving private sector participation: (i) conceptual design of the mass transit system; (ii) the legal and regulatory framework for privatization of urban mass transit; (iii) economic and financial conditions, and the fare structure<sup>1</sup>; (iv) technical and operating conditions of the service; (v) analysis of the tax structure; (vi) support for existing private operators; (vii) the system of supervision and control of concessions; (viii) relations with consumers and other stakeholders; and (ix) support for the concession bidding process.

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<sup>1</sup> These conditions will include the environmental issues discussed in paragraph 5.3.

## **C. Components**

### **a. Conceptual design of the mass transit system (MIF: US\$390,000; local: US\$170,000)**

- 3.5 Owing to the significance of mass transit in Santiago, improvements should be based not on a combination of unconnected services, but rather on an integrated system that analyzes its various component parts and determines the present and future role of each in relation to all the others.
- 3.6 The urban mass transit system presently comprises all rail (metro) and automotive options. The rail system is the backbone, but development and construction costs and the amount of time involved make rail expansion difficult. Automotive mass transit comprises an unsystematic set of services, the most important of which are bus, taxi, and minibus services. However, this structure is no longer capable of meeting the growing needs of the urban population. Radical change is necessary to prevent demand for urban mass transit, specifically mass transit, from continuing to decline and losing ground in Santiago's transit system.
- 3.7 The characteristics of the design for the urban mass transit system are: (i) high-capacity main corridors comprising the existing metro route and new corridors to be created for automotive traffic using vehicles with modern technology, and operating methods that maximize the use of those corridors. These corridors will connect high-demand centers to each other; (ii) low and medium-demand feeder corridors for the high-capacity corridors, served by medium-capacity vehicles; (iii) cross-connector corridors linking medium-demand centers; (iv) bus services of assorted quality, performance, and price; (v) minibuses; and (vi) taxis.
- 3.8 The relative share of the various mass transit system components, the demand for each of those components, the operating characteristics, price, supply, type of service operator, regulatory framework and granting of concessions, supervision and control procedures, etc., are all vital aspects for guiding the restructuring of this public service and the private sector's involvement in providing that service. By its nature, this component is the key element of the technical cooperation operation. A 24-month execution period is planned for this component.

### **b. Legal and regulatory framework for privatization of urban mass transit (MIF: US\$50,000; local: US\$50,000)**

- 3.9 The existing legal and regulatory framework is not applicable to the planned urban mass transit system. This component will permit a review and updating of regulations that apply to concessions of urban mass transit services through an analysis of comparable legislation. Emphasis will be placed on the rights and responsibilities of the granting authority and the concessionaires, supervision and

control authority, and consumers' rights. This effort will produce the rules and regulations necessary to regulate urban mass transit services provided by private-sector operators within a modern, stable, predictable, and equitable framework.

- 3.10 This component will also develop the documents used for bidding on services slated for privatization, the contract that will bind private service providers to the granting authority, and other legal, technical, operational, and financial regulations that will ensure the transparency and stability of the system. Like the procurement component mentioned in paragraph 3.23, this component will benefit from the MTT's experience in road infrastructure concessions (paragraph 2.15). The component will be carried out from month 3 to month 12 of the technical cooperation operation.

**c. Economic and financial conditions, and fare structure  
(MIF: US\$140,000; local: US\$140,000)**

- 3.11 This component will cover four main activities: (i) cost analysis of the various services; (ii) fare structure and integration; (iii) management and distribution of revenues; and (iv) financial parameters for privatization of service.
- 3.12 The first activity will determine and quantify the costs of providing bus service in Santiago, in order to identify the characteristics of a typical company, among other things. This will include determining investment, operating, incremental, private, and social costs, which will make it possible to estimate operator profitability. The second activity will make it possible to support the process of setting rates based on objective criteria agreed upon in general with the providers, as in other State-regulated public utility services provided by the private sector (telecommunications, gas, water, electricity, etc.). These costs and revenues will reflect a line or bus company operating in compliance with regulations and meeting the needs of consumers, with a profit level to be defined in the same analysis.
- 3.13 These results may be used to define such parameters as fare systems, fare collection mechanisms, the cost of the different routes, and the fare integration scheme when passengers transfer between bus lines or from one mode of mass transit to another. Fare integration is key to the success of the urban transit plan for Greater Santiago, since it will enable the various modes of transit in the city to work together, increasing the attractiveness of mass transit for consumers while reducing the risk that private transportation options may gain ground.
- 3.14 The third activity involves defining and designing the method of sales, collections, and distribution of revenues, which must be flexible, accessible to all consumers, compatible among the various modes of transit and services offered, equitable, and resistant to fraud; this may require an organization to coordinate, receive, and allocate moneys collected. For buses alone, daily receipts amount to more than

US\$2 million; therefore the alternative of granting a concession for this clearing house function is a possibility to be addressed in this component.

- 3.15 This analysis will also help identify services that, owing to their nature, may not require economic regulation. The results obtained will help set the financial parameters to be incorporated into the service privatization process. This activity, like the others, will be closely linked to the review of the legal and regulatory framework, and will be carried out from month 8 to month 18 of the technical cooperation operation.

**d. Technical and operating conditions of the service  
(MIF: US\$50,000; local: US\$340,000)**

- 3.16 This component, which is essential for creating an adequate mass transit system, will define the technical, operational, and economic conditions in which the service will be provided. Obtaining clear results in this component will help create solid concessionaries and obtain valid offers. The planned subcomponents are:

- (i) *analysis, design, and operation of transfer stations, transfer centers, and mass transit stops*: oriented toward the physical and operational design of facilities for changing between different modes of mass transit (metro, bus, and minibus), in accordance with the consumers' time and space requirements. This component will be carried out between month 3 and month 12.
- (ii) *typical mass transit vehicles*<sup>2</sup>: will define the technical, operating, mechanical, and energy characteristics of vehicles that will provide mass transit services in the next several years. The selected specifications will, in combination with the other elements of the system, help improve consumer access to vehicles and reduce time spent at vehicle stops, environmental pollution, and traffic accidents<sup>3</sup>. The component will be carried out from month 21 to month 29.

**e. Analysis of the tax structure (MIF: US\$60,000; local: US\$70,000)**

- 3.17 Taxes affect the structure of the business sector that provides urban mass transit services. The development of mass transit and its priority with respect to private transit, as well as the fact that it must be economically accessible to consumers -particularly to low-income commuters- means that special attention

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<sup>2</sup> Buses, taxis, and minibuses.

<sup>3</sup> This activity will define vehicle type and size, fuel, emissions standards, access for persons with disabilities, and other parameters that affect the economic and operational conditions of the concession. Special consideration will be given to the environmental impact of urban mass transit when defining these parameters.

must be paid to the tax structure, to determine whether it corresponds to the desired objectives of development, accessibility, and social equity. This component will provide an analysis of the impact that the various taxes have on urban mass transit costs, and will study how to implement recommendations that may need to be supported by changes in tax laws, in order to ensure that these objectives are attained. Another objective is to guarantee consistent compliance with tax and social security payments for all urban mass transit operators. This task will be performed from month 3 to month 24.

**f. Support for existing private operators (MIF: US\$50,000; local: US\$10,000)**

- 3.18 Owing to the operating structure of the service provided, the private sector is scattered and disorganized (paragraph 2.6); assisting the private sector in business, organization, and financial growth is an essential part of the desired reform. This component will support the executing agency's work with existing private operators on a program of organization, training, and analysis that will enable them to prepare to compete with a fair chance of success in the bidding process. Even in services that remain structurally similar to existing services, business integration, organization, and operational modalities will have to undergo a fundamental change in order to adapt to the demands of the new system. While certain segments of demand may be covered by new operators who do not require this sort of assistance, many corridors, given the volume of business, will attract only the private operators now in business; however, if they are not properly trained for the new requirements, they will form a weak link that may jeopardize the entire system.
- 3.19 This task will be performed through workshops, round tables, and support for specific consulting operations. It will also address the most appropriate business types for the new operating structure, and methods for bringing existing operators together to form companies, using the tools that the Promotion Council of the Ministry of Economic Affairs –which supports small and medium-sized enterprises– has used successfully for more than a decade. Mass transit operators' cooperatives may also be a suitable alternative. The execution period is 30 months, and work will begin with the start of the technical cooperation operation.

**g. System of supervision and control of concessions (MIF: US\$195,000; local: US\$175,000)**

- 3.20 This component has two clearly differentiated parts that are integral to the regulatory capacity, which is defined by punitive instruments (service quality evaluation criteria, system of sanctions, and imposition of sanctions):
- (i) *mechanisms and procedures*: the supervision and control mechanisms will serve as an essential part of the regulatory framework; performance indicators will be based on the parameters for providing

service, and the system of sanctions that may be imposed on operators will be reviewed. The requirements for mechanical approval testing of vehicles will be a significant part of the regulatory framework, as will parameters for the psychological and physical evaluation and qualification of urban mass transit vehicle drivers. The organizational structure of the agency responsible for service supervision and control will also be reviewed, as will the number and training of staff, technical and administrative procedures, and the necessary equipment.

The feasibility of introducing operation control technologies (intelligent transportation systems [ITS]) will also be determined. These systems simplify supervisory intervention, rendering the intervention more objective. The information thus obtained will be used to control and supervise the proper provision of mass transit services, verifying compliance with such operational aspects as frequency of service, routes, geographic coverage, schedules, maximum vehicle capacity, fares charged, etc., to ensure the quality and constant improvement of the service provided.

- (ii) *training*: to ensure that these objectives are met, the control agency will have trained professionals and a staff of suitably trained and qualified transit inspectors to enforce the regulations that establish the urban mass transit system. To that end, a subcomponent for training and qualification of regulators and inspectors has been included. The system and procedures for imposing sanctions are an essential element of this activity. This component will be carried out from month 3 to month 32.

#### **h. Relations with consumers and other stakeholders (MIF: US\$70,000; local: US\$40,000)**

- 3.21 Consumers' ease of access to services is key to acceptance and success. To that end, a system will be developed to provide information on routes, schedules, waiting times, vehicle capacity, frequency of operation, types of service (main lines, feeder lines), fare collection system, and transfer sites. To achieve this, guides, maps, and sign posts with informational signs and notices will be prepared, along with online bus stop maps and other tools designed as elements of a mass transit information system, based on a geographical information system. Additionally, the information that consumers must be given on buses will be defined. Finally, a consumer care and complaints system will be developed.
- 3.22 The various municipalities in metropolitan Santiago have jurisdiction over the roadway infrastructure and its maintenance. The project will support the institutional agreements necessary to make the new surface transit model effective, as those agreements are part of the preparatory work for bidding. Clear cooperation

already exists between the municipalities and the MTT. This component will be implemented at the start of the technical cooperation operation, from month 3 to month 8.

**i. Support for the bidding process (MIF: US\$35,000; local: US\$25,000)**

- 3.23 This component will provide legal, technical, and financial support for the authorities responsible for the process during the phases of bidding, bid evaluation, and awarding and signature of contracts. This support is essential so that the bidding process will be conducted within the legal and scheduling parameters required to achieve the objectives of mass transit system reform. The project will draw on the experience that the Ministry of Public Works gained during execution of the roadway infrastructure concession program (see paragraph 2.15), implementing this component by hiring individual consultants to provide monitoring and support for the bidding process. This task, which will take eight months to accomplish, will begin toward the end of the technical cooperation operation.

**D. Administration and supervision**

- 3.24 SUBTRANS will be responsible for project administration and supervision. SUBTRANS has the technical resources and sufficient expert capacity to execute this task in full, as the Office already has full-time consultants engaged in urban transit planning and other tasks that complement this project. The allocation of resources in the table of costs (US\$40,000) reflects costs directly associated with this task.

**E. Special contractual conditions**

- 3.25 As a condition precedent to the first disbursement, MTT/SUBTRANS will submit the terms of reference and schedule of main activities to the Bank for the Bank's non objection. To help comply with the conditions precedent to the first disbursement, a consultant will be hired to assist the MTT in formulating the terms of reference for the main components (*a. conceptual design of the system; b. legal and regulatory framework; c. economic and financial conditions and fare structure; g. concession supervision and control system*), *the plan and schedule of execution of the technical cooperation operation, and the definitive procurement plan* relating to individual components. The cost of this consultant is estimated at US\$20,000, to be financed in full by the MIF contribution. Use of these resources will not be subject to any disbursement restrictions.

**F. Monitoring**

- 3.26 The executing agency will be responsible for monitoring and preparation of the relevant reports. A six-month progress report will be prepared, documenting the

activities performed during the period. Additionally, a plan of operations and a disbursement schedule will be prepared for the following period. The progress report will be submitted for approval to the Bank's Country Office within 30 days following the close of the respective six-month period. Annex 1 presents a logical framework of the elements for project execution, monitoring, and evaluation.

- 3.27 The Country Office will be responsible for monitoring the operation. Given the innovative nature of this technical cooperation operation, the project team at Bank headquarters will remain involved in technical aspects of program execution, participating in reviewing the terms of reference, analysis of technical proposals, evaluation and discussion of interim and final reports, participating in workshops, etc. Therefore, it is recommended that resources from the contribution be used to hire an independent consultant to perform a mid-term and final evaluation of the technical cooperation operation. Since the operation has clearly delineated stages defined by tasks whose completion will have a marked influence on the final result, these mid-term and final evaluations should not be interpreted in chronological terms, but in terms of the progress in the main components. The estimated cost is US\$80,000.

#### **G. Accounting and auditing**

- 3.28 As part of its accounting and auditing responsibilities, the executing agency will: (i) establish and maintain adequate accounting, financial, and internal controls, as well as a filing system that will make it possible to obtain detailed information about the source and use of project funds. The project books will include: (a) a list of sums received from various sources; (b) information on project spending, distinguishing between MIF contributions and funds from other sources; and (c) the details necessary to determine which goods have been procured and which services contracted; (ii) open separate and specific bank accounts for administration of the MIF contribution and local counterpart funds. This will be a condition precedent to the first disbursement; (iii) process Bank disbursement requests; and (iv) prepare and submit to the Bank the audit of the project's annual financial statements and the six-month revolving fund reports. To that end, the MTT will hire an independent outside auditing firm which will audit the financial statements of the technical cooperation operation until the operation is completed.

#### **H. Cost and financing**

- 3.29 The total project cost is US\$2,500,000, of which US\$1,250,000 is to be financed by MIF and US\$1,250,000 by the Government of Chile. All resources will be used to pay for the components presented in the attached table. Most of the counterpart contribution will be made in cash; contributions in kind, for administrative expenses, will not exceed 20% of the cost of the project.

- 3.30 Complementary investments and the relevant technical justifications that are the responsibility of the public sector, such as the partition of roads, marking of exclusive-use lanes, signage systems, and bus stops will be made by the MTT, and do not appear in the table of costs for the operation; financing for these activities is not being requested.

#### I. Table of estimated costs

Component	Resources (US\$ in thousands)			Execution (months)
	Total	MIF	Local	
Conceptual design of the urban mass transit system	560,000	390,000	170,000	18
Review of the legal and regulatory framework	100,000	50,000	50,000	10
Economic and financial conditions, and fare structure	280,000	140,000	140,000	10
Technical and operating conditions of urban mass transit				
Transfer stations, transfer centers, and stops	240,000	30,000	210,000	9
Characteristics of the typical vehicle	150,000	20,000	130,000	10
Analysis of the tax structure	130,000	60,000	70,000	20
Support for existing private operators	60,000	50,000	10,000	30
Supervision and control system				
Mechanisms and procedures	330,000	165,000	165,000	12
Training of regulators and inspectors	40,000	30,000	10,000	24
Relations with consumers and other stakeholders	110,000	70,000	40,000	6
Support for the bidding process	60,000	35,000	25,000	12
Financial auditing	50,000		50,000	30
Mid-term and final evaluations	80,000	80,000		30
Preparation of terms of reference	20,000	20,000		2
<b>Subtotal</b>	<b>2,210,000</b>	<b>1,140,000</b>	<b>1,070,000</b>	
Scaling and contingencies	250,000	110,000	140,000	
Administration and supervision	40,000		40,000	
<b>Total</b>	<b>2,500,000</b>	<b>1,250,000</b>	<b>1,250,000</b>	

### IV. PROJECT EXECUTION

#### A. Executing agency

- 4.1 The executing agency will be the Ministry of Transportation and Telecommunications (MTT), through its Office of Transportation (SUBTRANS). The functions of SUBTRANS are: (i) to be the immediate collaborator of MTT, in compliance with sector policies defined by the government; (ii) to design, execute, and supervise transit and transportation policies and standards, particularly those

relating to mass transit that ensure improved and greater community access to that service; (iii) to supervise public and private businesses that operate Chile's transportation system; and (iv) to verify compliance with the laws, regulations, and standards that govern transit services offered in Chile. SUBTRANS has the capacity to execute this project and to implement the mass transit concessions.

**B. Project administration**

- 4.2 SUBTRANS has the professional, material, and financial resources to execute the project efficiently. Joint management of the Ministry of Transportation and Telecommunications and the Ministry of Public Works provides an opportunity to combine the experience of the MTT in urban mass transit with the Ministry of Public Works' experience in privatization and concessions (see paragraph 2.12).

**C. Procurement**

- 4.3 The MIF contributions will be used to provide domestic and international consulting services and to cover related expenses (travel allowances, airfares, operating expenses, etc.). The local counterpart resources will be used for the same purpose, and to finance the administrative expenses of the executing agency and the hiring of an outside auditing firm.
- 4.4 Procurement of goods and contracting for the consulting services necessary for project activities will be done in accordance with applicable Bank procedures; project procurement and contracting will be open to all MIF member countries. The conditions to be applied and the terms of reference, when appropriate, will receive the Bank's nonobjection.

**D. Execution period**

- 4.5 The main components of the project will be executed over a 30-month period, and the government has planned to open the bidding in late 2003. The disbursement period is 34 months.

**E. Revolving account**

- 4.6 The MTT will open a special independent account at a commercial bank acceptable to the Bank. The authorized allocation to this special account will not exceed 5% (US\$62,500) of the MIF contribution. The Bank will replenish the revolving account resources when it receives the relevant disbursement requests from the beneficiary. SUBTRANS will oversee the use of the account and will prepare the disbursement requests in the name of the beneficiary. These requests will be submitted monthly or when the account balance falls below 66% of the authorized amount.

**F. Monitoring and evaluation**

- 4.7 This project is of great significance to Chile and to the Bank. Santiago is the first major city to attempt a structural change in its urban mass transit system without that change being conditional upon a major infrastructure project, such as the construction of a metro system. Therefore, by emphasizing bidding to provide services and a qualitative change in structure of those services, the results of this project will have an invaluable demonstration effect for countries in the region. In light of this significance, monitoring and evaluation of the project will be handled by the Country Office and Headquarters (RE1/FI1). Therefore, a minimum of two administration missions will be conducted, in addition to participation in workshops to present and evaluate results, and missions at key moments in the bidding process. Hiring an independent consultant to provide the mid-term and final evaluation of the project's main components is an essential element of the lessons expected to be learned through this operation; it is recommended that the consultant be hired using the resources of the contribution (see paragraph 3.27).

**V. VIABILITY AND RISKS**

**A. Institutional, economic, and financial viability**

- 5.1 Institutional viability is ensured by the MTT's demonstrated capacity in managing its routine operations. The MTT has a competent professional staff, clear procedures, and experience in managing privatized sectors, which will prove valuable in this project.

**B. Environmental impact**

- 5.2 Owing to the nature of the activities to be undertaken, the project will not have any environmental impact. However, the concessions are expected to have a mainly positive environmental impact because old and highly polluting vehicles will be replaced by vehicles with modern technologies. Improvements in urban mass transit may also lessen negative environmental impacts by drawing consumers away from private transportation options to the new services, thereby reducing roadway congestion, and by incorporating new technologies that reduce emissions and environmental pollution.
- 5.3 The project's components will examine such topics as vehicle technology and emissions, the safety that such vehicles offer to passengers and users of public thoroughfares, accessibility to persons with disabilities, the elderly, and the infirm, urban impacts at changing and transfer centers<sup>4</sup>, and vehicle repair shops and

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<sup>4</sup> The Bank's standards will be applied particularly if expropriation, resettlement, or relocation of informal commerce should prove necessary (which will be kept to a minimum).

garages of concessionaires<sup>5</sup>. At all times, the project's components will maintain a comprehensive overview of the urban mass transit system and the environmental impact it will have. Specifically, the concessionaires' environmental obligations will be included during preparation of bidding documents.

- 5.4 In order to include the necessary environmental provisions in the design parameters for the new mass transit system, the MTT will work closely with the National Commission on the Environment, which will take active part in managing the project. Among other tasks, the Commission will be involved in reviewing the terms of reference applicable for contracting in individual project components.

### **C. Benefits**

- 5.5 The direct beneficiaries are the population of metropolitan Santiago, the operators of public transportation services, and the granting and regulatory authority. Benefits to the population include shorter travel times and lower transportation costs, broader geographical coverage and increased frequency of operation, modern and reliable services, a reduction in air pollution, and an increase in workforce productivity and the competitiveness of the region's economy. Business owners in the mass transit sector will benefit from an improved regulatory environment, enabling them to modernize their vehicles and operations. Conditions will be provided to allow existing associations of bus owners to form more highly capitalized and more stable companies. The State will benefit from a modern regulatory framework and increased capacity for supervision and control of services.

### **D. Risks**

- 5.6 The main risk derives from the limited financial and technical capacity of the private sector that provides transit services, which is not positioned to make the qualitative leap to a transit system that is radically different from the present system in terms of organization and operational structure. The operation will address this risk by working continuously with operators to prepare them for the qualitative and quantitative leap from the old to the new system, by training and organizing them so that they may participate as valid and competitive bidders in the process of bidding to provide services.
- 5.7 Another potential risk is that the presence of better organized and economically stronger companies may lead to the capture of regulators, a risk that is practically nonexistent today. The emphasis placed on procedural considerations and the training of regulators and inspectors should keep this risk to a minimum.

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<sup>5</sup> Municipal governments will be responsible for granting permits for vehicle repair shops and garages. The concession contract will explicitly state that the concessionaire is responsible for compliance with municipal regulations on the issuance of permits for such premises, and for compliance with applicable environmental regulations.

**MODERNIZATION OF SURFACE TRANSIT IN SANTIAGO, CHILE**  
**LOGICAL FRAMEWORK**  
**(TC-00-09-02-4)**

Objective	Indicator	Verification	Assumptions
<b>Goal</b>			
Public transit system modernized through a new round of concessions to private operators	<p>By 3/2005, in comparison to 3/2000:</p> <ul style="list-style-type: none"> <li>Run times will be reduced by 30% on main roads and by 15% on secondary roads</li> <li>Bus NOx and PM<sub>10</sub> emissions/passenger-km will be reduced by 60%</li> </ul> <p>A set of performance indicators for transit corridors will be developed by 12/2002</p>	<ul style="list-style-type: none"> <li>Travel times measured by the SUBTRANS</li> <li>Emissions measured by SUBTRANS</li> </ul>	
<b>Purpose</b>			
Process for bidding to provide services successfully completed, and services operated by the new concessionaires	<p>By 1/2005:</p> <ul style="list-style-type: none"> <li>Concessions granted to private operators under the new legal, financial, and operational conditions are in operation</li> <li>The supervision and control system is in place and functioning</li> </ul>	<ul style="list-style-type: none"> <li>Concession contracts awarded by the MTT</li> <li>SUBTRANS report on functioning, staff performance, and supervision and control system operations</li> </ul>	<ul style="list-style-type: none"> <li>The government continues to prioritize mass transport over individual transportation options</li> <li>The project receives support from mayors in the metropolitan region</li> </ul>
<b>Components</b>			
<i>Conceptual design of the urban transit system</i> concluded and relevant elements incorporated in bidding documents to provide services	Specifications for the following areas are completed by 10/2003:		

Objective	Indicator	Verification	Assumptions
	<ul style="list-style-type: none"> <li>• Main corridors</li> <li>• Location and functional design of passenger transfer terminals between modes of transportation and from one bus line to another</li> <li>• The consumer payment scheme and the operator compensation scheme</li> <li>• Geographical coverage and service schedule of the urban mass transit system</li> </ul>	<ul style="list-style-type: none"> <li>• Consultant report approved by SUBTRANS</li> <li>• Incorporation of recommendations in the bidding documents to provide services</li> </ul>	<ul style="list-style-type: none"> <li>• A basic policy agreement is reached on the medium and long term role of urban mass transit in Santiago's transportation system</li> <li>• Private bidders are interested in providing urban mass transit service under the conditions provided</li> <li>• The present jurisdiction over urban mass transit is maintained</li> </ul>
<b>Review of the legal and regulatory framework</b> completed and the new framework approved and implemented	Urban mass transit regulations are approved by 2/2003 The regulations have been incorporated by 10/2003 into the bidding documents for providing urban mass transit services	<ul style="list-style-type: none"> <li>• Official publication of the regulations</li> <li>• Completed documents available at SUBTRANS</li> </ul>	
<b>Economic and financial conditions</b> and <b>fare structure</b> reviewed and a proposal completed	The consulting work is concluded by 12/2002 Pertinent elements have been incorporated by 12/2003 into the bidding documents for providing urban mass transit services	<ul style="list-style-type: none"> <li>• Consultant report available at SUBTRANS</li> <li>• Bidding and other documents prepared by SUBTRANS</li> </ul>	<ul style="list-style-type: none"> <li>• Operators will accept the proposed model and its economic and financial conditions</li> </ul>
<b>Technical and operational conditions</b> defined with respect to: <b>Transfer stations, transfer centers, and stops</b> <b>Characteristics of the typical vehicle</b>	By 10/2003: <ul style="list-style-type: none"> <li>• The geographical location and functional design of the transfer stations and centers will be determined</li> <li>• The technical standards for vehicle design and permitting will be approved</li> </ul>	<ul style="list-style-type: none"> <li>• Consulting firm reports available at SUBTRANS</li> <li>• Technical documentation of progress in this activity</li> </ul>	<ul style="list-style-type: none"> <li>• Support from the city of Santiago through issuance of land use standards, transit regulations, financial contributions, and allocation of land</li> <li>• The desired technology is available at a cost that is compatible with the consumers' ability to pay</li> </ul>

<b>Objective</b>	<b>Indicator</b>	<b>Verification</b>	<b>Assumptions</b>
<b><i>Analysis of the tax structure</i></b> Completed and its recommendations implemented	The consulting firm's report is completed by 12/2002 SUBTRANS will inform the operating companies of the results and provide the necessary training by 12/2003	<ul style="list-style-type: none"> <li>• Consultant report available at SUBTRANS</li> <li>• Technical progress documentation prepared by SUBTRANS</li> <li>• Recommendations included in the bidding documents</li> </ul>	<ul style="list-style-type: none"> <li>• The tax structure reflects the priority granted to mass transit over individual transportation options</li> </ul>
<b><i>Strengthening private operators</i></b> Strengthened and capable of competing in the bidding process	80% of operators have participated in workshops and training activities by 4/2003 Operators have organized by 6/2003 to deal with the restructured services	<ul style="list-style-type: none"> <li>• Report on workshops held and the number of participating operators available at SUBTRANS</li> <li>• Operators participating in the new concessionaire companies</li> </ul>	<ul style="list-style-type: none"> <li>• Existing operators see bidding for providing urban mass transit services as an opportunity for business growth and development</li> </ul>
<b><i>Inspection and control system</i></b> Improved and functioning  <b><i>Mechanisms and procedures</i></b>   <b><i>Regulator and inspector training</i></b>	<p>The inspection and control standards will be approved and adopted by 4/2003, including</p> <ul style="list-style-type: none"> <li>• A system of sanctions</li> <li>• Procedures in place for applying sanctions</li> <li>• 20 regulators and inspectors participating in the training courses</li> <li>• 10 workshops held with 100 participants</li> <li>• Dissemination and training materials distributed</li> <li>• Administrative structure updated</li> </ul>	<ul style="list-style-type: none"> <li>• Standards published and available at SUBTRANS</li> <li>• SUBTRANS progress report</li> <li>• Standard updating the administrative structure</li> </ul>	<ul style="list-style-type: none"> <li>• The government provides SUBTRANS with a staff of regulators and inspectors that is sufficient to carry out the task</li> </ul>

Objective	Indicator	Verification	Assumptions
<b>Interactions with consumers and other stakeholders:</b> consumers and other stakeholders consulted in its development have the information need to use the urban mass transit system well	<p>A suitable consumer information system is implemented by 1/2004, including:</p> <ul style="list-style-type: none"> <li>Dissemination materials prepared</li> <li>Consumer information guide published</li> <li>Other services implemented and functioning</li> </ul>	<ul style="list-style-type: none"> <li>Consulting firm report on the system to be used</li> <li>SUBTRANS report on system implementation</li> </ul>	<ul style="list-style-type: none"> <li>Consumers are interested in helping define the city's mass transit system</li> <li>SUBTRANS sets up adequate and accessible consultation mechanisms</li> </ul>
<b>Bidding process</b> ready	<ul style="list-style-type: none"> <li>Improvement in the bidding documents used</li> <li>Open system for consultation by potential bidders</li> </ul>	<ul style="list-style-type: none"> <li>Periodic consultant and SUBTRANS reports</li> <li>Significant private-sector participation in bidding to provide service, in compliance with the proposed conditions</li> </ul>	<ul style="list-style-type: none"> <li>Bidding on urban mass transit services proceeds according to the established schedule</li> </ul>
<b>Mid-term and final evaluation</b> performed	<ul style="list-style-type: none"> <li>Work progresses according to the established schedule, and the expected results are achieved</li> </ul>	<ul style="list-style-type: none"> <li>Submitted periodic progress reports</li> </ul>	<ul style="list-style-type: none"> <li>Competent consultants available in the market</li> </ul>
Activities			
<p>General</p> <p>Consulting firms hired</p> <p>Training workshops held</p>	<ul style="list-style-type: none"> <li>Firms contracted and available to execute the activities according to the expected schedule and costs</li> <li>Tasks progress as expected; materials available; coordination among activities</li> <li>Consultants hired and working; appropriate dissemination means</li> <li>Products obtained on time and in proper form</li> </ul>	<ul style="list-style-type: none"> <li>SUBTRANS budget approved</li> <li>Terms of reference approved</li> <li>Consulting contracts signed</li> <li>Progress reports on the various studies and activities</li> <li>Periodic SUBTRANS reports</li> <li>Country Office reports</li> <li>Administration missions</li> </ul>	<ul style="list-style-type: none"> <li>The SUBTRANS budget includes the financial resources needed to execute the activities</li> <li>Experience and technical knowledge are available in MF member countries</li> <li>The contracting process proceeds without unnecessary delays</li> </ul>

Objective	Indicator	Verification	Assumptions
Conceptual design of the urban mass transit system contracted	<ul style="list-style-type: none"> <li>Firm hired starting in the third month of the technical cooperation operation</li> <li>Cost budgeted (US\$560,000) and counterpart resources (US\$170,000) allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	
Review of the legal and regulatory framework contracted	<ul style="list-style-type: none"> <li>Firm hired starting in the third month of the technical cooperation operation</li> <li>Cost budgeted (US\$100,000) and counterpart resources (US\$50,000) allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	
Analysis of the economic and financial conditions and the fare structure contracted	<ul style="list-style-type: none"> <li>Firm hired in accordance with the established schedule</li> <li>Cost budgeted (US\$280,000) and counterpart resources (US\$140,000) allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	
Analysis of the technical and operational conditions contracted Transfers stations, transfer centers, and stops Characteristics of the typical vehicle	<ul style="list-style-type: none"> <li>Firm hired in accordance with the established schedule</li> <li>Cost budgeted (US\$390,000) and counterpart resources (US\$340,000) allocated</li> <li>The selected technology is compatible with what is available in the market at the planned prices</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	
Analysis of tax structure contracted	<ul style="list-style-type: none"> <li>Firm hired in accordance with the established schedule</li> <li>Cost budgeted (US\$130,000) and counterpart resources (US\$70,000) allocated</li> <li>Consultation and coordination system in place with the office of taxation</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	

Objective	Indicator	Verification	Assumptions
Design to support existing private regulators contracted	<ul style="list-style-type: none"> <li>Firm hired in accordance with the established schedule</li> <li>Cost budgeted (US\$60,000) and counterpart resources (US\$10,000) allocated</li> <li>Half-yearly workshops held</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> <li>Records and lists of those attending the workshops available at SUBTRANS</li> </ul>	
Design of the supervision and control system contracted  Mechanisms and procedures Regulator and inspector training	<ul style="list-style-type: none"> <li>Firm hired in accordance with the established schedule</li> <li>Cost budgeted (US\$370,000) and counterpart resources (US\$175,000) allocated</li> <li>Training courses designed and given</li> <li>Five regulators and 15 inspectors spend 40 staff/months in training</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> <li>Register of courses given and attending experts available at SUBTRANS</li> </ul>	
Analysis of relations with consumers and other stakeholders contracted	<ul style="list-style-type: none"> <li>Firm hired according to the established schedule</li> <li>Cost budgeted (US\$110,000) and counterpart resources (US\$40,000) allocated</li> <li>Five focus groups held</li> <li>NGOs representing consumers invited to participate</li> <li>Adequate resources for publishing guides available</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> <li>Minutes of meetings held</li> <li>List of NGOs invited to participate</li> </ul>	
Design of support for the bidding process contracted	<ul style="list-style-type: none"> <li>Firm hired according to the established schedule</li> <li>Cost budgeted (US\$60,000) and counterpart resources (US\$25,000) allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	

Objective	Indicator	Verification	Assumptions
Service for mid-term and final evaluations contracted	<ul style="list-style-type: none"> <li>Consulting firm hired according to the established schedule</li> <li>Cost budgeted (US\$80,000) and allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	
Service for preparation of terms of reference contracted	<ul style="list-style-type: none"> <li>Consultant hired according to the established schedule</li> <li>Cost budgeted (US\$20,000) and allocated</li> </ul>	<ul style="list-style-type: none"> <li>Consulting contract, technical progress reports, and final report available at SUBTRANS</li> </ul>	

**PROPOSED RESOLUTION**

**CHILE. NONREIMBURSABLE TECHNICAL COOPERATION FOR A PROGRAM FOR  
THE MODERNIZATION OF SANTIAGO'S PUBLIC SURFACE TRANSPORTATION**

**The Donors Committee of the Multilateral Investment Fund**

**RESOLVES:**

1. That the President of the Inter-American Development Bank, or such representative as he shall designate, is authorized, on behalf of the Multilateral Investment Fund, to enter into such agreement(s) as may be necessary with the Republic of Chile and to adopt such other measures as may be pertinent for the execution of the plan of operations incorporated in the donors memorandum referred to in Document MIF/AT-\_\_\_\_ with respect to a technical cooperation for the Modernization of Santiago's Public Surface Transportation.

2. That up to the amount of one million two hundred and fifty thousand dollars of the United States of America (US\$1,250,000) or its equivalent in other convertible currencies, is authorized for the purpose of this resolution, chargeable to the Technical Cooperation Facility of the Multilateral Investment Fund.

3. That the above-mentioned sum is to be provided on a nonreimbursable basis.