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CHILE

HIGHWAY IMPROVEMENT PROGRAM

(CH0041)

LOAN PROPOSAL

NOVEMBER 1990

CHILE
HIGHWAY IMPROVEMENT PROGRAM
(CH-0041)

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ABBREVIATIONS

MOP:	Ministry of Public Works
DV:	Bureau of Roads
IBRD:	International Bank for Reconstruction and Development
EXIMBANK:	Export Import Bank of Japan
PROMECA:	Highway Improvement Program
MTC:	Ministry of Transport and Communications
MIDEPLAN:	Ministry of Planning and Cooperation
LIS:	Low-Income Sector

Basic Socioeconomic Data of Chile

1. General

Total Population Estimated Through December 1989 (Thousands)	12,752.0
Percentage of Urban Population	83.0
Land Area (Km2) (Thousands)	756,629.0
Population Density by Inhabitant per Km2 (1989)	16.9
Population Growth Rate (1970-89) (%)	
Country Total	1.7
Metropolitan Region of Santiago	2.5
Birth Rate per 1,000 Inhabitantes (1980-87)	24.2
General Mortality Rate per 1,000 Inhabitantes (1980-85)	6.7
Infant Mortality Rate per 1,000 Live Births (1980-87)	22.8
Life Expectancy at Birth (1980-87)	71.3
Urban Population Provided with Drinking Water (1985)	
(% of the Total Urban Population)	94.31
Number of persons per Medical Doctor (1982)	1,000.0
Literacy Rate (%) (1987)	92.5
Energy Consumption per Capita in Kwh (1983)	1,065.0
Low Income Level per Inhabitant	
(December 1988 in pesos)	141,556
(December 1989 in pesos)	178,000
(April 1990 in pesos)	184,950
<u>Exchange Rate</u> (Pesos per Dollar)	
Average 1984	98.5
Average 1985	160.9
Average 1986	192.9
Average 1987	219.4
Average 1988	245.0
Average 1989	267.2
<u>Labor Force</u> (Thousands of Inhabitants)	
Country Total (January-March 1990)	4,688.5
Gran Santiago (December 1989)	1,890.7
<u>Employment</u> Country Total (January-March 1990) (Thousands of Persons)	
Employed	4,439.9
Unemployed	248.6
Laid-off	206.4
Seeking Employment for the First Time	42.2
<u>Employed Population by Economic Activity</u> (Country Total)	
(Percentage of Total Employment, January-March/)	100.0
Agriculture, and Fishing	19.6
Quarry and Mining	2.4
Manufacturing Industries	16.5
Construction	6.5
Trade	17.3
Government and Financial Services	4.4
Electricity	0.5
Communal and Social Services	25.7
Transportation, Storage and Communications	7.1
Unemployment Rate (National Average, January-March, 1990) (%)	5.3

<u>National Accounts</u>	<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>					
GDP (Millions of Current Pesos)	1,075,269	2,576,638	3,246,106	4,159,762	5,411,025	6,744,812					
GDP (Millions of 1977 Pesos)	363,446	356,447	376,627	398,230	427,530	470,111					
	<u>Composición</u>					<u>Real Annual Growth Rate b/</u>					
	<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1976-79</u>	<u>1980</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Domestic Product (GDP)	100.0	100.0	100.0	100.0	100.0	7.5	7.5	6.3	2.4	5.7	5.7
Expenditure on GDP a/											
Government	84.5	83.5	81.6	79.0	75.8	7.3	4.0	1.3	-1.0	3.8	3.8
Private	72.2	69.3	68.9	67.6	65.3	7.7	6.5	1.3	-1.1	4.9	4.8
Public	12.3	14.2	12.7	11.4	10.5	-1.1	-5.9	1.5	-0.3	-2.1	-2.1
Domestic Investment	18.0	13.7	14.6	16.9	17.0	18.2	-0.2	75.5	-6.6	13.1	25.8
Fixed Investment	17.2	14.2	14.6	16.0	16.8	8.7	24.4	9.0	14.8	7.1	16.2
Exports of Goods and Services	21.1	29.1	30.6	33.5	37.4	15.4	12.7	6.8	6.9	9.8	8.8
Imports of Goods and Services	23.6	26.3	26.8	29.4	30.2	19.1	8.7	16.5	-11.0	9.7	17.0
Origin b/											
Agriculture and Fishing	8.3	9.6	9.9	9.6	9.5	2.7	1.8	7.5	5.6	8.8	3.2
Mineral	7.2	8.7	8.4	7.9	7.7	9.0	5.4	4.4	2.2	1.4	0.0
Manufacture	21.5	20.4	20.8	20.8	21.0	7.9	6.2	9.8	1.2	8.0	5.5
Construction	5.3	5.8	5.5	5.8	5.7	1.4	25.7	4.2	16.1	1.3	10.6
Electricity, Gas and Water	2.1	2.6	2.6	2.5	2.6	6.3	5.9	7.0	3.5	6.5	3.8
Transportation, Storage and											
Communication	5.5	5.6	5.7	6.0	6.2	8.3	11.1	6.0	5.5	8.1	10.1
Trade	18.5	16.7	16.7	17.0	17.4	14.6	10.8	5.0	1.7	5.5	7.5
Others	31.6	30.6	30.4	30.4	29.9	10.3	6.6	5.5	-0.8	5.0	5.8

Current market prices.
Constant prices of 1977.

Source: Banco Central de Chile. Boletín Mensual (various numbers) e información directa proporcionada al BID.

	Millions de Dólares						Annual Growth Rate			
	1980	1985	1986	1987	1988	1989a/	1980	1985	1986	1987
<u>External Trade</u>										
<u>Exports of Goods (FOB)</u>	<u>4,705</u>	<u>3,804</u>	<u>4,199</u>	<u>5,224</u>	<u>7,052</u>	<u>8,080</u>	<u>22.7</u>	<u>4.2</u>	<u>10.4</u>	<u>24.4</u>
Agriculture	340	515	683	796	930	995	28.8	20.3	32.6	16.6
Manufacture	1,751	1,168	1,420	1,824	2,273	2,613	25.2	-7.3	21.5	28.5
Mining	2,615	2,121	2,096	2,603	3,849	4,473	20.4	8.2	-1.2	24.2
(Copper)	(2,125)	(1,789)	(1,757)	(2,235)	(3,416)	(4,021)	-	11.5	-1.7	27.9
<u>Imports of Goods (CIF)</u>	<u>6,145</u>	<u>3,268</u>	<u>3,436</u>	<u>4,396</u>	<u>5,292</u>	<u>7,144</u>	<u>30.5</u>	<u>-10.6</u>	<u>5.1</u>	<u>27.9</u>
Consumption	2,070	751	754	900	1,089	1,492	-	-26.2	0.4	19.4
Intermediate	2,801	1,867	1,947	2,395	2,833	3,703	-	-9.5	4.3	23.0
Capital	1,274	650	735	1,101	1,370	1,949	34.6	13.5	13.1	49.7

	Millions of Dollars					
	1980	1985	1986	1987	1988	1989a/
<u>Balance of Payments</u>						
<u>Current Account</u>	<u>-1,971</u>	<u>-1,329</u>	<u>-1,137</u>	<u>-811</u>	<u>-167</u>	<u>-905.0</u>
Trade Balance	764	849	1,100	1,229	2,219	1,578
Exports FOB	4,705	3,804	4,199	5,223	7,052	8,080
Imports FOB	5,469	2,955	3,099	3,994	4,833	6,502
Net Services	-1,320	-2,239	-2,320	-2,163	-2,563	-2,723
Net Transfers	113	61	84	126	177	240
<u>Capital Account</u>	<u>3,241</u>	<u>1,229</u>	<u>797</u>	<u>1,021</u>	<u>1,102</u>	<u>1,525</u>
Foreign Investment	170	112	319	923	1,011	1,583
Other Capital Flows	3,071	1,117	478	98	91	-58
Errors and Omissions	50	-3	88	-91	-110	-53
Change in Reserves	1,321	-103	-252	122	825	568
Current Account/GDP (%)	7.1	8.3	6.9	4.3	0.7	3.6
Exchange Rate (Pesos per Dollar Annual Average)	39.0	160.9	192.9	219.4	245.0	267.2

eliminary.

: Banco Central de Chile.

	Central Government (Percentages of GDP a/						Public Sector (Percentage of GDP)			
	<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>Public Finances</u>										
Current Revenue	32.9	31.2	32.5	33.4	34.4	33.1	51.2	55.3	54.7	n.a.
(Tax Revenue)	(24.1)	(20.0)	(21.5)	(20.8)	(19.8)	(20.5)	(24.1)	(n.a.)	(n.a.)	(n.a.)
Current Expenditure	26.5	28.4	27.5	25.0	22.9	23.1	40.6	49.3	48.5	n.a.
Current Account	6.4	2.8	5.0	8.4	11.4	9.9	10.6	6.0	6.2	n.a.
Capital Expenditure	4.6	5.0	5.8	5.9	7.5	4.4	7.3	10.3	11.5	n.a.
Deficit (-) Superavit (+)										
Total <u>b/</u>	3.5	-1.9	-0.5	2.5	3.9	5.5	5.5	-1.9	-1.7	n.a.

Includes Central Government, municipalities and decentralized institutions.
Adjusted with capital revenue.

Not available.

ce: Ministerio de Hacienda, Dirección de Presupuesto y Contraloría General de la República.

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Credit System a/	Millions of pesos as of December 31st						Annual Growth Rate (%)			
	1980	1985	1986	1987	1988	1989	1980	1985	1986	1987
Sector Money (M1)	78,206	128,549	181,724	199,598	364,026	412,244	-4.0	11.3	41.4	9.8
y	36,082	79,521	108,560	135,698	181,536	221,623	20.9	12.6	36.5	25.0
Deposit	42,124	49,028	73,164	63,900	182,490	190,621	-25.0	-8.0	49.2	-26.6
osit	129,311	388,299	462,226	757,603	964,277	1,309,414	75.3	40.1	19.0	63.9
ivate Sector plus										
osit (M2)	207,517	516,847	643,950	957,201	1,328,303	1,721,658	45.5	31.6	24.6	48.6
System b/										
Domestic Currency	324,780	1,334,355	1,543,703	1,984,240	2,356,750	3,239,166	63.3	31.7	15.7	28.5
Foreign Currency										
ns of Dollars)	5,614	2,636	2,563	2,633	2,943	3,083	41.6	-29.0	-0.3	2.7

Central Bank of Chile, Banco del Estado and private institutions.
monetary system and other financial institutions.

al Bank of Chile. Boletin Mensual (several ussues).

	Annual Rate (Percentage)							December to December (Percentage)					
	1975	1980	1985	1986	1987	1988	1989	1975	1980	1985	1986	1987	1988
	375.0	35.1	30.7	17.6	19.9	14.8	17.0	340.7	31.2	26.4	17.4	21.5	12.7
	482.0	39.6	43.4	19.8	19.2	5.9	15.1	410.9	28.1	30.2	18.2	17.1	3.3
gor	486.1	28.8	33.0	19.2	28.1	30.1	25.9	-	-	-	-	-	-
	55.94	99.17	64.28	62.29	81.09	118.00	129.11	-	-	-	-	-	-

al Exchange. Cents per pound, annual average.

tuto Nacional de Estadística (INE) and Central Bank of Chile (BCEH).

	Millions of Dollars at Year-end						
	<u>1976</u>	<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
<u>Total External Debt</u>	<u>5,233</u>	<u>11,207</u>	<u>20,529</u>	<u>20,829</u>	<u>20,660</u>	<u>18,960</u>	<u>17,518</u>
<u>External Public Debt</u>	<u>4,275</u>	<u>5,186</u>	<u>15,164</u>	<u>17,091</u>	<u>17,832</u>	<u>16,014</u>	<u>13,293</u>
Short Term	287	343	1,564	1,384	1,655	1,601	1,901
Medium and Long Term	3,475	4,720	12,515	14,379	14,725	13,091	10,124
Financial Public Sector	541	1,257	5,269	5,608	5,749	4,809	3,268
Non Financial Public Sector	2,904	3,391	5,836	5,836	6,302	6,211	5,776
Private Sector with Publicly							
Guaranteed	30	72	2,001	2,935	2,674	2,052	1,060
International Monetary Fund	513	123	1,085	1,328	1,452	1,322	1,268
<u>Private Debt</u>	<u>958</u>	<u>6,021</u>	<u>5,365</u>	<u>3,738</u>	<u>2,828</u>	<u>2,946</u>	<u>4,225</u>
Short Term	159	1,328	230	303	362	585	1,072
Medium and Long Term	799	4,693	5,135	3,435	2,466	2,361	3,153
<u>Total External Debt Service</u>		<u>1980</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
Service (Amortization + Interest)							
(Millions of Dollars)		2,600	2,469	2,467	1,974	2,447	2,620
Service/Exports of Goods and							
Non Factor Services (%)		43.6	55.2	48.2	31.3	29.6	27.6

In amortization the FMI is excluded.
 e: Central Bank of Chile (BCCH).

9. <u>IDB Loans Approved from 1961</u> <u>Through December 31, 1989</u>	<u>Millions</u> <u>of Dollars</u>	<u>Relative</u> <u>Composition</u>	<u>Disbursement</u> <u>(Millions of</u> <u>Dollars)</u>	<u>Percentage</u> <u>of Total</u> <u>Commitments</u>
<u>Total Committeddo</u>	<u>3,583.2</u>	<u>100.0</u>	<u>2,559.9</u>	<u>71.4</u>
Ordinary Capital	3,336.2	93.1	-	-
Fund for Special Operations (FSO)	203.3	5.7	-	-
Social Progress Trust Fund (SPTF)	34.3	1.0	-	-
Other Funds	9.4	0.2	-	-
<u>By Sector</u>				
Agriculture and Fishing	700.4	19.6	-	-
Industry and Mining	632.5	17.7	-	-
Transportation and Communication	444.0	12.4	-	-
Energy	957.8	26.7	-	-
Public Health	213.7	6.0	-	-
Urban Development	564.1	15.7	-	-
Education	28.9	0.7	-	-
Export Financing	3.9	0.1	-	-
Preinvestment	3.0	0.1	-	-
Tourism	34.9	1.0	-	-

Source: Inter-American Development Bank (IDB).

C H I L E
HIGHWAY IMPROVEMENT PROGRAM
(CH-0041)

LOAN PROPOSAL

I. BASIC INFORMATION ON THE OPERATION

Borrower and
guarantor:

Republic of Chile, which will also be responsible for providing the local counterpart for the program.

Executing
agency:

The Ministry of Public Works (Ministerio de Obras Públicas) (MOP), through the Bureau of Road (Dirección de Vialidad) (DV).

Request:

July 10, 1990, Ministry of Finance.

Purpose:

The general purpose of the Program is to support the government in its efforts to consolidate the administrative and operational structure of the highway subsector, to ensure efficient operation of the nation's highways through a balanced effort to rehabilitate, maintain and expand installed road capacity. The program has the following specific objectives: (i) to upgrade the condition of the main highway transport corridors to reflect their importance in the country's economic development policies; (ii) to provide adequate levels of road maintenance by striking a balance between spending on investments and on maintenance; (iii) to reestablish an efficient maintenance system for the secondary network, adopting suitable techniques to improve the execution of programs; (iv) to solve specific traffic congestion problems by expanding the capacity of existing roads and rehabilitating others; (v) to rehabilitate bridges that restrict vehicle access and circulation; and (vi) to strengthen the DV through a specific technical training program.

Description:

The proposed operation represents the government's total spending program on the highway subsector over the period 1990 to 1993, and includes: (i) investments for improvements, rehabilitation and consulting services (39% of the total cost); (ii) periodic and routine maintenance, purchases of minor equipment, studies and training (56%); and (iii) program administration (5%).

Program risks:

No risks have been identified associated with execution of this program, since the DV has adequate institutional capacity which it has demonstrated in

executing other programs partially financed by the Bank, and there are a sufficient number of qualified consulting and construction companies to carry out the work. Bank participation in the financing ensures that the resources required for total execution will be available.

Cost and
financing:

The total cost of the program is US\$785.8 million (including the financing costs of the proposed loan) which will be partially financed in foreign exchange from the prospective loan from the Bank's ordinary capital resources, in the equivalent of US\$246 million, which accounts for 31.3% of the total cost of the program. This is less than the 60% that the Bank is permitted to finance in foreign exchange under the provisions of document GN-1657-1 for projects in group B countries, to which Chile belongs. The International Bank for Reconstruction and Development (IBRD) will also participate in financing the program with a loan of US\$224 million, and Export Import Bank of Japan with US\$150 million. These two last loans have already been granted. Local counterpart resources will be used to finance US\$165.8 million.

Terms and
conditions:

The proposed terms and conditions for this financing will be: (i) terms: 4 years disbursement; 20 years amortization; 4 years grace; (ii) variable interest during the disbursement and amortization periods; (iii) credit fee of 0.75% on undisbursed balances, and inspection and supervision fee of 1% of the loan.

II. FRAME OF REFERENCE

A. Introduction

1. Characteristics of the Program

- 2.1 The Highway Improvement Program (PROMECA), which is the subject of this proposal, is chiefly intended to finance investment categories that have already been included in projects partially financed by the Bank in the Chilean highway subsector, i.e. construction, rehabilitation, improvement and maintenance of highways and roads. However, this program is different from the projects previously financed by the Bank in the highway subsector. It comprises the total spending on investments, maintenance and administration that the country proposes to make in the highway subsector from 1990 to 1993. However, Chilean authorities have made it flexible enough that it can be adjusted in response to the road system's requirements if necessary. Given its size and cost, the IBRD and EXIMBANK of Japan

are participating in the financing, and if the recommendation made in this proposal is accepted, the Bank will also play a role.

- 2.2 The proposed operation involves an inter-year spending program, which is a type of credit operation that has been used efficiently by the IBRD for a long time. In keeping with this type of operation, Chilean authorities have defined the overall structure for a spending program in the subsector for the period 1990 to 1993 which amounts to US\$907 million, ^{1/} and the criteria that will be used to determine the individual components that will be included in each of the program's cost categories. Execution of the program will strengthen and develop highway maintenance and rehabilitation, and prevent the premature deterioration of the capital already invested in roads. Annual reviews of budget allocations will seek to strike a balance between maintenance, rehabilitations and road improvements, reflecting the Government's economic priorities, objectives and policies, through a very flexible program. Dynamic and ongoing planning is required in the highway subsector, especially for highway and road rehabilitation and maintenance, which will allow programs for works, equipment, labor and funds to be flexibly adjusted to the demands of climate conditions, types and volumes of traffic, and administrative changes.
- 2.3 The size and cost of the program have been based on execution capacity and the overall budgetary resources allocated to the highway subsector. The methodology used calls for a yearly review of all the individual components to be incorporated into the program and of the budget for the following year. The criteria agreed to with government authorities for incorporating individual components into the program are described in Chapter III of this Loan Proposal. Preliminary negotiations held during the analysis of this operation and the conditions that the country has agreed to mean that each year the financing agencies and the government will meet to agree to the detailed program to be executed in the following year.

2. Institutional capacity

- 2.4 The success that the country has achieved in executing these kinds of programs is mainly due to the institutional capacity of the MOP and its DV, which have been the participating institutions. In executing different projects already financed by the Bank, the DV has demonstrated technical and administrative efficiency in the processes of identifying, evaluating and prioritizing projects. It has proven and responsive mechanisms for contracting and supervising works,

^{1/} The total cost of the program is composed of the US\$785.8 million under the proposed cofinancing, plus US\$152.3 million in programs underway (US\$49.1 million undisbursed balances from Bank loans 490/OC, 548/OC and 559/OC, and US\$103.2 million local counterpart) which means that the total spending program over the period in question will be US\$938.1 million, including US\$31.1 million in financing costs for the proposed loan.

through its thirteen regional directorates, which have been delegated authority to contract and supervise works up to US\$2 million under a process of decentralization, rationalization and improved efficiency. Concurrently, with support from the Bank and the IBRD, Chile has been making a consistent effort to upgrade and modernize its road network and maintenance system since the mid-1980s. From 1985 to 1989 with IBRD financing, the country executed an investment program in the highway subsector which has the same characteristics as the project under study here, and the IBRD rated the results as very satisfactory. This experience makes it possible to affirm that the necessary capacity exists to carry out the technical, economic and environmental studies for each project in a timely fashion, and to ensure that the execution schedules will be met.

3. Bank participation

- 2.5 Chilean authorities have indicated to the Bank that they attach priority to the proposed program as part of their public investment strategy. However, to ensure that the procedures used in the program and those used by the Bank dovetail (given current Bank policies, the nature of the program and the institutional capacity of the executing agency) certain Bank standards and procedures must be made more responsive for the purpose of coordinating them with IBRD and EXIMBANK requirements and the operational requirements of the program itself. This will prevent the borrower from experiencing a loss of efficiency or incurring unnecessary additional costs. It would be advantageous to streamline supervision of the bidding process by authorizing an ex post review through a sampling of the executing agency's records, instead of an ex ante evaluation. In parallel fashion, when reviewing disbursements it will be necessary to verify the supporting documents by sampling the DV's files. These aspects are dealt with in detail in Chapter IV of this document.

B. The highway subsector

1. The national highway system

- 2.6 Because Chile is long and narrow its transportation system has developed along a central trunk axis with east-west routes or branches running off towards the ports and mountains. This has meant that transport, especially by road, is a key factor in developing the country's economy. Close to 70% of freight and passenger transport is carried by highway, 20% by railway, 6% by water, 3% by oil pipeline, and 1% by air. The highway system is approximately 79,131 km long; 10,323 km (13%) are paved, 32,681 km (41%) are graveled and the remainder are dirt.
- 2.7 The road system is dominated by three large highways running from North to South (4,459 km in total) as follows: (1) the North-South highway or route 5 (running from Region I to Region X); (2) the Southern Highway (running from Region X to Region XI); and (3) route 9 in Region XII.

- 2.8 The basic road system is composed of 22,965 km of class A national highways (north-south routes and main east-west routes) and class B and C regional highways. There are also 56,166 km of class D and E primary and secondary local highways. This route classification according to function is based on Chile's geopolitical subdivisions into nation, regions and counties (see Table 1.1).
- 2.9 Based on the results of a detailed survey of approximately 76,000 km of roads, 30% of the system has been classified as being in very poor condition, 28% is poor, 32% is average, and 10% is good. These figures point to the effort that the country must make in the coming years to attain an efficient system (see Table 1.2).

2. Strategy and programming for the subsector

- 2.10 In recent years, the policies of the Chilean government have stressed the role of the private sector and rationalization of the public sector. With this goal in mind, the country has taken steps to gradually deregulate the transportation sector. These steps include: (a) removing of restrictions on entering the road transport industry; (b) efforts to eliminate subsidies to this sector; (c) charging for use of the public air, land and water infrastructure; (d) decentralizing the decision-making process for each type of transport with regard to tariffs, types of service and personnel policies; and (e) equal treatment for all types of service with regard to taxes and social contributions.
- 2.11 In the 1970s, Chile like most Latin American countries made an effort to expand its primary and secondary road networks to accompany the process of expanding the agricultural frontier and industrialization. However, as a result of the crisis that affected the economy from 1980 to 1985, Chile's spending on maintenance and improvements over the period fell far short of adequately covering the needs of the national highway system. This situation, together with the damage caused by the 1985 earthquake and the floods that hit the country in 1986, led to rapid deterioration in the road system, especially in the central part of the country, which is where most of the GDP is produced and most of the population lives.
- 2.12 Investments in the subsector over the last five years have focused on improving, reconstructing and maintaining the highway system, since Chile's economy depends to a large extent on exports of its products, especially copper, wood and fruit. Because fruit is perishable, trucks and highways must be in good condition so that shipments can be made quickly, minimizing damage, and keeping produce at temperatures that will ensure its quality when it reaches foreign markets.
- 2.13 For these reasons, the Government's investment strategy for the sector is to continue stressing investments and actions to achieve: (i) relief of traffic congestion that hampers efficient mobilization of harvests and products; (ii) consolidation of a modern road administration system with high technical and operational capacity;

(iii) fulfillment of maintenance and investment targets for the entire highway network, striking an adequate balance between maintenance and investment budgets; (iv) reduction in vehicle operating costs by boosting the efficiency of the transport sector; and (v) reduction in investments in road rehabilitation in the future by providing timely and adequate maintenance for the entire road system.

- 2.14 To facilitate attainment of these goals, the Ministry of Public Works (MOP), with support from the IBRD, sent a specialized technical team to conduct a detailed survey of the structural and surface conditions of the national highway system. The study was supplemented by a systematic program to study the performance of pavements. The two form an excellent basis for establishing specific goals for routine and periodic maintenance, rehabilitation, reinforcement of asphalt, gravel and dirt surfaces, and for adopting a good improvement program, including a separate study on expansions of capacity. The studies in question, carried out with the assistance of the Australian Highways Research Laboratory and experts and consulting companies, were reviewed by the Bank and are considered very acceptable.

3. Organization of the subsector

- 2.15 The Ministry of Transport and Communications (MTC) is responsible for defining and implementing policies in the transport sector. In addition, the MOP is responsible for the transportation infrastructure in general, highway planning, and with the help of the National Police Force, for collecting tolls and the vehicle weight checking program. In turn, the MOP's DV is responsible for constructing and maintaining all the public highways in the country, the city streets that connect them, the bridges on the highway system and urban bridges when commissioned to do so by the municipalities. With regard to highway maintenance, the DV is responsible for planning and supervision, while the MOP's regional directorates are responsible for execution.
- 2.16 An Urban Transport Commission has been in existence since 1982, which is the senior-level coordinator responsible for plans, policies and technical standards for the good development of urban road infrastructure and means of transport. In June 1990 its jurisdiction was broadened to cover interurban transport, and it is now called the Planning Committee for Investments in Transportation Infrastructure.
- 2.17 The Ministry of Planning and Cooperation (MIDEPLAN) ^{1/} ensures that proposed investments in the transportation sector have been adequately evaluated using established analytical procedures, and that they are feasible from the technical and economic viewpoints. It also ensures that investments conform to the public investment

^{1/} The former National Planning Office became MIDEPLAN under Law 18989 of July 19, 1990.

strategies defined by the government under its Social and Economic Program, which is the plan that sets general guidelines for investment levels in each sector. The operation under consideration is congruent with the country's current plans and programs for the economy and the highway subsector.

C. Programs for subsector investments and financing

- 2.18 Total investments in the highway subsector have held relatively steady over the last five years, at an average of US\$196 million for 1985-1989. Average financing from the Bank and the IBRD accounted for 36%. At present, Chile has defined in principle a six-year investment program from 1990 to 1996 at an estimated cost equivalent to US\$1,666.8 million. The paved and unpaved highway maintenance plan defined in principle by the authorities for 1994-1997 amounts to the equivalent of US\$312.8 million and for 1998-2004 would amount to the equivalent of US\$477 million. On average this would yield a cost per annum of US\$99 million over the eight years. Pursuant to their financial resource projections, the authorities have notified the Bank that the National Government intends to continue to use external credit resources to finance the foreign exchange requirements of future highway subsector programs. To this end, under the operating programs agreed upon in principle with the Bank and the IBRD, they have included external financing of subsequent stages of the program under the same form and type of operation as examined in this proposal.

D. Bank participation in financing projects in Chile

1. State of the portfolio

- 2.19 In general, the Bank's total loan portfolio in Chile, including loans to the highway subsector, is satisfactory. The majority of operations underway have not encountered difficulties in meeting their objectives under the terms and conditions set in the respective contracts. The adequate institutional capacity of the different executing agencies forms the groundwork for efficient and responsive execution of the different projects. As of September 1990, there were 19 operations underway for total financing of US\$1,701,300,000, of which US\$857,500,000 were available for disbursement. Table 1.3 lists and classifies these operations.

2. Financing for the highway subsector

- 2.20 The Bank has played a major and continuing role in financing the highway subsector. Since 1966 it has extended eight loans to Chile in the amount of US\$325.7 million for seven projects and programs to construct, rehabilitate, upgrade and maintain roads. The MOP's DV has executed all the projects. In addition, under two multiple works programs, urban and rural roads were financed in the equivalent of US\$48.9 million. Resources from Bank financings were used to cover priority needs in the primary network (Trans-Andes, North-South and Southern highways) and the feeder road system.

2.21 In general, all the operations have been or are being executed efficiently in conformity with the regulations. Evaluations of loans 98/SF, 231/SF and 341/IC-CH were included in documents PR-1179 of June 1981, and PR-1385 of November 1984. Loan 78/IC-CH (PR-1119) approved on July 8, 1981, received two extensions which increased its geographic coverage and the length of the roads to 1,022 km from the original 410 km. The equivalent of US\$3.5 million from the program was used to repair damage to highways caused by the floods in June 1986. The program was successfully completed in mid-1988, with 100% of the objectives attained, including construction of 1,022 km of two-lane highway. The Bank also participated in the sector through global multiple works loans 115/IC-CH and 141/IC-CH, which included city streets and rural roads subprograms that were efficiently executed. Three projects financed by the Bank are currently in different stages of execution, and their progress can be summarized as follows:

- Loan 490/OC-CH (PR-1385): Approved on December 6, 1984, for US\$37.7 million, and reformulated in October 1987 to replace four sections of highway that were to have originally been built using resources from outside the program for a least-cost alternative combining water and land routes. This alternative was financed with resources from the loan and a local counterpart that came from savings in execution. The physical advance of the reformulated project as of June 30, 1990, was 90% and no difficulties are expected in completing it fully by March 1991, as planned.
- Loan 548/OC-CH (PR-1630-A): Approved on October 26, 1988, for US\$35.5 million to finance a program to rehabilitate and improve approximately 120 roads in the basic and primary local networks, linking up centers involved in the production, consumption and export of farm, forestry and mining products, for a length of approximately 1900 km distributed among the country's thirteen regions. The program is being executed by the DV and its physical advance is in the order of 15%, which is close to schedule. The program, which is developing normally, is extremely important for the plans and strategy of the sector to upgrade and modernize the existing road network to gear it to growth in the country's different production areas and zones.
- Loan 559/OC-CH (PR-1649): Approved on December 7, 1988, for US\$45.5 million to finance a program to upgrade the urban street infrastructure. It provides for construction of 48 projects under the multiple works subprogram and four projects under the specific subprogram to upgrade avenues, streets and intersections to boost their carrying capacity, alleviate congestion and improve the environment in Chile's main cities. Overall, the works present a physical advance of 18%, and are on schedule. Five of the multiple works projects have been completed and are in use, eight are under construction and one is being contracted. One of the specific projects is under construction. The works that have been completed have met the planned objectives and have resulted in a drop in traffic congestion.

- 2.22 Judging from the operations discussed above, it can be concluded that the MOP has executed the programs efficiently and economically, complying on time with its various contractual obligations.

E. Action of other institutions

1. IBRD

- 2.23 The IBRD has also been a major financier of the Chilean highway subsector for six loans amounting to US\$583 million. The aim of these operations has been to support programs for the construction, upgrading and rehabilitation of close to 3,000 km of highway, periodic maintenance of another 3,000 km, preparation of feasibility studies and final engineering designs, and the development of administrative and operational maintenance capacity through technical assistance and funds to procure maintenance equipment and for studies of service and highway conditions. The IBRD's experience has been satisfactory both with regard to the physical execution of the programs and the progress made in bolstering the administrative and operational capacity of the MOP and the DV.
- 2.24 On September 28, 1989, the IBRD approved loan 3120-CH for US\$224 million to partially finance execution of the program under consideration here. As is noted below, EXIMBANK of Japan is also helping to finance this program.

2. EXIMBANK of Japan

- 2.25 EXIMBANK extended a loan for US\$150 million to help finance the program under study, which was signed on March 5, 1990. This financing is the first extended by EXIMBANK to Chile for investments in the highway subsector. Use of loan resources has already begun, and it is expected that they will be totally disbursed in the first three years of execution. The IBRD is administering this loan, and use of the resources is regulated under the policies and procedures agreed to between the government and the IBRD.

III. **THE PROGRAM**

A. Components

- 3.1 As has been said, the specific projects that will be included in the program will be proposed by the borrower in the final quarter of the preceding year and defined together with the financing agencies, as specified in Chapter IV of this proposal. The following is a list of components that will be eligible, in principle, for financing with program resources.

1. Investments

- 3.2 This category involves the most significant set of works in size and cost, including:

- Expansion of capacity for approximately 156 km, including bridges on the various sections of the North-South Highway and east-west highways with high traffic volumes and low levels of service due to heavy congestion;
- Construction, reconstruction, rehabilitation and improvements to existing paved and graveled roads and highways, based on economic priorities; this includes wearing courses, reinforcement or reconstruction of worn out pavement; upgrading dirt roads to graveled roads and graveled roads to paved roads, including the reconstruction and standardization of road beds; construction or upgrading of drainage works and replacement of bridges in poor condition; bypasses and underpasses; construction of guard rails; signals and signage; and other supplementary or special works required in specific cases;
- Reconstruction or replacement of approximately 13 major bridges in the national highway system, most of which are over 40 years old, restrict load capacity and run a high risk of collapsing;
- Provision of consulting services for technical, economic, and environmental studies and for coordination and supervision of civil works in the program, and for institutional strengthening.

2. Maintenance

- 3.3 One of the program's objectives is to promote a good balance between spending on maintenance and investments. To achieve this, the Bank will participate in maintenance components that provide for activities based on plans that are acceptable to the Bank, which will be supervised by it, including:
- (a) Periodic maintenance that includes: (i) sealing and recapping of treated roadways and shoulders; (ii) graveling and paving unpaved roads; (iii) repairs to drainage and culverts and bridges;
 - (b) Routine maintenance of Chile's basic network of approximately 23,000 km of roads; routine maintenance of the primary communal network with approximately 24,000 km of roads; and routine maintenance of the secondary communal network with a total of approximately 32,000 km of roads. The routine maintenance in question includes: sealing joints and cracks in paved roads, cleaning and maintaining drains, ditches and sewers, maintaining bridges and culverts, maintaining tunnels, toll booths and weighing stations, painting road markings, replacing highway signs, and snow removal;
 - (c) Emergency rehabilitation of roads and road structures in the event of unforeseen disasters; and
 - (d) Purchase and use of road maintenance equipment.

3. Personnel training

- 3.4 The program includes courses, seminars and studies to upgrade the skills of personnel involved in maintaining the national highway system, and is expected to provide: (a) training for about 3,400 officials, including professionals, technicians and administrators; (b) training for highway instructors; (c) study visits abroad for approximately 45 of the DV's managers and professionals; (d) instructional training materials; and (e) development of ongoing training policies.

4. Consulting services

- 3.5 As part of program execution, consulting services will be contracted and used for civil works, including coordination, engineering studies, assistance with inspections of major civil works, continuation of the studies to assess pavements, studies on how to upgrade the pavement management system, especially the HDM III, and technical and economic studies to determine future activities by the MOP and the DV. Studies are also planned on:

- (a) Updating the data processing system for the rates paid by truckers;
- (b) Evaluating the costs and benefits of highway training programs over the period 1986 to 1989, and measuring the impact of these training programs;
- (c) Determining the procedures necessary to set up a computerized information system on transport to produce data that can be published periodically;
- (d) Improving methods for identifying and evaluating the need for expanded capacity; and
- (e) Improving and developing methods to evaluate the indirect environmental impact of highway projects and for revising and updating policies, standards and procedures.

B. Selection criteria

- 3.6 Generally speaking, not less than 50% of the total budget for the program will be channeled into road maintenance and rehabilitation works during the execution period.
- 3.7 The works included in the first two years of the program have been defined using the MOP's selection scheme, which is acceptable to the Bank. To ensure the technical and economic viability of the projects or individual components to be presented to the Bank for possible inclusion in the program, an agreement has been reached with the MOP that the following criteria will apply:

- (a) The components must belong to the basic road network or the local road network.
- (b) Improvement, rehabilitation and periodic maintenance programs must have been selected and evaluated using the HDM-III model or alternatives agreed upon with the Bank, and have minimum returns of 12%.
- (c) The work must consist of providing the maintenance or upgrading required by the road conditions, renewing existing road surfaces or replacing them with surfaces that are technically and economically more satisfactory in view of traffic conditions, topography, etc.
- (d) In projects for secondary roads and bridges, the internal economic rate of return must be 12% or higher.
- (e) Projects must include the necessary steps to mitigate negative impact on the environment as far as possible, following the guidelines agreed upon with the Bank.

C. Characteristics of the projects

3.8 In addition to the selection criteria mentioned above, only improvement or rehabilitation projects with the following characteristics will be considered for inclusion in the program:

- (a) They must conform to the guidelines established in the Highways Manual of the DV of the MOP;
- (b) They must provide for comprehensive upgrading or rehabilitation of roads, i.e. they must include all the structural and supplementary works for wearing courses, and road protection;
- (c) Improvements in alignment must be the minimum required in conformity with the design characteristics established in Volume 3 of the MOP's Highway Manual, applying those that correspond to the category of the road.

D. Total cost of the program

3.9 The total cost of the program to be cofinanced by the Bank, the IDRB and EXIMBANK of Japan is estimated as equivalent to US\$785.8 million, which includes US\$31.1 million for the financing costs of the prospective Bank loan. The following table gives the program costs to be cofinanced, distributed by cost category and source of financing:

TOTAL COST OF THE PROGRAM AND FINANCING

(equivalent in millions of US\$)

<u>Investment category</u>	<u>IDB</u>	<u>IBRD</u>	<u>EXIMBANK</u>	<u>Local</u>	<u>Total</u>	<u>(%)</u>
1. Engineering and administration	--	<u>14.3</u>	--	<u>42.4</u>	<u>56.7</u>	7.2
1.1 Supervision	--	<u>14.3</u>	--	<u>4.4</u>	<u>18.7</u>	
1.2 Administration	--	--	--	<u>38.0</u>	<u>38.0</u>	
2. Direct costs	<u>195.0</u>	<u>182.0</u>	<u>135.0</u>	<u>105.1</u>	<u>617.1</u>	78.5
2.1 Investments	<u>82.0</u>	<u>38.6</u>	<u>29.0</u>	<u>26.1</u>	<u>175.7</u>	22.3
2.1.1 Road widening	<u>28.6</u>	<u>34.4</u>	<u>25.8</u>	<u>18.1</u>	<u>106.9</u>	
2.1.2 Bridges	<u>3.4</u>	<u>4.2</u>	<u>3.2</u>	<u>2.3</u>	<u>13.1</u>	
2.1.3 Improvements	<u>50.0</u>	--	--	<u>5.7</u>	<u>55.7</u>	
2.2 Maintenance	<u>113.0</u>	<u>141.4</u>	<u>106.0</u>	<u>79.0</u>	<u>439.4</u>	55.9
2.2.1 Periodic	<u>93.0</u>	<u>105.4</u>	<u>79.0</u>	<u>50.0</u>	<u>327.4</u>	
2.2.2 Routine	<u>20.0</u>	<u>36.0</u>	<u>27.0</u>	<u>29.0</u>	<u>112.0</u>	
2.3 Equipment	--	<u>2.0</u>	--	--	<u>2.0</u>	
3. Escalation	<u>25.0</u>	<u>27.0</u>	<u>15.0</u>	<u>12.9</u>	<u>79.9</u>	10.2
4. Associated costs	--	<u>0.7</u>	--	<u>0.3</u>	<u>1.0</u>	
4.1 Technical studies	--	<u>0.1</u>	--	--	<u>0.1</u>	
4.2 Environmental studies	--	--	--	<u>0.2</u>	<u>0.2</u>	
4.3 Training	--	<u>0.6</u>	--	<u>0.1</u>	<u>0.7</u>	
5. Financial costs	<u>26.0</u>	--	--	<u>5.1</u>	<u>31.1</u>	4.0
5.1 Interest	<u>23.5</u>	--	--	--	<u>23.5</u>	
5.2 Credit fee	--	--	--	<u>5.1</u>	<u>5.1</u>	
5.3 Bank inspection and supervision	<u>2.5</u>	--	--	--	<u>2.5</u>	
TOTAL	246.0	224.0	150.0	165.8	785.8	100.0
PERCENTAGE	31.3	28.5	19.1	21.1	100.0	

E. Program financing

1. Bank financing

- 3.10 The Bank's share in financing the proposed program will be in foreign exchange from ordinary capital resources for a total equivalent to US\$246 million, which accounts for 31.3% of the total cost of the program. As indicated in the cost table, the resources will mainly be used to finance approximately 31.3% of the direct costs and escalation. Up to the equivalent of US\$20 million will be used to acquire materials, equipment and spare parts for routine maintenance.

2. Local contribution

- 3.11 Counterpart resources are estimated as equivalent to US\$539.8 million, which will come from the sources mentioned below and be used to partially finance the cost of civil works, maintenance, personnel training, administration, general supervision, contingencies, cost escalation and financing costs. The funds will come from the following sources:

- Treasury of the Republic: the national contribution will be equivalent to US\$165.8 million, in other words 21.1% of the total

cost of the program. These funds will be provided by the Chilean government through annual allocations to the MOP's budget. The resources will come from the general budget of the Nation.

- IBRD: will contribute US\$224 million (28.5%) from a loan approved in September 1989, which will be disbursed from 1990 to 1993. Part of the IBRD resources will be used to finance equipment and training programs for DV staff.
- Export Import Bank of Japan: will contribute US\$150 million (19.1%) through a loan signed on March 5, 1990, which is specifically intended to finance part of the investment and maintenance categories.

IV. PROGRAM EXECUTION

A. General aspects

- 4.1 The MOP will execute the Program through its DV. Under the agreement with the IBRD and EXIMBANK of Japan, the MOP has set up two executing units for the technical, administrative and financial control of all project activities, which will be advised by three consulting firms. This institutional design is appropriate for achieving the goals pursued under the Program, as will be explained below.

1. Execution mechanism

- 4.2 For administrative purposes, the Program has been divided into two subprograms: (a) Highway Conservation and Maintenance; and (b) Increased Capacity Bridges and Major Works.
- 4.3 The highway maintenance subprogram will be administered by an executing unit that operates in the Maintenance Department of the DV, which in addition to being responsible for all general program aspects, including accounting, arrangements for disbursements and reports to the international financial agencies, is also directly responsible for the highway conservation and maintenance subprogram. This unit receives permanent support from a consulting firm financed with loan resources, which acts as general coordinator of the project and advises on specific matters relating to execution of the highway conservation and maintenance subprogram.
- 4.4 The subprogram for increased capacity, bridges and major works will be administered by the Major Projects Executing Unit which belongs to the DV's Construction Department.

2. Organization and functions of the program executing units

- 4.5 The executing unit for the highway maintenance subprogram has a staff of 18, including the chief. It is divided into three divisions: (i) Management (general administration of the IBRD and EXIMBANK loans and

coordination of reports for those financial institutions; administrative follow up on contracts; control of progress of the works; preparation of contract documents; accounting and requests for disbursements); (ii) Supervision (follow up and control of contracts and execution of the works; preparation of bid documents for works and consulting; support for financial inspection in the regional units); and (iii) Force Account (follow up on the progress of road maintenance works carried out on force account; cost control of maintenance works executed on force account).

- 4.6 The Major Projects Executing Unit operates within the DV's Construction Department, and has a staff of 13, including the chief. Its staff includes three engineering inspectors, four assistant engineers, one commercial engineer, and four fiscal inspectors. It is responsible for preparing contract documents and in general, for all matters related to execution of the subprogram for which it is accountable. It also provides the information required for general coordination of the program, and receives, similarly to the conservation and maintenance unit, external technical consulting services for support in preparing and revising projects, deciding on proposals and solving any technical problems that may crop up during execution of the works. The consulting firm is responsible for preparing the quarterly reports for this specific subprogram, which serve as input for the consolidated quarterly report on the program for the international agencies prepared by the program's general coordinating consultant. The major Projects Executing Unit also receives consulting support with regard to awarding contracts and administrative supervision and follow up on execution of the works in the subprogram. Although the unit's basic responsibility starts with calls for tenders and ends with the settlement of each contract, contact and permanent coordination are maintained with the Studies Department, particularly with regard to ensuring that engineering plans are available at the time they are required.
- 4.7 A major element in the activities of these executing units is the role played by the general program coordination consultant, especially with regard to visits to the different regions. Based on these visits, which take place approximately every six weeks, the firm prepares a project supervision report for contract PICMV II, which gives a detailed description of the advance of projects during the current year. These progress reports allow for efficient and full control of each contract underway. In addition to this principal activity, the consulting firm provides a monthly update of activities under each contract and prepares periodic reports for the international financing agencies (see organizational structure for execution in Table 1.4).

B. Program preparation status

1. Design criteria

- 4.8 The design standards that will be used in the plans and specifications for this program are based on recognized, acceptable engineering standards that are adequate for the program and regulated through the DV's Highways Manual.

2. Engineering and studies

- 4.9 The MOP has completed the studies for all the works that have been scheduled for the first year of execution (1990), which include 362 projects. Four of these involve expanded road capacity, three involve bridge expansions, 164 involve routine maintenance, 80 are for periodic maintenance of gravel roads, 58 for periodic maintenance of paved roads, and 46 involve flood protection. Based on past experience, the program includes seven works for emergency rehabilitation of roads and highway structures to respond to disasters. Final designs are available for all the projects, and the proven economic internal rate of return (EIRR) in all cases is above 12%. The detailed studies and designs for the projects to be executed in the second year (1991) have been contracted with private consulting firms and are in advanced stages of preparation and should be completed prior to the end of this year. By November of this year the complete list of projects and support documentation will be available, which will be submitted to the financing agencies for review and decision. The detailed execution schedules for each of the following years will be prepared by the government within the program's parameters and objectives, in keeping with evaluation procedures, the criteria governing execution, the results of research and updated studies of highway conditions, and the experience gained from executing the program in the previous years.
- 4.10 The studies and designs for the major works and the bid specifications and documents have been prepared in final form. The land studies include complete topographical, and sufficient geological, information, as well as soil studies along the highway routes. Hydrological and hydraulic studies were conducted to measure the currents and the maximum flows in rivers and streams, and maximum and minimum water levels that can be expected over 50 years. The total length of the bridges, the size and types of sewers, and protection against the erosion of foundations, pile works and abutments have all been determined.
- 4.11 The soil studies are prepared by the Laboratories Department of the DV. The hydrological and hydraulic studies are the responsibility of the National Hydraulics Institute, which has the status of a MOP Directorate General. The consulting firms in charge of the final project designs are responsible for working in the field to verify and/or corroborate the tests conducted to prepare the studies. The Bank has studied the plans and specifications and has judged them

satisfactory and adequate for calling tenders, determining costs, and for preparing the projects.

3. Construction methods

- 4.12 The different works to be built under the Program do not require the use of particularly complex construction methods. The requirements are well known to all the contractors who will supply the equipment and materials. Except for the steel for reinforced and precast concrete, metal railings and metal materials for signs, all the materials required for project construction can be obtained in Chile.

C. Procedures for contracting the works

- 4.13 In this operation, the Bank is facing a very special situation with regard to procurement, since the form of execution will involve an inter-year work program in which the Bank will finance a proportional share (pari-passu), together with the IBRD and EXIMBANK of Japan, of a set of preselected works. Therefore, there are no works that are financed exclusively by a single institution, but instead each work or group of works will be financed by the three parties and by the local counterpart. This means that the procurement procedures must be acceptable to all the financing agencies. Chilean authorities have reached agreements with the IBRD and EXIMBANK that have already set limits for international public bids on works and equipment: US\$5 million for the construction of works and US\$300,000 for acquisition of equipment. These limits are very generous, considering that the Program works are varied, small and spread out over the entire country and are not attractive for making up packages that might interest international competition. However, in this case, the other two cofinancing agencies have agreed to allow public international bidding when the amounts exceed the limit established by the Bank in this instance. Even so, the Bank must simplify its procedures for examining bids, to keep the process already agreed to with the other cofinanciers responsive, without affecting the policy of facilitating participation by bidders from all the Bank's member countries, and to ensure the orderly, flexible and efficient use of resources.

1. IBRD operating mechanism

- 4.14 The IBRD sets a limit based on the characteristics of a program or project on a case-by-case basis, above which it requires public international tendering. For each type of work (hydroelectric, highways, hospital construction, etc.) in a given country, it establishes what the minimum amount capable of attracting international competition is. This is determined mainly by studying the history of previous bids, and consulting with foreign contractors in the industry and the executing agency itself. It also studies local legislation to detect practices or rules that might discourage foreign participation. In the case of Chile, the IBRD and the government have reached the conclusion that for the types of works included in the program, international bidding is justified for works

equivalent to US\$5 million or more, and in the case of equipment, US\$300,000 or over.

- 4.15 Works contracts for US\$5 million or less are put to public local tendering in accordance with domestic legislation, provided this is acceptable to the IBRD, and that participation by prequalified firms appearing in the special register of program contractors is not restricted.
- 4.16 As for the review of the bid process for contracts under the amount in question, an ex ante evaluation is conducted of only the first three contracts in the program (and this is also applicable to contracts for amounts over US\$5 million), in other words, the IBRD must give prior approval to:
- (i) the bid documents;
 - (ii) the invitations to tender; and
 - (iii) the proposed award, together with the grounds and recommendations.
- 4.17 Afterwards, it is sent copies of the signed contracts. For subsequent contracts, the IBRD makes an ex post evaluation. The executing agency sends it two copies of each signed contract for works, together with the report analyzing the bids and recommending the award, and any other additional information that may be required. The IBRD reserves the right to not finance a work if the ex post evaluation shows that it was contracted without following the proper procedures. This review system saves considerable time in the bidding process without affecting sustained followup to verify that the procedures agreed to have been used. In view of the number of bids planned, ex post control by sampling speeds up the flow of documents and reduces the costs entailed in the ex ante evaluation process. The experience of the different Banks with the tendering processes managed by the DV has been very positive, since it has strictly followed local procedures and those agreed to in the loan contracts. As the result of the use of the procedures in question there have been no conflicts in applying the rules and procedures, and thus the Procurement Committee has not received protests or notices of situations in which the agreed requisites were not complied with.
- 4.18 It should be noted that the amount earmarked for works, estimated to cost less than US\$5 million, is high, at about 72% of the total cost of the program. The reason for the relatively small number of works of more than US\$5 million is that a large part of the bidding will be intended for maintenance works spread out over the entire country to be done over a period of four years. It should also be noted that local firms have ample capacity to construct road works at prices that are lower than those charged on the international market, and that international contractors have not shown an interest in participating in works worth less than US\$5 million.

2. Procedure proposed for the Bank

(a) Exception with regard to participation in the bidding

- 4.19 Since joint IDB-IBRD bidding will be conducted, the waiver allowing for calling for bids with the joint participation of the member countries of the IDB and the IBRD shall be specifically included in the Tender Procedures (Annex B of the prospective loan contract). The reason is that the works will be cofinanced with the IBRD and its membership includes countries that are not Bank members. In the event that a contract is awarded to a firm from a country that is not a member of the Bank, the Bank will not finance the work. ^{1/} The exception can also be justified on the grounds that contractors from countries that are not Bank members have not bid in the past and are not included in the public works registers.
- 4.20 Aside from the exception mentioned above, no changes are proposed in the Bank's procurement policy governing international bid calls. All contracts exceeding US\$200,000 will be put to public international tenders, and advertized locally as often as is agreed to, and invitations will be sent to the embassies of member countries. International advertizing will be dealt with on a case-by-case basis, depending on the size and complexity of the works. In general it is not expected that large packages will be put together or that works will be contracted that merit publicity abroad, over and above the notices to embassies. Where it is proposed that the Bank make an adjustment to adapt itself to the existing system, which has proven to be competitive and efficient, is in the area of procurement procedures, particularly the review by the Bank of the contract documents for each work. Bank rules required that executing agencies submit for consideration by the Bank the bid documents, the models for advertisements and invitations to bid, evaluation of the bids and draft contracts, before final decisions can be made in each case. The executing agency calculates that this exchange of documents and opinions, in comparison with other procurement processes financed by other sources, takes an average of 75 more days for purchases from US\$200,000 to US\$5 million, and over 58 days when the estimated bid exceeds this figure, including registration with the Office of the Comptroller General. This rule will be replaced by a commitment by the executing agency to submit the following documents to the Bank, prior to or at the same time it submits its justification of the use of resources or the application of funds for each work or group of works worth less than the equivalent of US\$5 million: all reasonable information requested by the Bank to demonstrate that the contracting process included publicity, competition, award to the lowest bidder,

^{1/} The MOP has no records showing that firms from countries that are not members of the Bank have applied for prequalification to participate in bids on roads works in Chile. The special registers of construction companies prepared for programs financed by the Bank and the IBRD only include firms from countries that are members of the two Banks.

and a contract containing the terms, costs, origin of goods and services and all other conditions required under Bank rules. Depending on the number and nature of the works in this range, the review may be conducted by sampling, for which purpose the executing agency undertakes to keep complete files and records in an organized fashion, and to provide appropriate facilities for reviews by the Bank. The procedures described below will also be adopted.

(b) Alternatives for expediting procedures

- 4.21 The executing agency will call for bids for works in the range between US\$200,000 and US\$5 million preferably 45 days in advance of the date set for opening the bids. Under some circumstances, depending on the nature and location of the works, the executing agency may issue the invitation 30 days in advance, without prior agreement from the Bank, but must inform the Bank at the time. To exercise this option, the executing agency must satisfy itself that at that time no expressions of particular interest in the works have been made by foreign firms from Bank member countries or their representatives. Indications of interest by foreign firms are defined in this instance as acquisition of bid documents and presentation of the updated technical and economic information which, pursuant to local legislation, all bidders must submit before presenting their bids. If such circumstances exist, the executing agency must extend the deadline by not less than 45 days. The Bank review of the documents and contract award decisions will be as follows:
- (a) For works under US\$200,000: prior to or together with the request for disbursement, evidence that there was competitive bidding, or justification of the form of contracting used;
 - (b) For works between US\$200,000 and US\$5 million: the Bank will conduct an ex ante review of the first three invitations to bid. For the others, all the documents with respect to announcements, publicity, invitations sent to embassies, receipt of bids, evaluation and awards will be kept in a central file at the disposition of the Bank. Together with requests for disbursements, or every three months, whichever comes first, the executing agency will send to the Bank a list describing the works contracted under the program, giving the amounts, terms and dates, contractor and contractor's country of origin, attaching a true copy of the contract, from which, based on a sample of at least 15% of the invitations to bid listed, selected by the Bank, the review will be made and this information will be supplemented with the reports described above and any other reasonable information requested by the Bank;
 - (c) For works over US\$5 million and equipment or materials over US\$200,000: the plans and specifications, budgets, model announcements and contracts, bid documents, models of the specific invitations to the embassies of Bank member countries, evaluation report and recommended award will be presented to the

Bank for approval prior to announcing the final decision. This documentation, the receipt proceedings, evidence that the services are of eligible origin, and a true copy of the contract will be sent to the Bank prior to using resources from the loan to pay for services.

- 4.22 The pertinent parts of the streamlined procedures for supervising public bidding mentioned above will be incorporated into the Bidding Regulations for this operation.

D. Routine maintenance

- 4.23 The borrower has estimated that during the program execution period it will incur costs for routine maintenance equivalent to US\$112 million, which would be done basically on force account. For quite some time now the authorities have been successfully contracting out part of the routine maintenance work. They expect to continue to do this during the execution of the proposed program.
- 4.24 The DV conducted a study of the different routine maintenance activities, and defined unit reference prices that have been approved by the financing agencies and are reviewed each year. The study in question and experience show that an average of 50% of the cost of routine maintenance corresponds to materials, equipment and spare parts, in this case, approximately US\$56 million of the total spending planned for routine maintenance. As is noted in paragraph 3.10, the Bank will finance routine maintenance cost up to US\$20 million, or 36% of the estimated costs of materials, equipment and spare parts.
- 4.25 As has been mentioned, part of the routine maintenance works will be conducted by the DV on force account, given their size and the fact that they are scattered throughout the country. As has been stressed throughout this proposal, the DV has the technical and administrative capacity to carry out this type of work. For these reasons, it is recommended that an exception be made to normal Bank bidding procedures to allow routine maintenance works up to US\$112 million to be carried out on force account (see Recommendations).

E. Execution period and investment schedule

1. Execution period

- 4.26 Under the program defined by Chilean authorities, the execution period has been estimated at four years, from 1990 to 1993.

2. Investment schedule

- 4.27 The following is the estimated investment schedule:

INVESTMENT SCHEDULE

(equivalent in millions of US\$)

Proposed program	1990	1991	1992	1993	Total
IDB	14.9	59.4	60.0	111.7	246.0
IBRD	53.7	51.7	58.0	60.6	224.0
EXIMBANK	48.3	47.7	54.0	--	150.0
Local	43.9	13.9	16.9	91.1	165.8
Subtotal	160.8	172.7	188.9	263.4	785.8 ^{1/}

^{1/} Includes US\$31.1 million for the financial costs of the proposed program.

3. Disbursements

4.28 The execution of an intensive road conservation, maintenance and investment program such as the one herein proposed requires disbursements for a large number of small contracts or minor routine maintenance works undertaken by the regional directorates of the DV, within established levels of autonomy. This is expected to give rise to a huge flow of documents. Since it would be necessary to attach copies of all supporting documentation to each disbursement request, the DV would have to increase its staff at the central executing unit and duplicate the filing and administration systems delegated to the regions. Thus, the process of verification by the Bank, as well as that agreed upon with the IBRD, would be done through sampling in the executing agency's files. For that verification, the Bank, based on its capacity, will define the size of the sample needed and the Field Office will have to keep records on the reviews done for the purpose of meeting the information requirements of the various IDB operating units.

F. Cost recognition

4.29 The MOP has asked the Bank to recognize costs incurred after July 10, 1990, which is the date on which the financing was requested, and for expected costs up to December 1990, which is the estimated date on which the Bank's Board of Executive Directors will consider this operation. These costs, to be charged against the prospective Bank financing, will be equivalent to approximately US\$14.9 million, and represent investments in expansion of capacity, bridges, road improvements and periodic and routine maintenance. It is recommended that the Bank recognize the sum in question to be charged against the prospective loan, subject to proof that: (i) the costs were incurred after the loan request was submitted; and (ii) they were incurred in conformity with requisites that are substantially the same as those

to be established in the prospective loan contract for contracting works and services (see Recommendations). It should be noted that there are some costs among those for which recognition is being requested arising from bidding in amounts equal to or less than US\$5 million, concerning which the embassies have not been specifically notified. This is because the rules suggested by the IBRD were followed, which do not include this requirement in view of the opinion that there would be no interest in foreign participation in such amounts. Nevertheless, an unrestricted prequalification of firms was conducted for the participation of foreign firms and the required advertising was publicized in the major dailies of Chile.

G. Project maintenance

- 4.30 The Department of Highway Maintenance and Improvement coming under the DV is responsible for maintaining the program projects. Plans are to largely continue with the system of contracting private companies to build the works, which has been operating successfully. The DV is considered capable of supervising the program maintenance component.
- 4.31 The DV prepared estimates of annual unit costs when it prepared the program studies and designs. The estimates are based on the type of road surface and projected average annual traffic. They indicate that the unit cost of routine annual maintenance for graveled roads is US\$920 per year, and that the unit cost of periodic maintenance (every five years) is US\$1,200 per year. For paved roads, the unit cost of routine maintenance is US\$1,300 per year and the unit cost of periodic maintenance is US\$2,600 per year.
- 4.32 The works to be carried out under this program will be maintained by the DV's regional offices in keeping with its current practice. In view of the DV's experience and capacity, no difficulties are foreseen in this regard. Nevertheless, bearing in mind that one of the program's objectives is to help strengthen the administrative machinery for maintenance of the entire highway system, and that through the four-year program execution period the Bank will participate each year in the elaboration of the maintenance program, it is considered reasonable to ask that the maintenance plan be submitted for a further five-year period subsequent to the last disbursement. Accordingly it is recommended that the regulations for the prospective loan contract include a condition which places upon the borrower the obligation, first, to ensure that the basic highway system and the local road system will be maintained in accordance with generally accepted technical standards, and second, to submit to the Bank for its consideration for a period of five years following the completion of the program, by April 30 of each year, a biannual assessment, based on sampling, of the maintenance condition of the basic highway system and the local road system, together with the annual maintenance plan which must be prepared in accordance with the guidelines laid down in paragraph VIII of Appendix III to this proposal (see Recommendations). If inspections done by the Bank or reports received by the Bank should reveal that maintenance has not

been done to acceptable standards, the borrower will be required to take the necessary steps to have any deficiencies corrected in full.

H. Rights-of-way

- 4.33 The projects are generally located on the rights-of-way of existing highways, except for certain localized changes to allow for lateral access or geometric improvements that have been incorporated into the program works for safety reasons, and therefore no problems are expected in acquiring small areas of land adjacent to the existing rights-of-way which will be required for minor rectifications in the alignment of the present layout of some roads. The MOP is authorized to purchase land or appropriate rights in rem for purposes of public utility, and if no agreement can be reached with the owner, recourse can be had to expropriation for the public good with an agreement as to the amount of compensation. The government can take possession of expropriated properties after the sum of money set by the Direct Taxation Office has been deposited and placed at the disposal of the owner in the competent court.
- 4.34 The government will be responsible for obtaining the necessary land for construction of program works that require new land.

I. Environmental impact

- 4.35 The program's stress on rehabilitation and maintenance of existing roads, rather than building new ones, is environmentally friendly; relieving bottlenecks on the main highways should also reduce environmental pollution from vehicle emissions. The DV is also receptive to employing environmentally-friendly techniques and procedures.
- 4.36 Notwithstanding, one of the main causes of the frequent need for repair and rehabilitation of highways and bridges is linked in some parts of the country to the high frequency of factors such as mountainous terrain, land subject to erosion, high annual precipitation and high water tables. The DV's design and construction specifications and procedures can be improved to give greater consideration to environmental risk factors.
- 4.37 Road construction and improvements frequently cause indirect environmental impact, given the intensification of economic activity in the areas around highways. These stepped up activities are often environmentally destructive because the institutional framework (environmental laws, policies, procedures, agencies that administer natural resources, etc.) is in many cases insufficient to properly control and manage the use of natural resources. However, a review carried out by the Bank does not consider this to be a negative factor in the program, given the nature of the works in question.
- 4.38 None of the principal works included in the program will have serious environmental consequences, because the majority will be carried out in populated, developed areas. A few sites are undergoing additional

study from the viewpoints of archeology or biological conservation and the results will be given due consideration if the borrower proposes to include civil works at or near these places in the program. They include the zones of Copiapo, La Calera (el Melón), especially the highway from Melipilla to San Pedro, and in particular, the entire coastal area between Cauquenes and Chanco.

- 4.39 All the works in the construction, periodic maintenance and emergency subcategories will be reviewed in a preselection process to identify any works that may have a significant impact on the environment. They will be evaluated by an ecologist to determine environmental impact and propose adequate measures to mitigate it. A review of this kind has been conducted for works in execution or to be executed in 1990 and no major environmental problems were found. Once the detailed lists of projects are available for 1991 and 1992 they will have to be classified using the preliminary guidelines prepared by the Bank and agreed upon with the executing agency. The project team will review the environmental aspects of proposed works. For the works program agreed upon for 1993, staff with suitable experience will preselect the works. Using the guidelines to be prepared by the consultants to be hired to perform the study referred to in the next paragraph, the pertinent evaluation will be prepared based on the characteristics of the work and its potential environmental impact. Appendix A provides the guidelines to be used in the first three years to classify projects.
- 4.40 The DV's guidelines and procedures are not adequate for analyzing and mitigating all the negative impacts of road works on the environment. Therefore, taking the size and importance of the program and existing institutional capacity in identifying and supervising environmental aspects, the following actions will be taken to strengthen the DV: (i) a professional with experience in highway-related environmental concerns will be appointed to supervise and coordinate the environmental aspects of the program and the operations of the Executive Secretariat of the Environmental Technical Unit; and (ii) a study will be conducted with regard to institutional development and strengthening in environmental matters for the purposes described below.
- 4.41 The study to develop and strengthen the DV in aspects related to the environment will make it possible to: (i) determine whether current procedures, policies and standards for designing roads and bridges give adequate consideration to reducing direct environmental impact; assist in revising procedures, policies and standards if necessary; (ii) study the indirect impact of a group of recently completed works, determining the nature and approximate cost of the mitigating actions taken and those that should have been implemented, and producing recommendations for designing and financing future actions; (iii) formulate an environmental policy and guidelines for the analysis of environmental impact, with the cooperation of the Technical Environmental Unit of the Ministry of Public Works, the National Environmental Council and the Environmental Unit of MIDEPLAN; and (iv) develop a training program based on the

recommendations, policies, manuals and guidelines produced. The study will have to be contracted out within nine months from the signing of the contract and will have to be submitted within the next 24 months, following the terms of reference to be agreed upon with the Bank.

J. Program follow up

4.42 To follow up on compliance with regulations and the different activities which will guarantee that all the program's objectives will be attained, Chilean authorities have agreed to a monitoring system with the financial institutions participating in the program, which the Bank has reviewed in detail and found to be adequate and sufficient for follow up on the operation. Under the system, the DV will prepare and present quarterly reports on execution of the maintenance and investment budgets, including a breakdown of costs by category, force account and contract. Appendix B gives details on the contents of each of these reports. In addition, the MOP in its capacity as program executing agency, will meet with representatives of the participating Banks at least twice a year to analyze and/or agree upon the following matters:

(a) During the first half of each year, the results obtained from program execution in the previous year will be reviewed, including:

- an evaluation of the financial execution of investments in highways and maintenance;
- an evaluation of the advance of the investment program in road works and maintenance and its consistency with physical goals;
- execution of the training component;
- use of consulting services;
- review of the reports and reconciliation of disbursements with costs incurred;

(b) In the second half of each year, program execution in the current year and the proposed program for the following year will be reviewed, based on progress in execution and the experience gained. The aspects to be evaluated include:

- the statement of expenditures, and execution of highway works during the current year, including physical goals;
- attainment of the objectives of the program, projects, services and other components;
- the detailed proposal for the investment and maintenance budgets for the following year, including the documents and criteria on which it was based, and the grounds for including the different types of works in the program; and
- the proposed disbursement schedule.

4.43 Given the importance of program follow up, it is recommended that the normative documents include a requirement that the borrower submit

quarterly follow-up reports through the DV by May 15, August 15, November 15, and February 15 of each year at the latest during the execution period, and that it hold each of the semiannual meetings mentioned above (see Recommendations).

K. Bank inspection and supervision

- 4.44 The Bank's Field Office in Chile and the project team, which will attend the semiannual meetings, will supervise the program. At the meeting in the second half of the year, the project team will receive support from an officer from the bids unit of the Consultant for Operations.

L. Advance funds

- 4.45 Given the nature of the program and the pace at which the works are expected to proceed, it is recommended that funds be advanced equivalent to 10% of the loan to cover estimated average costs for 120 days, which will expedite payments for the different components.

M. Ex post evaluation

- 4.46 To measure the impact of the program and the extent to which its objectives have been attained, it is recommended that the normative documents require that the borrower submit the following: (i) within the twelve months following the signature of the prospective loan contract, supplementary general and sectoral data to be used for a comprehensive analysis of the results of program execution; and (ii) three years counting from the final disbursement, an ex post evaluation report following the methodology that was used in the ex ante evaluation, applied to a representative sample of the different types of projects in the different regions, for the purpose of measuring their overall impact on boosting the operational efficiency of the road system, and on improving and rationalizing maintenance programs and their administration.

V. THE BORROWER AND THE EXECUTING AGENCY

A. Borrower and executing agency

- 5.1 The borrower will be the Republic of Chile, which will also be responsible for the local contribution to the program, and the executing agency will be the MOP, through its DV.

B. The program executing agency

- 5.2 The DV, one of the bureaus coming under the Directorate General of Public Works, will be responsible for executing the program under consideration. The DV's organizational structure is adequate to allow it to assume the responsibilities that program execution will demand. The system for contracting private consulting firms for

execution, supervision and maintenance of the program works has been used successfully in previous projects and programs financed by the Bank and executed by the DV.

C. Historical financial analysis

1. Resources

- 5.3 A summary of the DV's income and expenditures over the period from 1986 to 1989 is given below. As this summary shows, over the period in question the DV had internal and external sources of financing for its programs which totaled the equivalent of approximately US\$1,325 million. Internal sources, which accounted for US\$969 million or 73% of the total, included resources from national budget allocations for operating and investment costs, which were the major items, and so-called own earnings represented by collections from tolls and other items that are paid into the DV.
- 5.4 For their part, external revenues in the equivalent of US\$356 million or 27% of the DV's resources over the period in question are accounted for by financings from international agencies such as the IDB and the IBRD, government agencies such as EXIMBANK of Japan, and last, suppliers credits.
- 5.5 One significant aspect that is worth stressing is the change in the pattern of the DV's spending. Since the 1980s, mainly as a result of the conditions agreed to with the IBRD, maintenance programs have been stepped up while programs for road improvements and expanding the system have shrunk in relative terms. The characteristics of the highway system, existing traffic levels and the budget resources available made it more advisable for the government to perform maintenance on a large part of the existing system and to improve and expand only a fraction.
- 5.6 In 1985, spending on construction accounted for 69% and maintenance for 27%, both based on the DV's total spending on these specific activities, i.e. excluding the amount set aside to service the DV's debt. Comparatively, in 1989 only 34% was spent on construction while 59% went for road maintenance. The DV's budget, net of debt service, over the period in question was approximately equivalent to US\$200 million a year.
- 5.7 From the financial viewpoint, the program under consideration will attain two basic goals: the first is to ensure that acceptable amounts of resources will be available to maintain the road network, despite the existence of certain budgetary restrictions on the infrastructure sector which limit optimal maintenance of the highway system as a whole. The second is to strike a reasonable balance, based on economic rationalization, between spending on investments in works and maintenance.

RESOURCES AND TOTAL SPENDING BY THE BUREAU OF ROADS

(millions of dollars, January 1989)

	1985	1986	1987	1988	1989
FINANCING	<u>237.05</u>	<u>268.46</u>	<u>256.70</u>	<u>284.89</u>	<u>277.80</u>
Local	161.26	204.06	193.70	206.30	203.83
External credits	75.79	64.40	63.00	78.59	73.97
TOTAL COSTS	237.05	268.46	256.70	284.89	277.80
(Net of debt service)	(198.96)	(217.37)	(182.64)	(204.39)	(178.01)
Investments	136.79	101.77	72.70	66.25	60.71
Maintenance	54.09	103.94	100.59	126.14	105.90
Administration	8.06	12.03	9.36	12.00	11.40
Debt service	<u>38.11</u>	<u>50.72</u>	<u>74.05</u>	<u>80.50</u>	<u>99.79</u>

Exchange rate: 1 US\$ - \$CH 250.73

2. DV maintenance program

- 5.8 The outcome of policies to encourage private sector participation in the field of transportation was a considerable increase in contracting private services, and at present, all construction and most maintenance is carried out under contract.
- 5.9 In 1986, works carried out on force account represented 23% of maintenance spending (US\$103.9 million), which dropped to 13% in 1989 (US\$105.9 million). Taking a comprehensive view of the period in question, contracted maintenance accounted for 78% and force account for 16% of total spending on maintenance (US\$343 million), with purchases of equipment accounting for the remaining 6%.
- 5.10 A breakdown of the DV's spending on force account works over the period under consideration shows that labor represented 23%, machinery and equipment (not considering depreciation) accounted for 21%, fuel for 10%, materials for 24%, and indirect costs for 22%, all in relation to total spending on force account. These data were used as the basis for calculating the real costs of maintenance activities and for subsequently updating the so-called reference prices that were used to substantiate requests to the IBRD for reimbursement of spending on routine maintenance. Unit prices per activity include the cost of owning equipment, i.e. depreciation and interest on own capital invested. Only equipment and material will be financed under the Bank's policy for routine maintenance, based on the calculation methods used by the IBRD.

3. Fiscal revenues from the transportation sector

- 5.11 Fiscal revenues from the transportation sector from 1970 to 1988 show that since 1972 the national highway system has generated sufficient resources to cover all spending on maintenance, construction, acquisition of equipment and the service on the debts acquired to

finance all these items. On occasion revenues have been up to five times higher than spending, and on the average over the period from 1985 to 1989, they were approximately twice the size of total spending. This behavior indicates that the Chilean government has established a healthy fiscal policy for recovering public spending on highway investments and maintenance, which has been very satisfactory, since with virtually no exceptions, revenues have been comfortably higher than annual spending on these items.

VI. PROGRAM JUSTIFICATION

A. General

- 6.1 The program proposed here forms part of the Government's investment strategy in the highways subsector. It seeks to solve problems that are currently affecting efficient operation of the subsector due to insufficient routine and periodic maintenance and to the need to expand the capacity of some sections of the North-South Highway and its main east-west highways. This situation is chiefly the consequence of economic development in the different regions and a parallel increase in automotive traffic which has caused congestion on several sections due to the insufficiency of existing highways. In addition, the program is consistent with the Bank's strategy for the subsector which seeks to help reduce the cost of transport to stimulate the country's economy and exports.

B. Technical feasibility

- 6.2 A study of some of the program works to be executed in the first year shows that the planned maintenance, rehabilitation and improvements to highways and roads constitute technically adequate solutions. All the technical and economic studies and the necessary designs have been completed for the expansions in capacity, which are the largest works in both size and cost planned for the first two years. This situation makes it likely that the projects will be able to start on schedule. No difficulties are anticipated in tendering and contracting the works, since the procedures used by the DV are streamlined and have been sufficiently proven in executing previous works financed by the Bank. In accordance with the process established for identifying and evaluating projects, the list of projects to be executed each year will be submitted for consideration by the financial agencies so that the definitive program for each year can be established. Since the program began in 1990, the projects already underway and those to be executed in 1991 have been defined by Chilean authorities and the final version will be presented to the Bank for consideration as soon as the Bank approves the prospective financing.

C. Institutional and financial viability

1. Institutional viability

- 6.3 The DV's organizational structure is adequate for its basic mandate and for the program whose cofinancing is recommended in this document.
- 6.4 In addition, the DV has qualified staff to perform its responsibilities and has an adequate monitoring system and procedures to supervise its chief activities, judging from the evaluations of this and other recent operations that have received partial Bank financing. This circumstance has also been confirmed by the favorable opinion issued by the Office of the Controller on execution of the projects that received Bank financing. Therefore, no institutional or administrative situations are expected to arise that would have a negative effect on execution of the proposed program.

2. Financial viability

- 6.5 As has been said, the national counterpart funds will be paid into the budget of MOP (DV) annually, based on the schedules for investments and use of resources given in Section IV of this document. They represent only 0.3% of the projected revenues that the central government expects to receive.
- 6.6 The central government's public investment program from 1990 to 1993 is summarized below:

(millions of US\$)

Sector	1990	1991	1992	1993	Total	%
Education	18.2	69.6	97.0	103.7	288.5	8.4
Health	29.4	74.6	127.0	163.7	394.7	11.6
Housing	257.6	255.3	250.4	265.1	1,028.4	30.0
Infrastructure	300.0	407.2	472.2	533.2	1,712.6	50.0
Program under study	211.2	223.6	239.9	263.4	938.1	27.4
Remaining infrastructure	88.8	183.6	232.3	269.8	774.5	22.6
Total central government	605.2	806.7	946.6	1,065.7	3,424.2	100.0

- 6.7 The central government's external and internal sources of financing, are shown below:

(millions of US\$)

<u>Financing</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>Total</u>
Internal	350.4	369.1	417.6	450.2	1,587.3
External	<u>254.8</u>	<u>437.6</u>	<u>529.0</u>	<u>615.5</u>	<u>1,836.9</u>
IDB under study	14.9	59.4	60.0	111.7	246.0
IBRD	53.7	51.7	58.0	60.6	224.0
EXIMBANK-Japan	48.3	47.7	54.0	0.0	150.0
Other	<u>137.9</u>	<u>278.8</u>	<u>357.0</u>	<u>443.2</u>	<u>1,216.9</u>
Total financing	<u>605.2</u>	<u>806.7</u>	<u>946.6</u>	<u>1,065.7</u>	<u>3,424.2</u>

- 6.8 As was mentioned earlier, the central government requires own resources to finance its public investment program which, added together for the period for 1990 to 1993, amount to the equivalent of US\$1,587,300,000, i.e. 46% of the total investment.
- 6.9 At the Bank's request, the Investments and Public Credit Department of the Ministry of Finance prepared a projection of the central government's current surplus, in other words, the result of the ratio between its current revenues and current expenditures for the proposed program execution period, which is given below:

(millions of US\$)

<u>Item</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>Total</u>
Current revenues	7,545.4	7,847.2	8,161.1	8,487.5	32,041.2
Current expenditures	<u>6,239.3</u>	<u>6,364.1</u>	<u>6,491.4</u>	<u>6,621.2</u>	<u>25,716.0</u>
Current surplus	<u>1,306.1</u>	<u>1,483.1</u>	<u>1,669.7</u>	<u>1,866.3</u>	<u>6,325.2</u>

- 6.10 The assumptions used in the foregoing projection include growth in current revenues at a rate of 4% per year and in current expenditures at a rate of 2%, which is considered reasonable in the light of recent historical experience and the positive impact that the tax reform approved in 1990 will have on public finances, since it is expected to bring an increase in revenue estimated at the approximate equivalent of US\$600 million per year.
- 6.11 Therefore, the Chilean government is not expected to encounter difficulties in meeting its financial commitments for the national counterpart for the proposed program, since they represent approximately 4% of the current surplus projected over the period from 1990 to 1993, with a significant surplus left over to attend to the Treasury's other obligations. The following is also worth stressing: (a) Bank participation in financing the program does not create an increase in program costs, and therefore proportionately relieves pressure on the budget resources required for its financing; (b) the mechanism for reviewing the program annually provides an opportunity to establish whether the local counterpart is available for each year; and (c) the program is one of Chile's public investment priorities and no changes in priority are anticipated that might affect allocations of resources to the highway subsector. The foregoing considerations provide the Bank with a reasonable guarantee that the operation will be executed in conformity with the program agreed to between Chilean authorities and international financial institutions.

D. Economic feasibility

- 6.12 As has been said, the program has two main components: maintenance and rehabilitation of existing roads and expansion of the capacity of limited sections of highways and bridges. To determine its feasibility, an economic assessment was made of the entire expansion subprogram planned by the MOP over the period from 1990 to 1993 and the rehabilitation and periodic maintenance works for the first year (1991). Routine maintenance activities, whose profitability cannot be questioned, and certain works already financed by the Bank under earlier loans whose economic feasibility was demonstrated at the time (city streets and rural roads) have been excluded from this evaluation.

1. Maintenance of existing roads

(a) Methodology

- 6.13 Except for the component involving expansion of highway and bridge capacity, whose methodology will be explained below, the procedure used to evaluate and select the projects to be included in the program from 1990 to 1993 is chiefly based on the highway design and maintenance standard model (HDM III) developed by the IBRD. This model predicts the behavior of wearing courses and evaluates different design alternatives and maintenance policies over time, for the purpose of selecting the alternative that gives the highest economic returns in the light of traffic levels and budget constraints. Economic returns at 12% measured by net present value (NPV) and the internal rate of return (IRR) are maximized by combining the impact of savings in the operating costs of vehicles that use the routes with the costs of the different maintenance options (including the alternative of doing nothing). This model was used to analyze approximately 76,000 km of the road system, including asphalt highways (5,182 km), roads with surface treatment (1,671 km), dirt roads (36,127 km), and graveled roads (32,681 km).
- 6.14 For all the roads analyzed using the HDM III, the condition of the wearing course was studied by taking physical measurements of washboarding, fissures and bearing capacity of paved and graveled surfaces, loss of wearing course and structural capacity on graveled and dirt roads, length, and the zone where they are located. This last variable is crucial for determining maintenance policies, given the variety of climate conditions and soil types. Obviously maintenance policies differ drastically for the desert region in the North and the regions subject to high precipitation in the South.

(b) Rate of return

- 6.15 Average total economic rate of return from the recommended maintenance activities for asphalt, gravel and dirt roads, is 44%. The greatest difference in rate of return between the technically optimum policy, which would require a considerably higher budget, and the policy that will be followed over the period from 1990 to 1993, lies in the unpaved system. The budget differential is US\$103 million, while the total rate of return if optimum policies are implemented drops to 36.5%.

2. Expansion of capacity

(a) Methodology

- 6.16 Expansions in capacity consist of widening existing routes from two to four lanes. Traffic is currently congested and the wearing courses of two-lane highways are not in good condition. Since the HDM III can only be applied under free flow traffic conditions (without congestion), the traditional cost/benefit method had to be used for this subprogram. Savings in travel time for users (STU) and

in operating costs for vehicles (SVOC) were the principal benefits considered. In both cases, the latter accounted for over 60% of total benefits. Estimates were also made of the excess use of fuel due to constant changes in speed caused by congestion. Savings from the drop in accidents is a more important benefit. Without placing a monetary price on this benefit, a recent study in Chile showed that accidents are reduced by an average of 64% by widening from two to four lanes.

(b) Rate of return

- 6.17 The rate of return for the four-lane highways was 62%. To test sensitivity, projected traffic and time savings for each project can drop by one-half, and they would still be profitable. In the same way, investment costs could increase by 50% and these projects would still exceed the minimum rate of return of 12%.

3. Bridge expansion

(a) Methodology

- 6.18 The economic evaluation of this component has been conservative, and the only benefit estimated was the value of the time saved in gaining access to bridges. Only automobiles, light trucks and buses whose passengers travel to and from work (70% of the total) have been considered. Average waiting time was calculated in function of the current condition of the bridge, its length, width and the average daily traffic that uses it. According to these variables, waiting time ranges from 12 minutes at the Perquilauquén bridge (422 meters long with an average of 4,048 vehicles per day in 1990) to two minutes at the Paso de Piedra bridge (20 meters long with average daily traffic of 3,191 vehicles).

(b) Rate of return

- 6.19 Average rate of return for this component is high, amounting to 41.2%. Virtually all the bridges would continue to be profitable if investments were to double or traffic were to drop by one-half.

E. Distribution effect impact of the program 1990 - 1993

- 6.20 A study of the distribution of benefits to the low income sector consists of determining what share of the profits (or losses) obtained in the cost/benefit study for the program will go to the sector in question. Following conventional methodology, the analysis is limited to the impact of the project on the private sector. The distribution effect $\frac{1}{DE}$ is obtained as the quotient between the

$$\frac{1}{DE} = \frac{\text{NPV to the LIS}}{\text{NPV total private sector}}$$

discounted net benefits to the low income sector (LIS) and the total discounted net benefits going to the private sector.

- 6.21 Based on the figures and procedures given above, the low income sector would receive 20.1% of the total benefits from the set of projects in the program, as is shown in the following table in millions of \$CH.

<u>PROJECT</u>	<u>TOTAL</u> <u>BENEFITS</u>	<u>LIS</u> <u>BENEFITS</u>	<u>DE</u> <u>(%)</u>
A. Maintenance and changes in standard			
-Dirt to gravel	15443	3356	21.7
-Maintenance graveled roads	81076	15207	18.8
-Paving	77853	14446	18.6
-Maintenance paved roads	34318	7190	21.0
B. Construction of additional lanes	31982	7857	24.6
C. Bridge construction	<u>5101</u>	<u>1275</u>	<u>25.0</u>
TOTAL PROJECTS	245773	49331	20.1

VII. RECOMMENDATION

- 7.1 For the foregoing reasons, the proposed program is considered viable from the technical, economic, financial, institutional, legal and environmental viewpoints. Therefore, it is recommended that the loan be approved, for which purpose the following normative documents are submitted for consideration by the Board of Executive Directors:

Appendix I - Proposed Resolution
Appendix II - Recommendations
Appendix III - Project description.

PROPOSED RESOLUTION 1/

CHILE. Loan /OC-CH to the República de Chile
(Highway Improvement Program)

The Board of Executive Directors

RESOLVES:

That the President of the Bank or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Chile, as Borrower, for the purpose of granting it a loan to cooperate in the execution of a Program which includes investments, improvements and maintenance of Chile's road network during the period 1990-1993, as well as a component for the administrative strengthening of the Executing Agency, hereinafter referred to as the "Program". This financing shall be subject substantially to the following conditions:

1. Amount and currencies: Up to US\$246,000,000 or its equivalent in other currencies, except that of Chile, which are part of the ordinary capital resources of the Bank, to pay for goods and services acquired through international competition in the member countries of the Bank, and for such other purposes as may be specified in the loan contract. Payments of amortization and interest shall be made in the currency or currencies specified by the Bank, in a quantity equivalent to the corresponding amount owed, calculated in units of account in terms of dollars of the United States of America, in accordance with provisions to be included in the loan contract.
2. Sources of funds: The ordinary capital resources of the Bank.
3. Guarantee: The general responsibility of the Borrower.
4. Credit fee: $3/4$ of 1% per annum on the undisbursed portion of the financing, commencing to accrue 60 days after the date of the contract and payable in dollars of the United States of America on the same dates as the interest.

1/ The provisions set forth in this Appendix I and in the following Appendices II and III shall only become final when the Board of Executive Directors has approved the loan proposal.

5. Amortization: The Borrower shall amortize the loan in a period of 20 years from the date of the contract, by means of semiannual, consecutive and, insofar as possible, equal installments. The first installment shall be paid six months after the date scheduled for the last disbursement of the financing.
6. Interest: The Borrower shall pay interest semiannually on the daily outstanding balances of the loan. The first payment shall be made six months after the date of the loan contract. The Bank shall determine the rates of interest to be applied during the life of the loan, in accordance with the lending rate policy of the Bank. At the request of the Borrower, resources of the financing may be used to pay interest during the period of disbursement thereof.
7. Disbursement: The term for disbursement of the financing shall expire four years after the effective date of the contract.
8. Special conditions:
 - (a) The resources of the loan shall be utilized in their entirety by the Borrower, through the Dirección de Vialidad of the Ministerio de Obras Públicas (hereinafter called "Executing Agency"). If modifications in the legal provisions or the basic regulations concerning the Executing Agency are approved which, in the opinion of the Bank, may substantially affect the Program, the Bank shall have the right to require the Borrower or the Executing Agency to provide explanatory and detailed information in order to determine whether such modification or modifications have or may have an adverse impact on the execution of the Program. Only after hearing the Borrower or the Executing Agency and assessing their information and clarifications, may the Bank take such measures as it deems appropriate, in accordance with provisions to be set forth in the loan contract.
 - (b) The resources of the loan shall be used to participate in the execution of a Program estimated at the equivalent of US\$785,800,000. Consequently, the loan contract shall contain such provisions as the Bank deems appropriate to ensure that such additional resources as may be necessary, in addition to the loan, for the complete execution of the Program shall be duly provided, in an amount estimated at the equivalent of US\$539,800,000, in accordance with a schedule of investments satisfactory to the Bank. This figure includes the equivalent of US\$224,000,000 from a loan from the World Bank, and the equivalent of US\$150,000,000 from a loan from the Exim-Bank of Japan.
 - (c) Up to the equivalent of US\$14,900,000 of the resources of the financing may be used to finance expenses incurred in the Program before the date of this resolution but after

July 10, 1990, provided that requirements substantially similar to those of this resolution and the loan contract have been fulfilled.

- (d) In the acquisition of machinery, equipment and other materials for the Program, and in the awarding of construction contracts, the system of public bidding shall be followed in each case in which the value of such acquisitions or contracts exceeds the equivalent of US\$200,000. The bidding shall be subject to the procedures to be appended as an Annex to the loan contract. This provision shall not apply to acquisitions made with resources from other sources of external financing.
- (e) Notwithstanding the provisions in paragraph (d) above, the Borrower may execute, through force account, routine maintenance works in an amount of up to the equivalent of US\$112,000,000.
- (f) The Bank shall establish such inspections procedures as it deems necessary to assure the satisfactory execution of the Program and the Borrower shall extend all cooperation which is required for the most effective accomplishment of this purpose. From the amount of the financing the sum of US\$2,460,000 shall be allocated for credit to the income accounts of the Bank to meet expenses of general inspection and supervision.

RECOMMENDATIONS

A. It is recommended that the following conditions, to be fulfilled to the Bank's satisfaction, be included in the loan contract, in addition to those set forth in the proposed resolution:

1. In the case of bidding for works the value of which is estimated at the equivalent of US\$5,000,000 or less, the Bank shall conduct an ex-ante supervision of the first three invitations to bid to be carried out after the date of the contract, following its current procedures on this subject, and shall conduct an ex-post supervision of subsequent bidding, to verify that such procedures were carried out according to the requirements established in the bidding procedures (Annex B to the loan contract). In the case of bidding for works in amounts of more than the equivalent of US\$5,000,000 the supervision shall be conducted ex-ante, pursuant to the Bank's normal procedures and the rules set forth in the above mentioned bidding procedures.
2. Unless otherwise agreed to by the Bank, in the case of construction contracts exceeding the equivalent of US\$5,000,000 and in the first three calls for bids for the execution of works the value of which is higher than US\$200,000, the Borrower shall submit the following to the Bank for each work prior to the call for bids:
 - (a) the general plans, specifications, budgets, the specific requirements and other documents necessary for the call for bids; and
 - (b) evidence of legal possession or the necessary rights to the lands where the pertinent works will be carried out.
3. The Borrower undertakes to submit to the Bank, within 6 months after the signing of the loan contract, a list to include all of the biddings chargeable to the financing carried out in 1990 and up to the date of preparation of such list, so that it may be used by the Bank to conduct the ex-post supervision referred to in paragraph 1 above. From that time on and up to the conclusion of the Program, the Borrower undertakes to submit, together with the request for the pertinent disbursement, or not later than every three months, lists on subsequently concluded biddings. These lists shall contain at least the following information: a description of the respective work; the amount and date of the award; and the name of the successful bidder and its country of origin.

4. The Borrower undertakes to contract, within 9 months from the date of the loan contract and following the procedures set forth in paragraph V of Appendix III, the consulting services which may be required for the preparation of a study on the need and method for strengthening the institutional capacity of the Executing Agency in regard to environmental matters. The Borrower undertakes to submit the study to the Bank within 24 months from the date of the loan contract. The study is to include the items indicated in paragraph VIII of Appendix III and shall follow terms of reference to be agreed upon with the Bank.
5. The Borrower undertakes to designate in the Dirección de Vialidad, within 6 months from the date of the contract, a professional to be trained in environmental matters related to the roads' sector, to engage in the supervision and coordination of environmental matters relating to the Program.
6. The Borrower, through the Executing Agency, shall submit to the Bank: (a) within 12 months from the date of the loan contract, the list of the annual supplementary data, general and sectoral, to be gathered to examine the overall results of the Program; and (b) at the end of the third year after the date of the last disbursement, an ex-post evaluation report on the results of the Program based on the methodology used for the ex-ante evaluation of the Program, applied to a representative sample of the regions of Chile and the various types of projects.
7. The Borrower shall ensure that the "Red Básica" and the Red Comunal Primaria will be maintained pursuant to generally accepted technical standards. Within 5 years following completion of the Program and within the first 4 months of each calendar year, the Borrower shall submit to the Bank a bi-annual evaluation through sampling of the maintenance of those systems, as well as an annual maintenance plan. Such plans shall be prepared in accordance with paragraph VII of Appendix III.
8. The Borrower agrees that its road investment and maintenance programs annually and during the execution of the Program, shall be satisfactory to the Bank. To this end, beginning in 1991, the Borrower and the Bank agree to meet during the second half of each year, but before December 15, to draw up the road plan for the following year.
9. The Borrower undertakes to hold semiannual meetings with the Bank to evaluate the progress of the Program. The evaluation will be conducted based on the key monitoring and evaluation indicators that have been agreed upon in advance with the Bank. The meeting for the first six months of the respective year will take place prior to August 31 of that year and the one for the second six-month period will be held before March 1 of the following year.

10. The Borrower, through the Executing Agency, agrees to submit to the Bank during the execution of the Program and not later than 45 days after the end of each quarter ending December 31, March 30, June 30 and September 30, a report on the progress in regard to physical, financial, institutional and environmental matters relative to the Program. Each report shall be of such scope and detail as agreed upon with the Bank. The information referring to the progress made will be measured with respect to the key monitoring and evaluation indicators agreed upon with the Bank.
 11. The Borrower undertakes to annually submit to the Bank, during the execution of the Program, the financial statements of the Program, duly certified by the Contraloría General de la República. The first financial statements shall be those of fiscal year 1990.
- B. The loan contract shall contain a document, as an Annex, the content of which shall be substantially similar to that of Appendix III (The Program).

THE PROGRAM

(Annex A of the Loan Contract)

I. Objectives

- 1.01 The general objective of the Program is to help the Borrower consolidate the administrative and operating structure of the road subsector, to ensure proper construction, rehabilitation and maintenance of the country's roads.

II. Description

- 2.01 The Program is made up of the following parts:

1. Investments

- increase the capacity of the road network system by approximately 156 km, including the bridges in various sections of the Carretera Longitudinal and east-west highways;
- construction, reconstruction and improvement of highways and roads in the Red Básica, as well as in the Red Comunal, both regarding fully paved roads, as well as gravel roads; improvement of dust roads to transform their surfaces to gravel and improvement of gravel roads to fully paved ones;
- construction, reconstruction or replacement of bridges, bypasses and overpasses.

2. Maintenance

- Periodic maintenance, which includes, among other things: (a) sealing and recapping of treated wearing courses and shoulders; (b) gravel surfaces and paving of unpaved roads; (c) repairs of drainage works, river works and bridges.
- Routine maintenance of: (a) the Red Vial Básica with approximately 23,000 km of roads; (b) the Red Comunal Primaria with approximately 24,000 km of roads; (c) the Red Comunal Secundaria with a total of approximately 32,000 km of roads.
- Emergency rehabilitation of roads and road structures in cases of unforeseen disasters.
- Procurement and use of road maintenance equipment.

3. Staff training

The Program calls for carrying out programs, seminars and studies to improve the maintenance capacity of the national road system, through: (a) training programs for about 3,400 officials, including professionals, technicians and administrative staff; (b) training for road instructors; (c) study visits abroad for approximately 45 executives and professionals of the Executing Agency; (d) instructional training materials; and (e) development of training policies.

4. Consulting services

- Contracting and use of consulting services to prepare a study for developing and strengthening the Executing Agency in environmental matters.
- Consulting services for technical and economic studies and for coordinating and supervising the civil works included in the Program.

III. Cost of the Program

- 3.01 The total cost of the program has been estimated at the equivalent of US\$785,800,000, according to the following breakdown by investment categories and sources of financing:

Total Cost of the Program and its finances

(Equivalent in millions of US\$)

<u>Investment categories</u>	<u>Bank</u>	<u>BIRF</u>	<u>Eximbank</u>	<u>Local</u>	<u>Total</u>	<u>(%)</u>
1. Engineering & Administration	--	<u>14.3</u>	--	<u>42.4</u>	<u>56.7</u>	7.2
	--	<u>14.3</u>	--	<u>4.4</u>	<u>18.7</u>	
1.1 Supervision	--	--	--	38.0	38.0	
1.2 Administration						
2. Direct Costs	<u>195.0</u>	<u>182.0</u>	<u>135.0</u>	<u>105.1</u>	<u>617.1</u>	78.5
2.1 Investments	82.0	38.6	28.0	26.1	175.7	22.3
2.1.1 Double Roadways	28.6	34.4	25.8	18.1	106.9	
2.1.2 Bridges	3.4	4.2	3.2	2.3	13.1	
2.1.3 Improvement	50.0	--	--	5.7	55.7	
2.2 Maintenance	<u>113.0</u>	<u>141.4</u>	<u>106.0</u>	<u>79.0</u>	<u>439.4</u>	55.9
2.2.1 Periodic	83.0	105.4	79.0	50.0	327.4	
2.2.2 Routine	20.0	36.0	27.0	29.0	112.0	
2.3 Equipment	--	2.0	--	--	2.0	
3. Escalation	<u>25.0</u>	<u>27.0</u>	<u>15.0</u>	<u>12.9</u>	<u>79.9</u>	10.2
4. Concurrent Costs	--	<u>0.7</u>	--	<u>0.3</u>	<u>1.0</u>	
4.1 Technical Studies	--	0.1	--	--	0.1	
4.2 Environmental Studies	--	--	--	0.2	0.2	
4.3 Training	--	0.6	--	0.1	0.7	
5. Financial Costs	<u>26.0</u>	--	--	<u>5.1</u>	<u>31.1</u>	4.0
5.1 Interest	23.5	--	--	--	23.5	
5.2 Credit Fee	--	--	--	5.1	5.1	
5.3 Inspection and Supervision Fund	<u>2.5</u>	--	--	--	<u>2.5</u>	
TOTALS	246.0	224.0	150.0	165.8	785.8	100.0
PERCENTAGES	31.3	28.5	19.1	21.1	100.0	

IV. Procurement

- 4.01 When the goods or services to be procured or contracted are to be financed in whole or in part with foreign exchange from the financing, the procedures and specific requirements for the invitation for bids or other form of purchase or contracting shall permit the unrestricted participation of goods and services, including those relating to any mode of transport, originating in the member countries of the Bank. Consequently, no conditions that would either limit or restrict the supplying of goods or the participation of contractors originating in such countries may be imposed through such procedures and specific bidding requirements.

V. Consulting services

- 5.01 In the selection and contracting of the necessary consulting services for the supervision of the execution of the works of the

Program financed with counterpart resources, the Borrower, through the MOP, shall present for the approval of the Bank:

- (a) The names and background of the consulting firms from which the respective consultants shall be selected. This list may be periodically updated at the request of MOP;
 - (b) The model contracts with their respective terms of reference.
- 5.02 The selection and contracting of such consulting services shall be carried out by the Executing Agency, in accordance with the methodology agreed upon with the Bank. Once the respective contract has been signed, a true copy of such contract shall be promptly sent to the Bank.

VI. Eligibility criteria

- 6.01 At least 50% of the total resources of the program shall be channeled to the maintenance and rehabilitation works of the road system. In particular, the following shall be the eligibility criteria for the projects to be executed under the program:
- (a) They must be part of the Red Vial Básica or the Red Comunal.
 - (b) In the case of projects involving improvement, rehabilitation and periodic maintenance, they must have been evaluated and selected using model HDM-III or alternatives agreed upon with the Bank and have a minimum rate of return of 12%.
 - (c) The work shall consist in providing the maintenance or improvement needed by the road under its present condition, restoring the existing wearing course or replacing it by one that is technically and economically more satisfactory in accordance with the traffic conditions, topography, etc.
 - (d) For projects involving second wearing courses and bridges, the economic internal rate of return shall be equal to or greater than 12%.
 - (e) The projects shall include the necessary measures for mitigating as much as possible any negative effects on the environment, following the guidelines agreed upon with the Bank.

VII. Maintenance

- 7.01 The purpose of the maintenance shall be to keep the highways and roads of the Red Vial Básica and the Red Comunal substantially in the same physical and operating conditions as when they were completed.

- 7.02 The annual maintenance plan shall be submitted for Bank consideration commencing in the fiscal year following the completion of the program.
- 7.03 The annual maintenance plan shall pertain to all of the maintenance activities selected under an economic efficiency criterion and conducted pursuant to generally accepted technical standards, for the purpose of attaining the objectives mentioned in paragraph 7.01. In this context, the annual maintenance plan shall include: (a) details on the organization responsible for maintenance, personnel in charge, and number, type and condition of the equipment used for maintenance; (b) the location, size and condition of the maintenance repair, storage and camp facilities; (c) the control measures that have to be adopted for limiting the size and weight of vehicles using the roads; (d) physical maintenance goals by region and a description of such goals; (e) the information on the resources that will be invested in maintenance during the present year and the amount that will be assigned in the budget of the following year for the maintenance program; and (f) a report on the maintenance conditions based on the sufficiency evaluation system established by the MOP.
- 7.04 In the event that the maintenance services are contracted out, the contract shall ensure that the maintenance objectives indicated in paragraph 7.01 shall be accomplished.

VIII. Environmental Assessment

- 8.01 The study for developing and strengthening the Executing Agency regarding the environment shall permit: (i) determining whether the procedures, policies and standards in effect for designing the construction of roads and bridges take into account the direct effects on the environment, and environmental risk factors for the work, with a view to reducing them; and helping revise them if necessary; (ii) studying the indirect effects of a group of works recently completed, determining the nature and approximate costs of the mitigating actions carried out and those that should have been carried out, and producing recommendations for the design and financing of future actions; (iii) formulating an environmental policy and guidelines to assess the environmental impact of road projects with Government entities specializing in the environment; and (iv) developing a training program in accordance with the recommendations, policies, manuals and guides to be drawn up.

IX. Follow up of the Program

- 9.01 The MOP, and the Bank shall meet at least two times a year to analyze and agree upon the following items:
- (a) During the first half of each year, the results of Program execution for the preceding year will be reviewed, including the following aspects:

- evaluation of the financial execution of the investments in highways and maintenance;
 - evaluation of the progress made in the investment program for highway projects and maintenance and its consistency with the physical goals;
 - execution of the training component;
 - use of consulting services;
 - review of the reports and consolidation of disbursements with costs incurred; and
- (b) During the second half of each year, the execution of the program for the current year and the proposed program for the following year will be reviewed, based on the progress achieved in the execution and experience. Some of the items that will be evaluated are, inter alia:
- the statement of expenditures and execution of the works on the highways during the current year, including physical goals;
 - fulfillment of the objectives of the Program, projects, services and other components;
 - the detailed proposal for the investment and maintenance budget for the following year, including the documents and criteria upon which their composition is based and the base for the inclusion of the various types of works in the program; and
 - the proposed scheduling of disbursements.

ANNEX B

TENDER PROCEDURES

(Highway Improvement Program)

I. APPLICABILITY

1.01 This procedure shall be used by the Executing Agency in all procurement of goods and contracting of construction for the Program whenever the value of such goods or works exceeds the equivalent of two hundred thousand United States Dollars (US\$200,000) and provided such Agency is part of the public sector. Included in the public sector are corporations and other entities in which government participation exceeds 50 percent of their capital.

1.02 In addition, the Executing Agency may apply formal requirements or procedures envisaged under local law and not included in these Procedures, provided that their application does not run counter to the basic guarantees under the bidding or pertinent Bank policies.

1.03 Ex ante supervision

The Bank's supervision, as established in these Procedures and for all types of approvals the Bank has to give during the bidding process, whether such approvals refer to documents, bidding stages, actions proposed to be taken by the Executing Agency or others, shall be carried out as indicated in these Procedures and only in relation to bidding on works the estimated cost of which is greater than US\$5,000,000, and to the first three invitations to bid for the equivalent of that amount or for smaller amounts.

1.04 Ex post evaluation

The Bank's supervision for works with an estimated value of US\$5,000,000 equivalent or less, except for the provisions of paragraph 1.03 for the first three invitations to bid, shall be conducted ex post, in the following manner:

- (a) As soon as the contract award has been made for each invitation to bid, the Executing Agency shall submit the following to the Bank for its consideration:
 - (i) copy of the announcements and letters publicizing the bidding;
 - (ii) copy of the report reviewing the bids and recommending the award;
 - (iii) two copies of each work contract signed; and
 - (iv) any other additional information the Bank may require.

- (b) Invitations to bid in the amounts established in this category, as well as in the other categories, must fulfill all of the requirements under this contract. If the Bank reaches the conclusion, from its ex post evaluation, that a contract was awarded without following applicable Bank procedures, the provisions of paragraph 5.01 of the Procedures shall be followed.

II. GENERAL RULES

A. Public International Bidding

- 2.01 The system of public international bidding shall be used whenever the acquisition of goods or execution of services is to be partially or totally financed with foreign exchange from the financing and its cost exceeds the equivalent of two hundred thousand United States dollars (US\$200,000).
- 2.02 When foreign exchange of the financing is used, the procedures and specific requirements for the bidding shall permit the unrestricted participation of bidders from member countries of the Bank. Consequently, no conditions that would limit or restrict the offer of goods and services, including those related to any mode of transport, or the participation of contractors from such countries may be imposed through such procedures or specific requirements.

B. Public Bidding that may be Restricted Locally

- 2.03 The acquisition of goods or execution of services to be totally or partially financed with local currency from the Financing, or with local counterpart funds whose total exceeds the equivalent of two hundred thousand United States Dollars (US\$200,000), shall be accomplished through public bidding which may be limited to the national economy.

C. Other Procedures for Execution of Services or Procurement of Goods

- 2.04 The Executing Agency may follow procedures agreed upon with the other suppliers of resources of the Program provided that such procedures are tailored to the technical requirements of the Program and guarantee that both the cost of the goods or services and the financial terms and conditions governing the resources are deemed reasonable by the Bank. These procedures shall not run counter to the basic rules of these procedures.

D. Procedures Applicable to Bids of US\$200,000 or Less

- 2.05 The procurement of goods or execution of services for amounts less than or equal to the equivalent of two hundred thousand United States Dollars (US\$200,000), shall be governed in principle by the provisions of local law. Insofar as possible, the Executing Agency shall establish procedures permitting the participation of several bidders and give appropriate consideration to economy, efficiency, and price. Whenever foreign exchange from the financing is to be

utilized, the procedures employed shall permit, in addition, the participation of bidders for goods and services from the Bank's member countries.

E. Participants and Eligible Goods

- 2.06 Goods and services to be procured for the Project (Program) that are to be financed by proceeds from the loan, must originate in the Bank's member countries. The following rules shall be followed in determining such origin:

1. Bidding on Works

- 2.07 Only firms from the Bank's member countries or those of the International Bank for Reconstruction and Development may bid on works. To verify the nationality of the bidding firm, the Executing Agency must use the following criteria:

- (a) That the firm be incorporated and operating in accordance with the legal provisions of the member country in which it has its principal place of business;
- (b) That the firm have its principal place of business located in a member country;
- (c) That the firm be more than 50% beneficially owned by one or more natural persons from one or more member countries and/or by citizens or bona fide residents of such eligible countries;
- (d) That the firm be an integral part of the economy of the member country in which it has its place of business;
- (e) That there be no arrangement whereby any substantial part of the net profits or other tangible benefits of the firm will accrue or be paid to natural persons not citizens or bona fide residents of member countries, or to juridical persons not eligible pursuant to the nationality requirements of this article;
- (f) That in the case of a construction contract not less than 80% of all persons who will perform services under the contract in the country where the construction is to be carried out, whether employed directly by the contractor or by a subcontractor, be citizens of a member country. For purposes of this computation, with respect to a firm from a country other than the site of the construction, citizens or permanent residents of the country where the construction is to be carried out will not be counted; and
- (g) The foregoing criteria apply to each member of a joint venture or consortium (a collaborative effort of two or more firms) and to every firm which is proposed to subcontract part of the work.

The requirements set forth in this Section, must be communicated to interested parties, who shall provide the Executing Agency with the information necessary for verification of their nationalities on the prequalification, registration and bid forms.

2. Bidding on the procurement of goods

2.08 Goods may only be procured which originate in the member countries of the Bank. The country of origin of a good shall be:

- (a) the country in which the material and/or equipment has been mined, grown, produced, manufactured or processed; and
- (b) the country in which, through manufacturing, processing or assembly, another commercially recognized article results which differs substantially in its basic characteristics, purpose or utility from any of its imported components. The nationality or country of origin of the firm that produces or sells the goods or equipment shall not be relevant for determining their origin.

F. National and Regional Margins of Preference for Bidding on the Procurement of Goods

2.09 The Executing Agency may apply the following margins of preference in public international bidding on the procurement of goods.

1. National Margin of Preference

2.10 Where suppliers in the country of the Executing Agency participate in public bidding, such local suppliers of goods may be entitled to a national margin of preference which is provided to them, utilizing the following criteria:

- (a) Goods shall be considered to be of local origin if the cost of the local materials, labor and services used to produce the item constitutes not less than 40% of the cost of the finished product;
- (b) In comparing local and foreign offers, the bid or offered price of goods of local origin shall be the delivered price at the program site, with deductions for: (1) import duties paid on significant raw materials or manufactured components, and (2) local sales, consumption and value-added taxes incorporated in the cost of the item or items being offered. Proof of the amounts to be deducted under (1) and (2) shall be established by the local bidder. The foreign bid or offered price shall be the CIF price (excluding import duties, consular fees and port taxes) to which will be added port handling charges and any local transportation from the port or frontier to the project (or program) site;

- (c) The conversion of currencies to provide price comparisons shall be made on the basis of the conversion rate utilized by the Bank itself in its loan contracts; and
- (d) In adjudicating bids, a 15% margin of preference or the actual import duty, whichever is the lesser, may be added by the Executing Agency to the CIF price of the foreign offers expressed in their local currency equivalent.

2. Regional Margin of Preference

- (a) For purposes of this Contract, the Bank recognizes the following regional or subregional integration agreements: (i) Central American Common Market; (ii) Caribbean Community; (iii) Cartagena Agreement, and (iv) Latin American Integration Association. If the country where the Executing Agency is located has signed more than one integration agreement, either the subregional margin of preference or the regional margin may apply depending on the country of origin of the article to be procured.
- (b) Where suppliers of a country (other than the country of the Executing Agency) that is a party to an integration agreement, to which the country of the Executing Agency is also a party, participate in such bidding, such suppliers of goods are entitled to a regional margin of preference utilizing the following criteria:
 - (i) Goods shall be considered to be of regional origin if they originate in countries that are parties to an integration agreement to which the Executing Agency is also a party and comply with the standards governing origin and other matters relating to trade liberalization programs established in the respective agreements;
 - (ii) The local value added is not less than that stipulated for the national margin of preference; and
 - (iii) In comparing foreign offers, the Executing Agency may add to the price offered for goods originating in countries not parties to the respective integration agreement, either 15% or the difference between the import duty applicable to such goods when they originate in countries not parties to the integration agreement and that which is applicable to those goods when they originate in countries which are parties to the agreement, whichever is lower.

III. PUBLIC INTERNATIONAL BIDDING

A. Prequalification. Registration of Bidders.

1. Applicability. General Rule.

3.01 As a general rule, in bidding conducted for the execution of services, the Executing Agency shall use a system of prequalification or registration of bidders. The Executing Agency may also use this system in bidding conducted for the procurement of goods if deemed appropriate. For smaller-scale works, the Executing Agency and the Bank may agree to waive this requirement.

3.02 Two-Envelope Procedure. Unless prohibited by the laws of the respective country, the Bank and the Executing Agency may agree to a two-envelope procedure whenever, in the judgment of the Executing Agency and the Bank, circumstances so dictate. By means of this procedure, which must be clearly established in the bidding documents, every bidder shall submit, at the time the bids are opened, two envelopes containing the following:

(a) Envelope 1 - information on the financial, legal and technical qualifications of the firms, such as: financial solvency, general and specific experience, key personnel and machinery available for the project, contracts fulfilled, ongoing contracts, current obligations and litigation.

(b) Envelope 2 - the bid itself, with the respective price quotation.

(c) At the opening of bids, which shall take place in a public ceremony at the set day and time, Envelopes No. 1 shall be opened and verified whether the bidders have included all documents required by the bidding specifications. If the envelopes do not contain the required documentation, the fact will be recorded in the minutes along with a description of the missing or incomplete information, and Envelope No. 2 shall be returned to the bidders unopened. Upon completing these procedures the first ceremony shall be adjourned, and Envelopes No. 2 of bidders that have presented all the required information shall remain sealed. Based on the information presented in Envelope No. 1, prequalification of bidders shall take place within the periods set forth in the bidding documents to evaluate the financial, legal and technical capacity of the firms. Once the prequalification has been completed and approved by the Bank, the second public ceremony shall take place at the date, time and place set in the bidding documents. At this act, Envelopes No. 2 shall be returned unopened to the firms not prequalified. Once the representatives of the firms that did not prequalify have withdrawn, Envelopes No. 2 of the firms that did prequalify shall be opened, the price of each offer shall be read aloud, and a record of the prices and main points of the tenders shall be made in the minutes.

- (d) The final evaluation of the proposals and the award shall be made within the time period set forth in the bidding documents, and once the Bank has given its consent to the proceedings.

2. Registration of Bidders

- 3.03 No conditions that would impede or deter the participation of foreign companies or violate the principle of bidder equality shall be established in the procedures for registration or prequalification of bidders. Records shall be opened frequently, to update information on registered firms or to add new firms, and whenever bidding is held with resources of this program.

3. Term for Prequalification

- 3.04 The Executing Agency shall conclude the prequalification within a term compatible with the timetable of investments mutually agreed upon by the Executing Agency and the Bank.

4. Content and Publicity of the Invitation to Bid

a. Prior Approval of the Bidding Documents by the Bank

- 3.05 The bidding documents, including the public notices and bidder prequalification or registration forms, as the case may be, shall be mutually agreed upon by the Executing Agency and the Bank prior to the publication of the call for registration of prospective bidders. The bidding documents shall comply with the provisions of paragraph B.3 (Bidding Documents) herein.

b. Content of the Public Notice

- 3.06 The public notice of prequalification or registration of prospective bidders shall include, as a minimum, the following information:
 - (a) General description of the Program and of the work which is the subject of the bidding, its site and its principal characteristics. In the case of bidding on materials, their description and distinguishing characteristics, if any;
 - (b) the method proposed for prequalification;
 - (c) approximate dates of the invitations to bid, opening of tenders, commencement of the services which are the subject of the bidding, and completion of construction;
 - (d) the fact that the Program is being partially financed by the Bank and that the procurement of goods or contracting for services covered by said Financing shall be subject to the provisions of the loan contract signed with the Bank;

- (e) the place, time and date on which firms may obtain the prequalification or registration forms agreed upon by the Executing Agency and the Bank, as well as their cost; and
- (f) any other requirements to prequalify and be subsequently invited to bid or to be able to participate in public bidding.

c. Publicity

- (a) Newspapers and Trade Journals. The public notice of prequalification or registration or the invitation to bid, when prequalification has not taken place, shall be published in at least one of the most widely circulated newspapers in the country on at least three separate occasions. There must be a space of at least three calendar days between each of the three public notices. For contracts whose estimated cost is greater than US\$5,000,000, the public notice of prequalification, registration or submission of bids must be published, in addition, in a widely circulated international trade journal and in the United Nations journal "Development Business. The Business Edition of Development Forum".
- (b) Embassies. The Executing Agency shall deliver copies of the notices of prequalification, registration or submission of bids, as the case may be, to the embassies or, if there are none, to the consulates of each of the Bank's member countries on the same date they are delivered to the press for publication.

5. Content of the Prequalification or Registration Form

- 3.07 The prequalification or registration form, as the case may be, shall contain, inter alia, the following data:
- (a) Legal background on the creation, juridical nature and nationality of the bidding firm. A copy of the firm's by-laws and statutes shall be attached. The information on the nationality of the firm shall comply with Chapter II, paragraph E 2.07 herein;
 - (b) technical background of the firm;
 - (c) financial condition of the firm;
 - (d) available staff and equipment;
 - (e) experience in the construction, manufacture and installation of goods or services similar to those which are the subject of the bidding;
 - (f) work under way or present obligations assumed by the firm;
 - (g) evidence that the firm has sufficient staff and equipment to satisfactorily carry out the services envisaged in the Project

(Program) and an indication of where such staff and equipment are located; and

(h) description, in broad terms, of how the firm would execute the services.

6. Deadline for Delivery of the Forms

3.08 Interested parties shall have at least 45 calendar days, from the final publication of the notice, to file prequalification or registration forms. This time frame may be reduced to 30 days whenever the bidding is restricted to the national level.

7. Selection of Prequalified Firms

a. Qualified Firms

3.09 Only those firms that have demonstrated the necessary technical, financial, legal, and administrative qualifications to carry out the services, in accordance with existing laws in the respective country and the norms established herein, may be prequalified or entered on the register of bidders. Firms exhibiting obvious defects, errors or omissions may be allowed, provided that such defects, errors or omissions do not affect substantive matters and, if corrected, do not alter the principle of bidder equality.

b. Technical Report

3.10 The Executing Agency shall prepare a technical report on firms that filed for prequalification, indicating which were declared prequalified or duly qualified in the registry of projects and which were not, together with the grounds for such action. The report shall be sent to the Bank promptly for its approval or rejection.

c. Notification of Results

3.11 Once the Bank approves the technical report, all participating firms shall be notified of the results simultaneously.

d. Later Disqualification

3.12 Once prequalified, a firm may not be disqualified from bidding unless prequalification or registration was based on incorrect information filed by the firm or unless compelling circumstances that would justify such a decision occur after the date of prequalification or registration.

e. Duration of Eligibility

3.13 If one year has elapsed since prequalification or registration, and an invitation has not been issued, the Executing Agency shall issue a new call for prequalification or registration so that prospective new bidders may be admitted and those firms already prequalified or

registered may update the information they provided originally. The new call shall meet the prerequisites established herein.

f. Absence of Prospective Bidders

- (a) If fewer than two prospective bidders were prequalified or registered in the first call, a second call shall be made, following the same procedure, unless the Bank authorizes private bidding on the terms set forth in the following subparagraph or authorizes the hiring of the sole successful bidder; and
- (b) if after the second call, two or more firms fail to qualify, the prequalification may be declared null and void, and with the prior approval of the Bank, private bidding may be conducted with at least three firms being invited to bid, including the firm prequalified previously if there was one.

3.14 Prequalification for several invitations to bid

- (a) The Executing Agency may reach an agreement with the Bank to hold a single prequalification of contractors for several invitations to bid for the construction of a number of works of the same kind which, owing to their location or other factors acceptable to the Bank, could not be accomplished through a single invitation to bid.
- (b) Contractors thus prequalified may participate, if so established in the bidding documents, in one or more of the invitations to bid scheduled. The Executing Agency may request that the bidders update, in each invitation to bid, any information which may have changed since prequalification, and in particular may require proof that the execution capacity of each contractor continues to be in line with the requirements of the bidding documents.
- (c) The period of validity of the prequalifications for a number of invitations to bid shall not exceed one year.

B. Bidding

1. Invitation to Bid

a. When prequalification took place.

- 3.15 If prequalification has taken place, the Executing Agency shall send or deliver invitations to bid to only those firms that were prequalified. Prior to sending or delivering such invitations, the Executing Agency shall transmit to the Bank, for its approval, the text of the invitation to bid, together with the bidding documents if they were not transmitted earlier. At this stage, notices need not be published, and the embassies need not be advised as is stipulated in paragraph A 4(c) above.

b. Without Prequalification

- 3.16 In the absence of prequalification, the invitation to bid shall be publicized as set forth in paragraph A 4(c) herein. The bidding documents shall clearly specify the minimum prerequisites which would qualify bidders to carry out the services or supply the goods involved. For this purpose, the documents shall include a questionnaire similar in content to the form specified in paragraph 3.07 of this Chapter, which is to be filled out by interested parties and delivered by them along with their respective offers.

2. Notices of the Call to Bid and Invitations to Bid

- 3.17 Calls to bid published in the press or invitations to bid delivered or forwarded to prequalified firms must specify, at a minimum, the following information:

- (a) Description of the Program, purpose of the bidding and source of funds to cover the cost of the procurement of goods or services;
- (b) the fact that the Program shall be partially financed by the Bank and that the procurement of goods or contracting of services payable from said financing shall be subject to the provisions of the loan contract entered into with the Bank;
- (c) general description of the equipment, machinery and materials required, as well as of the services, the volume or quantity of work, its principal parts and deadline for its completion;
- (d) the office or place, date and time at which the bidding documents, including the bidding guidelines, plans, specifications, and draft contracts may be obtained;
- (e) the office where the bids are to be delivered and the authority responsible for their approval and award; and
- (f) the place, date and time at which the bids will be opened in the presence of the bidders or their representatives.

3. Bidding Documents

a. Bank Approval

- 3.18 The bidding documents, including inter alia instructions to bidders, conditions of contract, schedule of requirements/bill of quantity, technical specifications, if any, and the contract draft shall be approved by the Bank prior to their release to interested parties.

b. Clarity of the Documents

- 3.19 The Executing Agency should ensure that the bidding documents are coherent and comprehensive. Particular care must be taken to ensure

that the goods and services to be supplied are described with sufficient clarity and in sufficient detail to form the base for competitive bids. The cost of such documents must be reasonable.

c. Free Access to the Executing Agency

- 3.20 The Executing Agency shall be available, once the bidding documents have been collected by bidders and up to the time the bids are opened, to answer questions or clarify the bid documents for bidders. These inquiries shall be answered promptly by the Executing Agency, and clarifications, if any, made available to the other interested parties and the Bank.

d. Standards of Quality

- 3.21 If particular standards with which equipment or materials must comply are cited, the specifications should state that goods meeting other authoritative standards, which ensure an equal or higher quality than the standards mentioned, will also be accepted.

e. Specifications for Equipment: Brand Names

- 3.22 Descriptions contained in specifications should not prescribe brand names, catalogue numbers, or types of equipment of a specific manufacturer unless it has been determined that this is necessary to ensure inclusion of certain essential design, performance or construction features. In such a case, the reference should be followed by the words "or equivalent," and a measure to determine the "equivalence" included. The specifications should permit offers of alternate equipment, articles or materials which have similar characteristics and provide equal performance and quality to those specified. In special cases, with previous approval of the Bank, specifications may require that a proprietary item be supplied.

f. Currency Clause

- 3.23 The bidding documents should state the currency or currencies to be used in payment, taking into account the provisions of this Contract. Whenever expenditures in both local currency and foreign currency are involved, the bidding documents should require that the documents of these expenditures be detailed separately.

g. Bid Bonds

- 3.24 Bid bonds or other tender guarantees should not be set so high or their validity stretched out over long periods, as to discourage suitable bidders from tendering. In addition, bid bonds shall be returned:

(a) to the winning party once the contract is executed and its bid bond or performance guarantee accepted;

(b) to the second- and third-place bidders, within a term of no more than three months from the date of the award or upon execution of the contract, if the latter occurs prior to such deadline. Nevertheless, if such bidders indicate lack of interest, the bond shall be returned within five days following the award;

(c) to other bidders within five days following the award.

h. Performance Guarantees

3.25 Specifications for construction works should require performance bonds or other surety to guarantee that the work will be carried on to completion. Even though the amount of the bond will vary with the type and magnitude of the work, it should be defined in the bidding documents and be sufficient to afford the borrower adequate protection. The amount of the bond should be sufficient to ensure completion of the work, at no increase in expense to the Executing Agency, in case of default by the contractor in the performance of the work. The life of the bond or surety should extend sufficiently beyond completion of the contract to cover a reasonable warranty period. If necessary, performance bonds or sureties may be required in connection with contracts for supply of equipment, although in such cases the bidding documents should provide, if possible, that a percentage of the total payment be held as retention money to guarantee performance.

4. Deadlines for Submission of Bids

a. Normal Term

3.26 The time limit for filing offers in the case of civil works with an estimated cost of up to the equivalent of US\$5,000,000 shall be at least 30 calendar days from the date of the last publication of the bidding notification or the date of availability of bidding documents, whichever is later. Nevertheless, the bidding documents shall indicate that whenever foreign firms participate the time limit shall be automatically extended to 45 calendar days. Foreign firms will be considered to be participating when one such firm acquires the bidding conditions for a particular call for bids and presents to the appropriate authority the updated technical and economic information which, pursuant to local legislation, bidders must submit before presenting their bids. Except as provided under paragraph 3.27, whenever the estimated cost of the work is greater than the equivalent of US\$5,000,000 the time limit shall be at least 45 days.

b. Term for Large Civil Works

3.27 Where large civil works are involved, a minimum of 90 calendar days shall be allowed for bidders to prepare their proposals.

c. Deadline for Filing of Domestic Bids

- 3.28 When the bidding is limited to the national economy, the Executing Agency may reduce the deadline for filing offers to a period of up to 30 calendar days.

5. Confidentiality of Bid and Prequalification Documents

- 3.29 The officers in charge of receiving the envelopes containing prequalification or registration forms or tenders, shall verify that such envelopes are delivered by the tenderer properly sealed. These envelopes shall be kept in a safe place until opened and recorded. Once opened, no copies shall be taken of these documents, and other suitable measures should be envisaged to ensure that their contents are not divulged to persons other than those officially responsible for their examination. Except as may be required by law, no information relating to the examination, tabulation, clarification and evaluation of bids and recommendations concerning awards, should be communicated to any person or persons not officially concerned with the procedures, after the public opening of bids and before the announcement of the award of contract to the successful bidder.

6. Modification or Extension of the Bidding Documents

- 3.30 Any modification or extension of the bidding guidelines, specifications, or the filing date must first be approved by the Bank and communicated to all interested parties who are in possession of the bidding documents. In the event that such modification or extension is substantial, in the opinion of the Executing Agency, or the Bank, there must be an interval of at least 30 calendar days between the date of notice to interested parties and the date bids are opened.

7. Consultations should not Modify the Bidding Documents

- 3.31 Consultations on the interpretation of bidding documents addressed to the Executing Agency by interested parties may not be used to modify or expand the bidding guidelines and specifications. Consultations and replies thereto shall in no case cause a suspension of the term for presentation of bids.

8. Single Bid

- 3.32 When only a single bid is received in response to an invitation to bid, the Executing Agency may not award the contract without the prior consent of the Bank.

9. Opening of Bids

- 3.33 Offers shall be submitted in writing in sealed envelopes. They must be signed by the legal representatives of the bidders and comply with the prerequisites set forth in the bidding documents. They shall be opened in public on the scheduled date and hour. Representatives of

the bidders and of the Bank may attend the bid opening and shall be entitled to inspect the bids. Bids received after the filing date shall be returned unopened. The names of the bidders, the price of each bid, the term and amount of guarantees, and any substantial change submitted separately, before the deadline but after the principal bid is submitted, shall be read aloud. All of the above shall be recorded in the proceedings, which shall be signed by the representative of the Executing Agency and by any bidders present who wish to do so.

10. Clarification of Bids

- 3.34 The Executing Agency may request clarifications from the bidders with respect to their tenders. Clarifications requested or given shall not alter the essence of the offer or its price, nor shall they violate the principle of bidder equality.

11. Analysis and Comparison of Bids

a. Purpose

- 3.35 Bids shall be analyzed and evaluated to determine whether they comply with the terms and conditions stipulated in the bidding documents, and the value of each bid shall be fixed for the purpose of awarding the winning bid.

b. Lowest Evaluated Bid

- 3.36 In addition to the bid price, adjusted to correct arithmetical errors, the Executing Agency may also consider other relevant factors in determining the low bid:
- (a) These factors preferably should be expressed in monetary terms or, as a minimum, given a relative weight according to criteria specified in the bidding documents. No criteria may be used in bid evaluation that are not set forth, together with the value assigned to them, in the bidding documents. The amount of escalation for price adjustments, if any, included in the bids, should not normally be taken into consideration; and
 - (b) The currency or currencies in which the price offered in each bid would be paid by the Executing Agency if that bid were accepted, should be valued in terms of a single currency selected by the Executing Agency for comparison of all bids and stated in the bidding documents. The rates of exchange to be used in such valuation should be the selling rates published by an official source, and applicable to similar transactions on the day bids are opened or at such later date (30 or 60 days after bid opening) as shall be specified in the call for bids.

c. Rejection of Bids

- 3.37 The Executing Agency shall reject all bids that do not comply with the bidding documents. It may, however, allow bids with obvious defects, errors or omissions, provided such defects do not involve substantive matters nor alter the principle of bidder equality. The Executing Agency may also, after consultation with the Bank, reject all bids where no bid meets the intent of the specifications, or where there is evidence of lack of competition and/or collusion. The Executing Agency may also reject all bids if the low bids exceed the official estimate by amounts justifying such action. In such cases, new bids should be requested from at least all who were invited to submit bids in the first instance and a reasonable amount of time should be allowed for the submission of the new bids. In the absence of a 100 percent performance bond, individual bids may be rejected in cases where the particular bid is so much lower than the official estimate, that it is reasonable to conclude that the bidder will not be able to complete the works or supply the product, within the specified time at the price offered.

12. Bid Evaluation Report

- 3.38 The Executing Agency shall prepare a detailed report on the analysis and comparison of bids, describing precisely the reasons for selection of the lowest evaluated bid. The report shall be submitted to the Bank for consideration prior to the contract award. If the Bank determines that the proposed award is not consistent with the terms of this Procedure, it will promptly inform the Executing Agency of its determination and state the reasons therefore. Unless the objections presented by the Bank can be overcome, the contract will not be eligible for financing by the Bank. The Bank may cancel an amount of the Financing which, in the Bank's reasonable opinion, represents the amount of such ineligible expenditures.

13. Award of Contract

a. Bank Approval

- 3.39 The award shall be made to the bidder whose responsive bid has been determined to be the lowest evaluated bid, once the Bank has approved the corresponding notice of award.

b. Notification of Award and Signature of the Contract

- 3.40 The Executing Agency shall promptly notify all bidders of the award, at the addresses they have provided. It shall promptly send to the Bank, for its approval, a draft copy of the contract for signature by the winning bidder. The contract to be signed shall not modify the winning bid or the terms and conditions stipulated in the bidding documents. Once the Bank approves the draft contract, it shall be signed. The Executing Agency shall promptly send a copy of the signed contract to the Bank.

14. Modification of the Award

- 3.41 If for any reason the winning bidder does not sign the contract within the period set for that purpose, the Executing Agency may award it, without a new invitation to bid, to the next lowest responsive bidder.

15. Bidding Declared Null and Void

a. Report to the Bank

- 3.42 Whenever the Executing Agency has reasonable grounds for declaring the bidding null and void, shall request prior approval of the Bank for such action by sending the Bank a complete report including the reasons and grounds for proposing such a measure.

b. Effects of the Declaration

- 3.43 Once the bidding is declared null and void, the Executing Agency shall issue a second invitation to bid following the provisions set forth in this procedure. If the second bidding is declared null and void, the Executing Agency and the Bank shall agree on the procedure to be followed for the procurement involved.

IV. DUE PROCESS

- 4.01 Local regulations applicable to bidding under this Procedure must guarantee the legal protection of bidders, establishing the right of administrative and judicial review.
- 4.02 The Executing Agency shall not impose conditions which would impede, restrict or increase the cost of presentation of protests by suppliers and contractors participating in public bidding for the acquisition of goods or execution of works with resources of the Financing.
- 4.03 The Executing Agency shall notify the Bank promptly of any protest or claim lodged in writing by the participating firms and of any responses to such protests or claims.

V. NONOBSERVANCE OF THIS PROCEDURE

- 5.01 The Bank reserves the right not to finance any award in which, in its opinion, there has been noncompliance with the provisions set forth in these procedures.

Table 1.1

NATIONAL ROAD SYSTEM
(kilometers)

	<u>Concrete</u>	<u>Asphalt</u>	<u>Gravel</u>	<u>Earth</u>	<u>Total</u>
Basic road system	<u>3,211</u>	<u>6,279</u>	<u>10,633</u>	<u>2,842</u>	<u>22,965</u>
A. National	2,087	2,576	1,292	20	5,975
B. Regional	754	2,726	3,184	587	7,251
C. Regional secondary	370	977	6,167	2,235	9,739
<u>Local road system</u>	<u>259</u>	<u>574</u>	<u>22,048</u>	<u>33,285</u>	<u>56,166</u>
D. Municipal primary	154	297	11,533	12,223	24,227
E. Municipal secondary	<u>105</u>	<u>277</u>	<u>10,495</u>	<u>21,062</u>	<u>31,939</u>
Total national system	<u>3,470</u>	<u>6,853</u>	<u>32,681</u>	<u>36,127</u>	<u>79,131</u>

Source: MOP, Roads Division

Table 1.2

NATIONAL ROAD SYSTEM
LENGTH BY TYPE OF SURFACE, AREA, AND CONDITION

(Length in kilometers)

	<u>Very poor</u>	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Total</u>
I. <u>Asphalt concrete</u>					
NORTH	--	463	923	1,328	2,714
CENTRAL	--	199	395	830	1,424
SOUTH	--	96	287	661	1,044
TOTAL	--	758	1,605	2,819	5,182
II. <u>Seal coat</u>					
NORTH	--	21	255	148	424
CENTRAL	--	116	240	109	465
SOUTH	--	11	611	160	782
TOTAL	--	148	1,106	417	1,671
III. <u>Gravel</u>					
NORTH	540	1,286	1,150	357	3,333
CENTRAL	1,280	2,078	2,757	730	6,845
SOUTH	2,516	5,613	8,677	1,542	18,348
EXTREME SOUTH	189	743	2,016	1,207	4,155
TOTAL	4,525	9,720	14,600	3,836	32,681
IV. <u>Earth</u>					
NORTH	4,729	3,899	1,101	134	9,863
CENTRAL	5,621	3,293	2,785	155	11,684
SOUTH	7,047	3,244	2,529	115	12,935
EXTREME SOUTH	698	419	286	72	1,475
TOTAL	18,095	10,855	6,701	476	36,127
GRAND TOTAL	22,620	21,481	24,012	7,548	75,661
(%)	30	28	32	10	100

Source: MOP, Roads Division

Cuadro 1.3

CARTERA DE PRESTAMOS

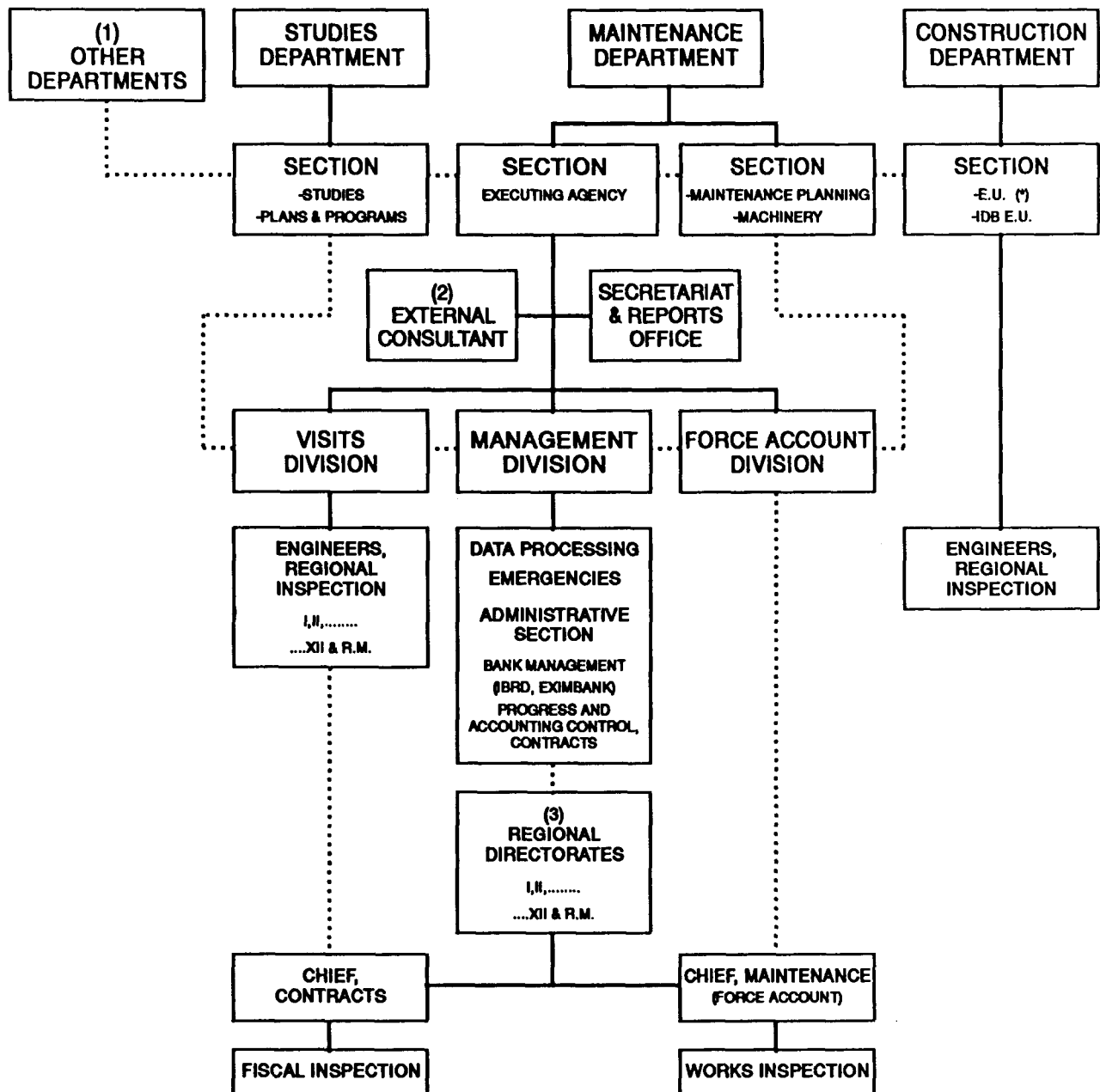
<u>Número Préstamo</u>	<u>Ejecutor</u>	<u>Proyecto</u>	<u>Firma Contrato</u>	<u>Monto Pto.</u>	<u>Monto Desemb. al 8.31.90</u>	<u>Estado 1/ Ejecución</u>
506/OC	INIA	Investigación y Transf. Tecnológica	Mar. 86	3,000	2,873	N
171/IC		Investigación y Transf. Agropecuaria	Mar. 86	14,600	11,717	N
131/IC	CODELCO	Mejoramiento Teniente y Chuquicamata	Mar. 84	199,000	172,447	L
509/OC	CORFO	Global Multi- sectorial	Jun. 86	130,000	129,596	N
576/OC		Global Multi- sectorial	Jan. 90	360,000	54,257	N
192/IC	CHILECTRA	Hidroeléctrica Alfalfal	Jul. 86	84,600	62,313	N
193/IC	ENDESA	Hidroeléctrica Canutillar	Mar. 86	113,300	48,631	N
218/IC	PEHUENCHE	Hidroeléctrica Pehuenche	Ago. 87	175,000	127,356	N
469/OC	INTENDENCIA METROPOL.	Evaluación y Control Contaminación	Jun. 84	2,500	2,500	L
170/IC	SENDOS	Agua Potable Rural IV Etapa	Jun. 86	13,500	9,675	L
505/OC	SENDOS	Agua Potable Rural IV Etapa	Jun. 86	3,500	2,182	L
543/OC	SENDOS	Agua Potable y Alcantarillado	Mar. 88	56,200	17,861	N
141/IC	MINTER	Desarrollo Inversión Local Múltiple	Mar. 85	125,000	118,378	N

223/OC	Programa de Mejoramiento Global	Mar. 87	40,500	37,601	N
577/OC	Mejoramiento Urbano	Mar. 90	70,000	--	N
578/OC	Desarrollo Inversión Local Múltiple Etapa II	Mar. 90	210,000	--	N
490/OC	Mejoramiento Caminos Sistema Austral I	Mar. 85	35,700	33,434	L
548/OC	Rehabilitación y Mejoramiento de Caminos	Mar. 89	35,000	6,710	N
559/OC	Mejoramiento Infraestructura Caminos Urbanos	Mar. 89	45,500	6,178	N
	TOTAL		1701,274	843,709	

1/ N - Normal
L - Lento

Table 1.4
ORGANIZATIONAL CHART

POSSIBLE ORGANIZATION WITH IBRD/EXIMBANK/IDB FINANCING



NOTE: (1) Bridges, Water Works, National Laboratory, Operations and Administration Departments.
(2) Annex 1 contains the Organizational Chart for the External Consultant.
(3) Regional Directorates come directly under the Rural Road Section.
(*) IBRD/EXIMBANK/IDB

RISK EVALUATION AND ENVIRONMENTAL IMPACT

I. PROJECTS IN 1990

Environmental assessment procedure. During the analysis mission the Bank briefly reviewed the environmental aspects of the main projects in the Highway Improvement Program. No significant environmental problems were found, although several of the projects require more study. Environmental assessment studies will be conducted of the projects that require further attention (no more than 5% to 10%) which will be financed under the environmental program to be executed in 1991. These studies will assess direct and indirect impact to determine whether any problems exist that must be mitigated. The information and experience obtained in the course of this work will be used to prepare or expand upon policies, guidelines and manuals.

II. PROJECTS IN 1991

Environmental assessment procedure. When the detailed list of projects for 1991 is received, the project team and the DV will separate the ones that can be approved immediately from those requiring additional study. Approval of financing for the projects that require further environmental assessment will be postponed until Chilean authorities have had time to prepare an environmental review in keeping with the guidelines set by the Bank. The study to strengthen the DV's capacity in environmental aspects, to be contracted in 1991, will assist in the environmental assessment of projects requiring additional analysis.

III. PROJECTS IN 1992

Environmental assessment procedure. The projects proposed for 1991 will be studied by appropriate personnel from the DV, in keeping with the guidelines set by the Bank (revised by the DV). The study for preparing guidelines and to assess indirect environmental impact will help in these evaluations.

IV. PROJECTS in 1993

Environmental assessment procedures. Using the guidelines developed during the loan-execution period, the DV will study and assess the projects proposed for 1993. A report on the analysis and evaluation of the proposed works will be sent to the Bank.

GUIDELINES FOR RAPID STUDY AND ASSESSMENT OF THE HIGHWAY IMPROVEMENT WORKS

These guidelines are meant to serve as temporary suggestions until the DV can prepare official guidelines during the environmental study period. Routine and periodic maintenances of roads, involving such things as filling in potholes, cleaning and maintaining drains and sewers, road painting and installing traffic signs, will automatically be exempted and do not require an environmental assessment or analysis. New construction, road improvements and large-scale maintenance works that involve new designs, replacements of large sections of roads, and large earth moving activities, etc., will require preliminary analysis.

I. ANALYSIS

All construction of new roads, rehabilitation and upgrading of existing roads, and bridge reconstruction and replacement will be classified into one of the following categories:

Group A - Beneficial or neutral environmental impact.

For example: general rehabilitation of bridges currently in use, which have solid environmental designs and are in populated areas; replacing the wearing courses of roads in populated areas, particularly when care is taken with the chemicals used; small improvements to drains and water runoff facilities, etc.

Group B - Moderate or significant environmental impact.

For example: Upgrading gravel roads to paved roads in areas that are sensitive or that have not been built up, construction of new bridges, realignment of roads, etc.

II. ASSESSMENT

After the works have been classified, they will be treated in one of the following ways:

A. A short report will be prepared for Group A projects containing the following information:

- List of projects;
- Description of the proposed works;
- Location and description of the areas; and
- Justification of the classification.

B. For each project classified in Group B, a three to five page assessment report will be prepared, including only the most relevant factors and topics (see attached plan).

If this rapid assessment points to discrepant aspects that require further study, a more detailed report will be prepared on the problem, including proposals to solve or mitigate the impact. If no discrepant aspects are detected, the project will be declared eligible.

GUIDE FOR THE ENVIRONMENTAL ASSESSMENT REPORT

The purpose of this guide is to list relevant aspects to be considered in evaluating environmental impact.

I. DESCRIPTION OF THE PROPOSED WORK

Includes goals, objectives, justification, location, general design, size, capacity, preconstruction activities (including studies), construction activities and schedule of activities.

II. ENVIRONMENTAL DESCRIPTION

Basic information on the current general state of the environment in the area in question:

- (a) **Physical environment:** geology, geomorphology, topography, soil, climate and meteorology, hydrology, air and water quality, etc.
- (b) **Biological environment:** type of life in the zone or other ecological classification, existing plant coverage, plants and animals, rare and endangered species, habitats and sensitive or fragile areas, including national parks or reserves, commercially important species, diseases, etc.
- (c) **Sociocultural environment:** Current land use, land use capacity, institutional, political and legal frames of reference, population density, community structure, employment and key economic activities, cultural properties (archeological and historical sites), native groups, etc.

III. DESCRIPTION OF THE ESTIMATED ENVIRONMENTAL IMPACT OF ROAD CONSTRUCTION, OPERATION AND MAINTENANCE

Identify inevitable or irreversible impact. Where possible, the impact should be described quantitatively with respect to environmental costs and benefits. The amount and quality of the data available should be described, including significant information gaps and any uncertainties with regard to the impact projections. The following are some examples of direct and indirect impacts that are important for this program:

- (a) **Direct impact due to construction or operation:**

Positive: Reduction of safety risks or improved safety; decreases in erosion, particularly where the work involves improved drainage or measures to prevent erosion; reduction of air pollution caused by dust and/or noise.

Negative: Loss of first class farm land; alterations to archeological or historical sites; changes in surface runoff and loss of subsoil; increased erosion, collapses or landslides in road cuts; increased sediment loads in rivers and streams; erosion of the earth under road beds caused by water from the drainage system; disfiguration of the landscape due to deep or wide cuts, in-fill and quarries; increase in diseases (for example; mosquito vectors) owing to stagnant water in quarries or inadequate drainage; water pollution caused by chemicals used in paving that are carried off by rainfall; accidents or health risks for workers (food, vaccinations, and safety equipment).

- (b) Indirect impact - Due to activities attracted by new or improved roads.

Positive: Creation of demand by the urban population for land for recreational use and conservation; converting land formerly used for other purposes into conservation areas (e.g. from subsistence farming); extending the coverage of government programs and services.

Negative: Nature and size of impact on:

- Local interests and cultural values, particularly among people suffering from social, political or economic disadvantages;
- Cultural properties (damaged archeological or historical sites);
- Native groups;
- National parks or other kinds of protected areas;
- Unprotected natural areas with high conservation value;
- Species that are rare, threatened or in danger of extinction;
- Natural values and benefits of swamps and flood plains;
- Diversion of land to nonagricultural uses and loss of the best farm land;
- Intensification of tourism and development of country estates or small recreational properties with no planning or consideration for the environment;
- Intensification of logging in an unmanaged, destructive and/or unsustainable manner;

- Intensified clearing of land covered by natural forests for farming, particularly in areas that are unsuitable for agriculture; and
- Intensification of mining and other industries that can pollute or harm the environment.

IV. RECOMMENDED MEASURES FOR MITIGATING OR COMPENSATING FOR NEGATIVE IMPACT

It is recommended that feasible and efficient steps be taken to prevent or significantly reduce negative impact to acceptable levels. The costs and benefits of such measures should be estimated, assigning economic values when possible.

- (a) Direct. Example: drainage works, construction of sedimentation barriers, mulching and planting grass in exposed areas, redesigning roads, building drainage ditches and sewers, stabilization structures, forest plantations, archeological salvaging, starting construction activities in the dry season, etc.
- (b) Indirect. Example: land-use capacity studies and current uses, making transport and rural development strategies compatible, land-use planning/zoning, strengthening regional development and natural resource management institutions, implementing appropriate policies and ensuring compliance with current legislation.

V. RECOMMENDATIONS FOR FUTURE STUDIES

It is advisable to conduct more detailed environmental impact studies if the preliminary studies indicate they are warranted, including a careful examination of alternatives for the proposed works. The recommendation should justify and summarize the key points.

C H I L E

HIGHWAY IMPROVEMENT PROGRAM

PROGRAM MONITORING

In order to provide for proper monitoring of the program, the Bureau of Roads must send the Bank the yearly reports described below.

1. The audited financial statements and supplementary financial data for the fiscal year immediately preceding the current fiscal year must be submitted to the Bank by April 30 each year at the latest.
2. The quarterly report for the period from January 1 to March 30 must be submitted to the Bank by May 15 of each year at the latest, and must contain the following information:
 - (a) Investments in the road subsector during the previous two years, including:
 - investments in the road network, broken down according to category of investment, maintenance, administration and debt service;
 - maintenance expenses, broken down according to works carried out under contract and on force account; force account expenses must be broken down by expenses for labor, equipment, fuel, materials and administration; and
 - Ministry of Public Works expenses for maintenance of the secondary network, indicating contributions by municipalities and other public and private concerns.
 - (b) Investments and works executed during the current year, including:
 - review of the advance funds accounts and the estimated schedule of disbursement of the loan; and
 - general evaluation of the programming and contracting of works in connection with the execution, monitoring and administration thereof.
 - (c) Supplementary data, including:

- evaluation and future programming of the training program; and
 - recommendations on possible changes in the approved programs and content and format of the quarterly reports according to updated requirements.
3. The quarterly report for the period from April 1 to June 30 must be submitted to the Bank by August 15 each year, and must contain the following information:
- (a) Works completed during the previous two years, including:
- total length of the basic network and the local primary network in the maintenance program, broken down by type of surfacing and region;
 - achievement of the physical goals established in the two previous annual programs; and
 - report on the works carried out on the local secondary network, broken down by type of surfacing and region.
- (b) Investments and works carried out during the current year, including:
- projected road management costs, broken down according to investments, maintenance, administration and debt service;
 - review of the advance funds accounts and the estimated schedule of disbursement of the loan;
 - general evaluation of the programming and contracting of works in connection with the execution, monitoring and administration thereof; and
 - review and update of the physical goals established for the current year.
- (c) Supplementary data, including:
- evaluation and projection of training programs; and
 - recommendations on possible changes in the approved programs and content and format of the quarterly reports according to the updated requirements.
4. The quarterly report for the period from July 1 to September 30 must be submitted to the Bank by November 15 of each year, and must contain the following information:

- (a) Investments and works carried out during the current year, including:
 - review of the advance funds accounts and the estimated calendar of disbursement of the loan; and
 - general evaluation of the programming and contracting of works in connection with the execution, monitoring and administration thereof.
 - (b) Projected investments and works to be carried out during the following year, including:
 - financial projections for the following four years;
 - physical goals for the highway program during the following year; and
 - status of maintenance subprogram selection for the following year.
 - (c) Supplementary data, including:
 - evaluation and programming of the training program; and
 - recommendations on possible changes in the approved programs and the content and format of the quarterly reports according to updated requirements.
5. The quarterly report for the period from October 1 to December 30 must be submitted to the Bank by February 15 of the following year at the latest, and must contain the following information:
- (a) Highway investments and works carried out during the current year, including:
 - review of the advance funds accounts and the estimated schedule of disbursement of the loan;
 - general evaluation of the programming and contracting of works in connection with the execution, monitoring and administration thereof;
 - unit costs and productivity of the various operations on force account in each region or according to regional characteristics in the country during the previous year, and verification that the unit prices multiplied by the amount of works carried out cover the current expenses incurred; and

- comparison of unit maintenance prices for works carried out on force account with similar operations carried out under contract.

(b) Supplementary data, including:

- general evaluation of the status of the basic network and the local network based on biannual inventories and compared with the status reported in previous years since 1988, and impact of the investment program for the following years;
- maintenance program for the local secondary network for the following year; and
- recommendations on possible changes in the approved programs and the content and format of the quarterly reports according to updated requirements.

6. Each report must contain an introduction with "Summary" and "Conclusions" sections on the content of the report.

7. Annexes

The annexes concerning reference contracts and financial procedures will only be attached to the report for the period from October 1 to December 30. An annex will be attached with the exchange rates for the previous two years.