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MEXICO

**ECOLOGICAL CONSERVATION PROJECT FOR THE MEXICO CITY
METROPOLITAN AREA**

(ME0047)

LOAN PROPOSAL

APRIL 1992

MEXICO

**ECOLOGICAL CONSERVATION PROJECT FOR THE
MEXICO CITY METROPOLITAN AREA**

(ME-0047)

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ABBREVIATIONS

AURIS	Institute for Urban Action and Social Integration (State of Mexico)
BANOBRAS	Banco Nacional de Obras y Servicios Públicos, S.N.C. [National Bank for Public Works and Services]
CEAS	State Water and Sanitation Authority (State of Mexico)
CE	Cost-effectiveness
CEE	State Ecology Commission (State of Mexico)
CEPANAF	State Parks and Wildlife Commission (State of Mexico)
CGRUPE	General Coordinating Office for Urban Development and Ecological Protection (Federal District Department)
COCODER	Coordinating Commission for Rural Development (Federal District Department)
CORETT	Land Tenure Regulation Commission (State of Mexico)
CRESEM	Land Use Regulation Commission for the State of Mexico
CRIS	Coordinating Office for Regional Services Integration Centers (COCODER)
DDF	Federal District Department
DF	Federal District
DGCOH	Water Construction and Operations Directorate (Federal District Department)
DGDUYV	Urban Development and Housing Directorate (State of Mexico)
DGRT	Land Legalization Directorate (Federal District Department)
DGSU	Urban Services Directorate (Federal District Department)
EIA	Environmental Impact Assessment
FEDOMEX	Fertilizers and Agricultural Enhancers for the State of Mexico
FIVIDESU	Social and Urban Development and Housing Trust Fund (Federal District Department)
FONHAPO	National Low-income Housing Fund
GDP	Gross domestic product
LGEEPA	General Law on Ecological Balance and Environmental Protection
LIBOR	London Interbank Offered Rate
MCMA	Mexico City metropolitan area and peri-urban municipalities in Mexico State
NGO	Nongovernmental organization
OECF	Overseas Economic Cooperation Fund (Japan)
PICCA	Comprehensive Campaign against Air Pollution (Mexico City Metropolitan Area)
PNPMA	National Environmental Protection Program
PROBOSQUE	Forest Protection Agency (State of Mexico)
PRONASOL	National Solidarity Program
PROTINBOS	Forest Protection and Industrialization Agency (State of Mexico)
SEDAGRO	Department of Agricultural Development (State of Mexico)

SEDOP	Department of Urban Development and Waterworks (State of Mexico)
SEDUE	Department of Urban Development and Ecology

EQUIVALENT MEASURES

m^3/s	- cubic meters per second	- 1,000 liters per second
km	- kilometers	- 1,000 meters
m	- meters	- 100 centimeters
km^2	- square kilometers	- 1 million square meters
ha	- hectares	- 10,000 square meters
kg	- kilogram	- 1,000 grams
l/s	- liters per second	
mg/l	- milligrams per liter	
mm	- millimeters	
cm	- centimeters	
"	- inches	
m^3	- cubic meters	
l/h	- liters per hour	
HP	- horsepower	
m/s	- meters per second	

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Basic Socio-Economic Data
Statistics and Quantitative Analysis
Economic and Social Development Department

Executive Summary

Social Statistics

Land Area (Km2)	1991	1,967,183
Population (Thousands)	1991	90,467
Population (Average Annual Growth Rate)	1982-1991	2.3
Rural (Percent)	1990	27.4
Density (Population per Km2)	1991	46.0
Vital Statistics		
Crude Birth Rate (per 1,000 Population)	1989	28.0
Infant Mortality Rate (per 1,000 Live Births)	1989	44.8
Crude Death Rate (per 1,000 Population)	1989	5.6
Life Expectancy at Birth (Years)	1989	69.4
Illiteracy (Percent)	1990	12.7
Primary School Enrollment Ratio	1987	118.0

Economic Statistics

Market Exchange Rate (Pesos/US\$)	2-1992	3,063.6
GDP per Capita (Average Annual Growth Rate)	1982-1991	-1.0
Labor Force (Thousands)	1988	28,724
Unemployment Rate (Percent)	1990	3.0
Public Sector Overall Balance (As % of GDP)	1990	-3.5
Domestic Credit (As % of GDP)	1990	35.0
Balance of Payments (Millions of US\$)		
Current Account Balance	1991	-12,563
Trade Balance	1991	-11,182
Capital Account Balance	1991	22,699
Change in Reserves (- Increase)	1991	-8,933
Total External Debt (Millions of US\$)	1991	97,823
Total Debt Service (Millions of US\$)	1991	13,335
Debt Service Ratio (Percent)	1990	29.1

20 April 1992

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Basic Socio-Economic Data

1. Exchange Rates

Pesos/US\$, End of Period
Index 1980 = 100

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Market Rate	96.5	143.9	192.6	371.7	923.5	2209.7	2281.0	2641.0	2945.4	3071.0
Real Effective Index	122.0	138.9	119.0	114.9	163.9	178.6	144.9	134.8	131.1	...

2. Prices

Average Annual Growth Rates in Percent

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Consumer Price Index	59.7	101.6	65.5	57.7	86.2	131.8	114.2	20.0	26.7	22.7
Wholesale Price Index	56.1	107.3	70.3	53.6	88.4	135.6	107.8	16.1	23.3	20.5

3. International Liquidity

Millions of US\$

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Reserves	1660	4744	7981	4906	5670	12464	5279	6329	9863	...
Reserves minus Gold	834	3913	7272	4906	5670	12464	5279	6329	9863	...
Special Drawing Rights (SDRs)	6	23	3	0	9	706	394	383	417	586
Reserve Position in the IMF	...	95
Foreign Exchange	828	3795	7269	4906	5661	11758	4885	5946	9446	...
Gold (National Valuation)	826	831	709

4. National Accounts

Millions of 1988 US\$
1988 US\$

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Gross Domestic Product	161901	154261	159855	164393	157615	160408	162952	168568	175468	183890
GDP Per Capita	2192	2039	2063	2071	1941	1932	1920	1943	1980	2033

Annual Growth Rates in Percent - Constant Prices

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP Per Capita	-3.0	-6.5	1.2	0.2	-5.9	-0.5	-0.8	0.9	1.7	2.6
GDP by Type of Expenditure (MP)	-0.6	-4.2	3.6	2.6	-3.7	1.7	1.4	3.1	3.9	4.8
Consumption	-1.9	-4.2	3.8	3.1	-1.7	-0.3	2.0	4.8	4.7	...
Gross Domestic Investment	-24.3	-27.0	6.1	10.3	-21.2	4.1	13.8	5.4	10.6	...
Exports of Goods and Services	21.8	13.6	5.7	-4.5	3.2	10.1	2.7	3.1	5.2	...
Imports of Goods and Services	-37.9	-33.8	17.8	11.0	-12.4	5.0	38.0	20.7	22.0	...
GDP by Sector of Origin (MP)										
Agriculture, Forestry and Fishing	-2.0	2.0	2.7	3.8	-2.0	1.1	-3.2	-4.5	3.4	...
Mining and Quarrying	8.7	-0.9	2.2	0.0	-4.1	5.3	0.4	-0.7	3.2	...
Manufacturing	-2.7	-7.8	5.0	6.1	-5.5	3.4	3.2	7.0	5.2	...
Electricity, Gas and Water	9.7	1.1	5.0	8.3	3.7	3.7	6.0	6.4	5.2	...
Construction	-7.1	-19.2	5.4	2.7	-10.3	2.8	-0.1	2.1	7.7	...
Wholesale and Retail Trade	-0.9	-7.5	2.5	1.1	-6.5	0.2	2.0	3.6	3.9	...
Transport and Communications	-7.5	-2.6	5.1	2.8	-3.2	3.0	3.1	5.2	6.3	...
Financial Services	4.9	3.9	5.7	4.0	4.6	2.9	1.7	3.0	2.3	...
Government	6.8	4.9	5.9	-1.8	-0.7	-0.9	-0.1	-2.8	1.4	...
Other Services	2.8	2.6	1.7	0.2	-0.7	0.4	0.6	2.1	1.5	...

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Basic Socio-Economic Data

4. National Accounts (cont.)

Composition in Percent - Current Prices

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
GDP by Type of Expenditure (MP)										
Consumption	72.1	69.7	72.3	73.7	77.7	73.7	76.1	80.6	80.3	...
Gross Domestic Investment	22.9	20.8	19.9	21.2	17.7	19.1	21.6	18.5	20.1	...
Exports of Goods and Services	15.3	19.0	17.4	15.4	17.2	19.7	16.7	16.0	16.6	...
Imports of Goods and Services	10.3	9.4	9.6	10.3	12.6	12.6	14.4	15.1	17.0	...
GDP by Sector of Origin (MP)										
Agriculture, Forestry and Fishing	7.3	7.8	8.6	9.1	8.9	8.6	8.6	8.6	8.7	...
Mining and Quarrying	3.1	7.1	5.6	4.7	3.6	5.1	3.2	2.3	2.4	...
Manufacturing	20.7	21.1	22.5	23.4	24.7	25.9	27.2	23.5	25.2	...
Electricity, Gas and Water	0.9	0.9	1.0	0.9	1.2	1.1	1.3	1.3	1.4	...
Construction	6.5	4.5	4.4	4.4	4.3	4.0	3.9	3.3	3.5	...
Wholesale and Retail Trade	29.6	28.4	28.4	28.1	26.6	27.0	27.6	26.7	28.2	...
Transport and Communications	6.2	6.6	6.8	6.7	7.2	7.1	7.4	6.4	6.8	...
Financial Services	7.5	7.0	6.4	6.3	6.5	5.8	6.3	8.4	8.7	...
Government	2.9	2.7	2.8	2.9	2.6	2.3	2.2	2.2	2.2	...
Other Services	15.2	13.9	13.6	13.7	14.4	13.2	12.3	17.3	13.0	...

5. Non-Financial Public Sector

As a Percent of GDP

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Current Revenues	28.9	32.9	32.2	31.2	30.3	30.5	30.2	28.9	29.8	...
Current Expenditures	33.4	33.0	32.1	32.6	37.9	39.1	35.0	29.8	27.1	...
Current Savings	-4.4	-0.1	0.1	-1.4	-7.6	-8.6	-4.8	-1.0	2.7	...
Capital Expenditure	10.2	7.5	6.7	6.0	6.0	5.5	4.4	3.9	5.0	...
Primary Balance (- Deficit)	-7.3	4.2	4.8	3.4	1.6	4.7	6.0	7.8	7.5	...
Overall Balance (- Deficit)	-16.9	-8.6	-8.5	-9.6	-15.9	-16.0	-12.4	-5.5	-3.5	...
Domestic Financing	...	5.3	7.1	9.4	15.8	13.7	14.0	6.0	2.8	...

6. Monetary Survey

As a Percent of GDP

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Domestic Credit	43.6	36.5	33.5	35.4	42.5	35.7	29.4	32.3	35.0	...
Public Sector	28.9	24.9	20.6	23.4	30.0	22.4	18.0	15.7	14.0	...
Private Sector	13.0	10.2	11.5	10.9	11.0	11.7	10.5	15.9	21.0	...
Money (M1)	10.3	8.0	7.9	7.5	7.7	7.3	5.7	6.1	7.7	...

7. External Trade

Millions of US\$ Index 1980 = 100

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Exports of Goods (fob)	21214	21819	24407	22112	16347	20887	20765	23048	27131	...
Imports of Goods (cif)	15128	8023	11788	13994	11997	12731	19591	24438	29969	...
Terms of Trade Index	85	78	76	72	52	57	52	54	56	...

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Basic Socio-Economic Data

8. Balance of Payments

Millions of US\$

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Current Account Balance	-6307	5403	4194	1130	-1673	3968	-2443	-3958	-5255	-12563
Trade Balance	6795	13762	12941	8451	4599	8433	1668	-645	-3026	-11182
Exports of Goods (fob)	21230	22312	24196	21663	16031	20655	20566	22765	26773	27175
Imports of Goods (fob)	14435	8550	11255	13212	11432	12222	18898	23410	29799	38357
Service Balance	-13405	-8661	-9157	-8321	-6736	-5113	-4678	-5388	-5702	-4040
Freight and Insurance	-621	-455	-533	-550	-486	-537	-822	-1065	-1470	-1760
Travel	433	1145	1116	640	810	1134	798	519	-54	241
Investment Income	-12436	-9289	-10160	-8990	-7831	-7192	-7262	-7982	-7765	-6514
Other Services	-781	-62	420	579	771	1482	2608	3140	3587	3993
Unrequited Transfers	303	302	410	1000	464	648	567	2075	3473	2659
Private	232	255	325	327	345	384	397	1922	2207	...
Official	71	47	85	673	119	264	170	156	1266	...
Capital Account Balance	9526	-2445	-1071	-2096	1127	-1003	-1355	1362	9215	22699
Non-Monetary Sector	9109	-3126	-1825	-2164	907	-296	-3658	1498	361	17228
Private Sector	-1551	-16511	-10562	-13499	-7556	-4131	-174	1596	-1440	14910
Direct Investment	1655	461	390	491	1523	3246	2594	3037	2632	5150
Government Sector	10660	13385	8737	11335	8463	3835	-3484	-98	1801	2318
Monetary Sector	417	681	754	68	220	-707	2303	-136	8854	5471
Change in Reserves (- Increase)	3572	-2033	-2150	2731	88	-5570	6638	-179	-2303	-8933
Errors and Omissions	-6791	-925	-973	-1765	458	2605	-2840	2775	-1657	-1203

9. External Debt

Millions of US\$
Ratio in Percent

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total Debt	86019	92966	94822	96867	100881	109460	100781	95416	96810	97823
Long-Term Debt	59651	81567	86022	88448	90921	98497	86521	80030	80613	...
Public and Publicly Guaranteed	51551	66767	69726	72703	75818	84349	80590	76059	76204	...
Bilateral	2197	2509	2603	2823	3905	5345	5777	6034	8388	...
Multilateral	4761	4203	4393	6017	8177	10380	10333	10753	14303	...
Bond Holders	5187	4589	3963	3708	3376	2866	4218	3757	40315	...
Banks	38542	50236	53971	55647	55143	59822	54010	49402	6849	...
Suppliers	182	367	209	235	305	342	322	319	323	...
Other Creditors	682	4863	4588	4273	4911	5595	5930	5794	6026	...
Private Non-Guaranteed	8100	14800	16296	15745	15103	14148	5931	3971	4409	...
Use of IMF Credit	221	1260	2360	2969	4060	5163	4805	5091	6551	...
Short-Term Debt
Interest Arrears on Debt
Total Debt Service	15684	14825	16960	15293	12946	12087	15472	14295	12120	13335
Public and Publicly Guaranteed	9410	11426	11277	10572	8609	8634	9910	9487	7980	...
Bilateral	372	484	586	577	496	380	683	630	634	...
Multilateral	483	1585	666	801	1100	1450	1714	1699	2042	...
Private Non-Guaranteed	2890	1546	4630	3882	3490	2453	3829	2593	1446	...
IMF Repurchases and Charges	0	26	115	202	413	650	903	1218	1712	...
Short-Term Debt (Interest only)	3384	1828	938	636	434	350	830	997	982	...
Debt Service Ratio	57	52	52	52	55	40	48	40	29	...

... Not Available

0.0 Indicates that the amount is nil or negligible

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Basic Socio-Economic Data

Sources and Notes

Executive Summary

Social Statistics:

Land Area: Organization of American States, América en Cifras 1974.

Population: IDB estimates based on data from Latin America Demographic Center and United Nations Population Division.

Vital Statistics:

World Bank, Social Indicators of Development - 1991 Edition and ECLAC Statistical Yearbook - 1990 Edition.

Economic Statistics:

Labor Force: World Bank, Social Indicators of Development - 1991 Edition.

Unemployment: Programa Regional del Empleo para América Latina y El Caribe (PREALC).

1. Exchange Rates:

International Monetary Fund (IMF), International Financial Statistics (IFS).

Real Effective Index: Banco de México, Informe Anual, 1991.

2. Prices:

IMF, IFS.

3. International Liquidity:

IMF, IFS.

4. National Accounts:

GDP in 1988 US Dollars: IDB estimate.

GDP by Type of Expenditure and Sector of Origin: Instituto Nacional de Estadística, Geografía e Informática.

5. Non-Financial Public Sector:

Banco de México, Indicadores Económicos.

6. Monetary Survey:

IMF, IFS.

7. External Trade:

IMF, IFS.

Terms of Trade: Banco de México, Informe Anual, 1991.

8. Balance of Payments:

Banco de México and IMF, Balance of Payments Statistics (magnetic tapes).

9. External Debt:

World Bank, World Debt Tables (magnetic tapes).

MEXICO
Basic Socioeconomic Data
OPS/TRO

10. IDB LOANS (Approved from 1961 to December 1991)

	Thousand dollars	Percentage
Ordinary Capital	6,512,571	91.6%
Fund for Special Operations (FSO)	\$560,163	7.9%
Social Progress Trust Fund (SPTF)	\$34,927	0.5%
Venezuelan Trust Fund	\$0	0.0%
Other Funds	\$97	0.0%
T O T A L	\$7,107,758	100.0%

By Sectors

Agriculture and Fishery	\$3,374,092	47.5%
Industry and Mining	\$830,053	11.7%
Tourism and Microenterprise	\$357,966	5.0%
Energy	\$330,460	4.6%
Transportation and Communications	\$733,225	10.3%
Education, Science and Technology	\$151,209	2.1%
Public and Environmental Health	\$815,559	11.5%
Urban Development	\$96,741	1.4%
Planning and Reform	\$0	0.0%
Export Financing	\$94,530	1.3%
Preinvestment and Other	\$323,923	4.6%

MEXICO

ECOLOGICAL CONSERVATION PROJECT FOR THE MEXICO CITY METROPOLITAN AREA

(ME-0047)

I. EXECUTIVE SUMMARY

- 1.1 The borrower: Banco Nacional de Obras y Servicios Públicos, S.N.C.
[National Bank for Public Works and Services] (BANOBRAS)
- 1.2 The guarantor: The United Mexican States
- 1.3 The executing agencies: Comisión Coordinadora para el Desarrollo Rural del DDF [Coordinating Commission for Rural Development in the Federal District Department] (COCODER); and the Department of Agricultural Development for the State of Mexico (SEDAGRO).
- 1.4 Amount:

IDB	US\$100 million
Local contribution	US\$100 million
Total	US\$200 million
- 1.5 Terms and conditions:

Amortization period	20 years
Disbursement period	5 years
Interest	variable rate
Inspection and Supervision	1% of the loan amount
Credit fee	0.75% per annum on undisbursed balances
- 1.6 Project objectives: (i) To restore and preserve the Sierra de Guadalupe and Santa Catarina ecological zones from advancing urbanization and improve living and environmental conditions for the disadvantaged human settlements bordering on those areas; (ii) to reclaim and preserve plant cover in the urban area of the Federal District and surrounding peri-urban area; and (iii) to contribute with these actions to raising air quality and the quality of life in the Mexico City metropolitan area and peri-urban municipalities in Mexico State (MCMA).
- 1.7 Project description: (i) Ecological conservation of the Sierra de Guadalupe (8,500 ha) and the Santa Catarina (2,900 ha) areas, through investments for consolidation of the ecological restoration areas, consolidation and relocation of human settlements, forestation and revegetation, recreation facilities, and management of watersheds and drainage basins; (ii) forestation and revegetation in the 64,500-hectare Federal District and the 167,000-hectare peri-urban area in the State of Mexico; and (iii) dissemination of information, training and research, in both the Federal District and the State of Mexico.

- 1.8 This would be the first IDB-financed project to incorporate a financing mechanism involving the concept of the debt-for-nature swap, with the following features: (i) the borrower would use the Bank loan - which would be granted in a single tranche - to purchase securities representing Mexico's external debt in the secondary market; (ii) the result of the external debt retirement operation and the debt incurred with the Bank would be a reduction in the Mexican government's external liabilities of approximately US\$9.6 million in terms of present value; and (iii) the government would undertake to support activities to benefit the environment for the equivalent of US\$200 million. The operation thus involves two types of transfers: (i) the Bank's disbursement in United States dollars for the purchase of securities representing Mexico's external debt; and (ii) disbursements in local currency of resources equivalent to US\$200 million during the five years of project execution.
- 1.9 Total cost and financing: The total cost of the project is estimated at US\$200 million equivalent, for which the following financing scheme is proposed: US\$100 million from the Bank's ordinary capital resources and US\$100 million in local counterpart funding.
- 1.10 Environmental status: The MCMA is now one of the most densely populated urban centers in the world, and faces a serious air pollution problem triggered by heavy vehicle traffic, high industrial density, dwindling plant cover, and the effect of wind-induced erosion. The problem is aggravated by the orography and climate of the Mexico Valley, which cause thermal inversions in the atmosphere, making it difficult to disperse the pollutants.
- 1.11 Environmental improvement strategy: The proposed project is part of one of the fundamental strategies under the Comprehensive Campaign against Air Pollution in the MCMA (PICCA), which covers a series of measures to reduce air pollution and preserve the ecology of the area. The strategies are as follows: (i) improvement of fuel quality; (ii) rationalization and restructuring of the urban transit system; (iii) modernization of production technologies and installation of devices to control vehicular emissions; and (iv) reforestation of the metropolitan area and ecological restoration in rural areas.
- 1.12 Environmental classification: At its meeting 7/91 on April 4, 1991, the Environmental Management Committee classified the project in Category III.
- 1.13 Project risks: The project's chief risks have to do with: (i) the degree of coordination, capacity, and participation of the agencies needed for execution of the various components; (ii) the complexity and time involved in consultation and coordination with the communities affected, the expropriation of land and resettlements that remain to be completed, and the resolution of legal proceedings and

cases; (iii) fulfillment of the commitments to resettled families; (iv) compliance with government undertakings to regulate certain activities in the project area (the working of quarries, garbage dumps, and the asphalt plant) that might adversely affect the environment; (v) future maintenance of buffer zones for protection from urbanization and new human settlements; and (vi) survival of plantations.

- 1.14 Those risks will be minimized by the high priority assigned to the project by the Mexican authorities, previous experience with similar situations, the provisions included in the project to regulate land use in the zone, and the specific contractual conditions that would be included. As to the survival of plantations, the project includes estimates of a certain amount of loss, and the design features a number of precautionary measures, such as the selection of suitable species, to hold that risk to a minimum.
- 1.15 Exceptions to Bank practices: Since the benefits to be obtained from the debt retirement mechanism proposed here will increase with an earlier implementation, and since the benefits will be transferred in support of the project activities, it is requested that the Bank financing be disbursed in a single tranche at the beginning of the operation, in the form of a 100% advance. As there is underutilized installed capacity for plant production available within the executing agencies, it is proposed that this capacity be used by exempting the executing agencies from calling for tenders nationally and permitting them to make investments on force account for an aggregate amount of US\$18 million from the local counterpart funding, direct cost.
- 1.16 Consistency with Bank country and sector strategy: The implementation of the project will bring clear social and economic benefits to the population by restoring and conserving the project areas, creating buffer strips around them, carrying out actions for the comprehensive management of natural resources, and contributing to improving air quality within the MCMA. All of the above is consistent with both the country's and the Bank's strategies. Also, the economic analysis shows that the project actions are highly cost-efficient compared with other alternatives to achieve the same objectives, and that more than 86% of the benefits will be for low-income population groups.
- 1.17 Documentation: The documents presenting technical information in support of the project are available for consultation in the PRA/ENP/ENV files.

II. FRAME OF REFERENCE 1/

A. Introduction

- 2.1 Over the past 50 years, Mexico has experienced accelerated growth and high density in population centers as well as industrial clusters. The rural population has declined and the number of urban dwellers has risen sharply. The upward trend in urban population growth has triggered additional demand for services and infrastructure in the cities affected, especially Coatzacoalcos, Veracruz; Guadalajara, Jalisco; Monterrey, Nuevo León; and the metropolitan area of Mexico City and peri-urban municipalities in Mexico State.
- 2.2 The major environmental problems accompanying the growth of urban and industrial centers include the occupation of land suitable for farming, erosion of mountain slopes and silting of lakes, loss of woody plant cover and green areas, deterioration and depletion of aquifers, the disposal of untreated wastes that then pollute bodies of water, generation and inadequate disposal of large volumes of solid wastes, and, in particular, the decline in air quality.
- 2.3 In terms of pollutant emission, the areas with the worst air pollution in the country are: the metropolitan area of Mexico City and peri-urban municipalities in Mexico State; the coast of the Gulf of Tehuantepec; the Monterrey peri-urban area; and the Guadalajara area.

B. Environmental status of the metropolitan area of Mexico City and peri-urban municipalities in Mexico State

- 2.4 Today, the MCMA is one of the most densely populated urban centers in the world. The MCMA is estimated at 3,230 square kilometers. The 1990 census pegged the population at 15 million, 56% of whom live in the Federal District and 44% in the State of Mexico.
- 2.5 Widespread urban sprawl has meant that residents now have to travel considerable distances to perform their daily activities. Every day, this adds up to 32 million commuting trips in the following vehicles: 2.6 million private cars; 57,000 taxis, 55,000 vans and minibuses; 10,000 urban buses; eight subway lines; one light-rail train; and 450 trolley-buses. Industrial density, with 30,000 industries and 12,000 service establishments using combustion processes, is another major factor in air pollution.
- 2.6 The inventory of emissions for 1989 showed that Mexico City produces more than 4,300,000 tons of pollutants annually, which break down as follows: carbon monoxide - 68%; hydrocarbons - 13%;

1/ See Annex II-1, on the the macroeconomic frame of reference.

particles - 10%; sulphur dioxide - 5%; and nitrogen oxide - 4%. Concentrations of air pollutants that exceed current standards in Mexico occur 250 days a year.

- 2.7 Physical features - especially the orography and climate in the Mexico Valley, where the MCMA is located - are determinants for the dispersion and transformation of pollutants in the air. Its altitude of 2,240 meters over sea level means that the oxygen levels are about 23% lower than they would be at sea level. It is a basin hemmed in by mountain ranges, with warm winds from the northeast, in which the phenomenon of thermal inversion in the layers of the atmosphere traps pollutants.
- 2.8 At night, the cold mountain air descends into the valley where it is trapped for several hours by the mass of warm air higher up, leading to a build-up of the pollutants emitted during the night and in the early morning. Also, sunlight and the photochemical reaction push the ozone levels above the established norms. Not until late morning or early afternoon is the wind able to clear the air. This situation occurs throughout the year, but is accentuated in the winter months.
- 2.9 The decline in the environmental quality of the MCMA is aggravated by the mounting impact of wind erosion and the disappearance and deterioration of 73% of the woodlands and ecosystems, which, like the Guadalupe and Santa Catarina sierras, are in danger of disappearing due to the pressure of urban development. In 1986, green areas, defined as national parks located within the Federal District, measured 7.3 m² per inhabitant, ^{2/} whereas the UN recommendation calls for 16 m². That pressure has also reduced the most typical plant species on the urban fringe by some 2,600 hectares in each of the past four years, mainly due to the increase in physical infrastructure, pests, fires, clandestine felling of trees and forestry exploitation without reforestation, plus overgrazing.

C. Government strategy to improve the environment

1. National plans and programs

- 2.10 Under the National Development Plan for the 1989-1994 period, strategic guidelines are established to meet priority needs of the social system, as well as policies to improve living conditions within the Mexico City metropolitan area and peri-urban municipalities in Mexico State. Among them is the decision to check the uncontrolled growth of urban sprawl and the loss of areas reserved for ecological balance. The plan also sets out a strategy to protect the environment, with priority goals that include ecological

^{2/} Distribution is very irregular, so that some areas have less than 1 m² per inhabitant.

development of the country's zones and regions, and the conservation and rational use of natural resources.

- 2.11 Based on the National Development Plan, the 1990-1994 National Environmental Protection Program (PNPMA) was drawn up. The program's overall objective is to make economic growth consistent with enhancing the quality of the environment, by promoting the conservation and rational use of natural resources.
- 2.12 The objectives and strategies of the PNPMA cover five areas for priority action, i.e.: (i) waste water quality control; (ii) air pollution prevention and control; (iii) management and disposal of municipal solid waste; (iv) management of hazardous industrial waste; and (v) modernization of industrial plant.
- 2.13 In accordance with the 1990-1994 PNPMA guidelines, SEDUE established a list of priorities for support for operations that involve swapping debt for investment in environmental projects, including for the prevention and control of air pollution in the MCMA.

2. Institutional framework

- 2.14 The government agencies charged with overseeing compliance with the General Law on Ecological Balance and Environmental Protection in the MCMA are the Department of Urban Development and Ecology (SEDUE), through its Directorate for Prevention and Control of Environmental Pollution; the State of Mexico, through the State Ecology Commission (CEE); and the Federal District Department (DDF), through the Ecology Directorate.
- 2.15 SEDUE is responsible for preventing and controlling air pollution caused in the Federal District by fixed sources that do not operate as commercial establishments or public entertainment facilities.
- 2.16 The State of Mexico oversees preservation and restoration of ecological balance and environmental protection conducted within its jurisdiction. The Department of Agricultural Development (SEDAGRO) has general responsibility for promoting and regulating the state's forestry and water development. It does so through the Forest Protection Agency (PROBOSQUE), which is specifically assigned the protection, conservation, reforestation, development and supervision of forestry resources. The State Parks and Wildlife Commission (CEPANAF) is in charge of programs and works relative to ecological balance. The State Government recently announced the creation of the Department of Ecology, which is to encompass PROBOSQUE, CEPANAF and CEE.
- 2.17 The DDF is responsible for preventing and controlling air pollution in the Federal District that is generated by fixed sources such as trade establishments, public entertainment, and all types of mobile sources in its territory. The Coordinating Commission for Rural

Development (COCODER) is responsible for activities having to do with the protection of natural resources.

- 2.18 To reduce pollution in the MCMA, an Intergovernmental Technical Secretariat was set up in 1988, consisting of representatives of the following government departments: Urban Development and Ecology; Finance and Public Credit; Programming and Budget; Trade and Industrial Promotion; Communications and Transportation; Energy, Mines and State Enterprises; Agriculture and Water Resources; and Health. Also represented are the Federal District Department, the Government of the State of Mexico and the municipal governments of the peri-urban area; Petr6leos Mexicanos; the Federal Electricity Commission; and the Mexican Petroleum Institute. The Secretariat was formalized by a presidential decree of January 6, 1992, creating the Commission for Prevention and Control of Environmental Pollution in the Mexico Valley Metropolitan Area.

3. Juridical framework

- 2.19 Despite ongoing concern over environmental deterioration for more than ten years, the seriousness of the situation has gradually increased due to the inadequacy of the preventive and corrective measures and the lack of appropriate financial, institutional and legal means.
- 2.20 Not until the end of the 1980s was the General Law on Ecological Balance and Environmental Protection (LGEEPA) issued. Before the law was published in 1988, the Constitution -- which because of its age included no measures addressing the environment -- had to be amended. The Law is accompanied by other normative instruments in the form of operating regulations, technical and ecological standards, and specific norms governing pollutants.
- 2.21 In addition to the General Law on Ecological Balance and Environmental Protection, a concomitant juridical framework contains a series of alternative proposals to control and reduce air pollution in the MCMA. Salient components of that framework are the Federal Constitution; the Forestry Law; the federal and State of Mexico public works laws; the Regulations for Exploitation of Mineral Deposits and Materials in the Federal District; the Law for Protection of the Environment in the State of Mexico; and the decrees and resolutions declaring the Santa Catarina and Sierra de Guadalupe zones to be ecological conservation areas.

4. Comprehensive Campaign against Air Pollution in the Mexico City metropolitan area

- 2.22 Based on the general diagnosis of pollution and air quality in the MCMA, prepared by SEDUE, the DDF, and the Department of Health, the Intergovernmental Technical Secretariat set up the Comprehensive Campaign against Air Pollution in the Mexico City metropolitan area (PICCA), with the collaboration of local scientists and experts

from environmental agencies in Japan, Germany, England, France, Canada and the United States.

- 2.23 The PICCA general guidelines identify the series of measures which can best be taken to reduce air pollution and preserve the ecology of the area and which can be carried out in the short term. They embody four basic strategies: (i) improvement of fuel quality; (ii) rationalization and restructuring of the urban transit system; (iii) modernization of production technologies and the installation of vehicle emission control systems; and (iv) reforestation of the city and ecological restoration of rural areas.
- 2.24 The project described in this document is part of the strategy envisaged by PICCA, and it calls for action to complement work now under way to form a green belt around the MCMA. That belt would be complemented by some 132,500 ha adjacent rural land in the states of Mexico and Morelos, and by seven specific areas covering roughly 17,500 ha where ecological restoration is already in progress.
- 2.25 The benefits to be derived from this group of activities, including the present project, will be as follows:
- Preservation of reserves and recreation areas
 - Recovery of forestry areas
 - Wildlife conservation
 - Regulation of hydrological and climate balance
 - Improved air quality
 - Control of urban expansion
 - Additional green areas in urban zones
- 2.26 By August 1991, substantial progress had been made under PICCA, notably: the start on construction of six refineries that will produce lead-free gasoline; inclusion of a catalytic converter in all vehicles starting with the 1991 models; substitution of models equipped with catalytic converters for motors used in urban transit vehicles and taxis; and closing of the "March 18" refinery located inside the city, which may well prove to be the greatest achievement in this category.

5. Financing

- 2.27 To underwrite the high cost of action aimed at checking the increase in pollution in the MCMA, it was decided that additional external resources would be sought. An agreement has been reached with the Overseas Economic Cooperation Fund (OECF) and Eximbank of Japan, and the World Bank. Innovative financial mechanisms are also being prepared for programs of reforestation and ecological restoration of degraded natural areas, one of which would be the project under review here.
- 2.28 According to the PICCA summary and progress report presented in August 1991, the total direct cost of that program - which includes

some 42 prevention and decontamination measures - is approximately US\$4,682 million, 25% of which would be external credit. These amounts do not include outlays for road construction or transportation, which are included in the regular Federal District budget.

a. Inter-American Development Bank

2.29 The IDB would provide financing of US\$100 million for this project.

b. World Bank

2.30 The World Bank would provide initial financing of approximately US\$45 million for the recovery of fumes at fuel delivery and distribution terminals, the overhaul of urban transit units and an expansion of the air monitoring system. This would be supplemented by the World Bank contribution to the creation of an environmental fund in conjunction with the Government of Japan and other contributors, to be used by the recently established Commission for Prevention and Control of Environmental Pollution in the Mexico Valley Metropolitan Area.

c. Other contributors

2.31 According to initial estimates, the OECF and Eximbank of Japan would finance activities in connection with fuel production and rural reforestation in the Mexico Valley and its area of influence in the States of Mexico and Morelos, totaling approximately US\$980 million, plus the contribution to the fund cited in the preceding paragraph. In addition, the U.S. Department of Energy has contributed roughly US\$5 million for the conduct of a comprehensive study on air quality.

D. Bank strategy

1. Country and sector strategy

2.32 The principal source of information to define the Bank's strategy for the country has been the 1989-1994 National Development Plan, combined with frequent reviews of the operations program with high-ranking officials of the Mexican Government whereby it was agreed that the Bank's financing operations would: (i) directly benefit low-income population groups; (ii) provide the economic infrastructure needed by the private sector to expand its activities; and (iii) include appropriate measures to protect the environment against growing pressures from economic activity.

2.33 In line with the foregoing, over 86% of the benefits to be derived from the proposed project would go to low-income groups. A high proportion of the project activities, which have traditionally been done on force account, would be assigned to the private sector. In addition, the project would contribute in a cost-efficient way to

solving the problem of air pollution within the MCMA, thereby reducing the risk of pollution-related ailments.

2. In the Mexico City metropolitan area

a. Sierra de Guadalupe (State of Mexico and Federal District)

- 2.34 Sierra de Guadalupe, located in the southern part of the Mexico Valley basin, north of the Federal District, is a natural geomorphological unit consisting of five mountains whose highest point is 2,800 meters over sea level.
- 2.35 More than 10% of this area is estimated to have undergone accelerated degradation in the past 10 years as a result of enormous urban pressure and the absence of a suitable plan for management of the resources it contains. The pressure results in disorderly scattering of human settlements - both regular and irregular - around the edges and toward the interior of the area, generating demands for services which the location and topography would make it difficult to provide; vandalism resulting in fires, the hunting and unlawful capture of wild animals; free-ranging grazing on a large scale; squatter agriculture initiating the invasion of new lands; the use of timber for the construction industry and for fuel; disposal of solid wastes; water-induced erosion with the consequent silting of culverts and sewers; increased speed of run-off; and the operation of quarries and mineral deposits.
- 2.36 The goal of the project described in this document is to restore and conserve the zone by creating a buffer strip around it and through comprehensive management actions in the area within. In addition to the positive local impact there, such measures will help to improve air quality in the MCMA.

b. Santa Catarina

- 2.37 In the Santa Catarina region, located in the southeastern portion of the Federal District, 74% of the area consists of natural terrain where growth can be restored. Approximately 13% is occupied by four volcanic cones of unconsolidated material, with a maximum height of 2,750 meters over sea level.
- 2.38 For more than 30 years, environmental degradation has resulted from urban sprawl. The pressures involved have contributed the following factors to that process: (i) the establishment of a large number of human settlements on the periphery and toward the interior of the area; (ii) altered land use patterns and elimination of plant cover; (iii) high concentrations of particles suspended in the air; (iv) reduced water infiltration capacity; (v) wind and water-induced erosion; and (vi) the establishment of garbage dumps, operation of open-pit quarries and other activities - such as an asphalt plant - which are not compatible with environmental conservation.

- 2.39 The ecological restoration proposed for the zone, both in the buffer strip and toward the interior, will help to preserve and restore the native natural plant cover and conserve infiltration capacity. It will also help to control air pollution in the MCMA while improving the quality of life for those living around the project area by providing them with a green area and opportunities for sports and recreational activities.

c. Peri-urban area in the State of Mexico and urban Federal District

- 2.40 The 24 municipalities in the peri-urban part of the State of Mexico that is included in the project make up an area that is mostly flatlands - partly urban and partly agricultural - located to the north, northeast and east of the Federal District limits, where most of the solid particles carried by the winds to the south originate. The most densely populated area is the Federal District.
- 2.41 The high population density in the MCMA has triggered the following problems: (i) massive emissions of pollutants from industries and vehicles and overloading of the highway and transportation systems which makes environmental pollution even more critical; (ii) ongoing deforestation and changes in land use, which when combined with the drying up of lakes results in broad uncovered surfaces exposed to wind erosion, thus producing high concentrations of suspended solids; (iii) extraction of groundwater in excess of the replacement capacity; and (iv) continuous shrinkage of green areas.
- 2.42 The reforestation contemplated in the project, with proper oversight of the planting and replacement work, will contribute to the environmental sanitation of the area, both by reducing the volume of suspended solids and by removing air pollutants, generating oxygen, reducing fluctuations in relative humidity and improving the cultivation of trees in the urban areas, thus enhancing the scenic value of urban-agricultural areas.

III. THE PROJECT: COST AND FINANCING

A. Objectives

3.1 The overall objectives of the present project are:

- a. to restore and preserve the ecological zones of Sierra de Guadalupe and Santa Catarina against advancing urbanization, and to improve living and environmental conditions for the disadvantaged human settlements located adjacent to those areas;
- b. to restore and preserve plant cover in the urban area of the Federal District and peri-urban municipalities in the State of Mexico; and
- c. to contribute to the improvement of air quality and the quality of life in the Mexico City metropolitan area and peri-urban municipalities in the State of Mexico (MCMA).

B. Description

3.2 The project covers the financing of investments for the ecological conservation of Sierra de Guadalupe and Santa Catarina, for forestation and revegetation in the Federal District and the peri-urban areas in the State of Mexico, and for activities for consultation and coordination, dissemination of information, training and research in the Federal District and the State of Mexico. Both for Sierra de Guadalupe and in Santa Catarina, a peripheral buffer strip will be created to protect the ecological restoration zone within.

1. Ecological conservation of Sierra de Guadalupe

3.3 The following investments are provided for: (i) civil works consisting of four ecological promotion centers, access roads, walls, silt retaining dams, terraces, complementary services for sports facilities, fire surveillance stations and towers, water catchment trenches, roads, and mitigation of the environmental impact of garbage dumps; (ii) purchase of equipment and vehicles; (iii) purchase of inputs and materials; (iv) forestation and initial management of plantations of native species on some 3,650 hectares; (v) protection and care of existing vegetation and new plantations on approximately 7,580 hectares; (vi) coordination, including the relocation of families and the consolidation of settlements through land titling and legalization of land tenure; and (vii) purchase of land.

2. Ecological conservation in Santa Catarina

3.4 The following investments are provided for: (i) civil works for physical boundaries, control stations, secondary roads and paths,

preparation of green areas and sports areas, construction of a center to reproduce endogenous material, roads, and mitigation of the environmental impact of garbage dumps; (ii) purchase of equipment and vehicles; (iii) purchase of inputs and materials; (iv) forestation and revegetation on approximately 1,040 ha, soil stabilization with grass on some 240 ha, green areas and parks on approximately 203 ha, groves of trees on some 290 ha, and irrigation of plantations; (v) fire surveillance and control; (vi) consultation and coordination, dissemination of information, relocation of families and consolidation of settlements through legalization of land tenure and infrastructure works; and (vii) purchase of land.

3. Forestation and revegetation in the Federal District and peri-urban area of the State of Mexico

- 3.5 The following investments are provided for: (i) purchase of equipment and vehicles; (ii) inputs and materials; (iii) purchase of plants, planting and management of some 5.7 million trees, some 20.6 million bushes and some 13.2 million ornamental plants on 64,500 ha in the Federal District, planting of some 2.5 million trees on a total area of approximately 16,600 ha in the urban area of Mexico State and some 19.3 million trees on a total area of approximately 99,000 ha in the agricultural zone, in the form of groves of trees, hedges and living barriers; and rehabilitation of nine nurseries in Mexico State.

4. Consultation and coordination, dissemination of information, training, consulting services and research

- 3.6 The following activities are provided for: (i) for the Federal District, publicity in the media, 16 training courses inside the country and six abroad, and research activities; and (ii) for the State of Mexico, consultation and coordination and information activities, 28 training courses inside the country and seven abroad, and research activities. To perform the foregoing activities, both in the Federal District and in the State of Mexico, some 36.5 person/months of local consulting services and some 20.5 person/months of international consulting services will be hired. In addition, local experts for about 128 person/months and local instructors for about 104 person/months will be hired for social consultation and coordination.

C. Scaling

- 3.7 The project configuration was established by eliminating all components not directly and strictly relevant to environmental improvement.
- 3.8 On that premise, the components were scaled in terms of the following factors: (a) reasonable expectation that potential benefits would exceed the costs; (b) capacity and experience of the executing agencies with similar work; (c) ease of execution; (d)

independence of action or financing vis-a-vis other PICCA components; (e) reasonable preparation time; (f) availability of land for protection, forestation and revegetation in the protected areas of Sierra de Guadalupe and Santa Catarina; (g) a general urban reforestation goal of 125 trees per hectare on sidewalks, streets and avenues, and 400 trees and 2,000-5,000 ornamental plants per hectare in green areas; 3/ and (h) in the case of farming areas in the peri-urban municipalities in the State of Mexico, availability of land, and interest of the owners (mainly *ejidatarios*, or community land owners) in establishing plantations and selecting species adaptable to local conditions.

D. Cost and financing

- 3.9 The total cost of the project is estimated at the equivalent of US\$200 million, for which financing is proposed as follows: (i) US\$100 million from the IDB ordinary capital resources; and (ii) US\$100 million in local counterpart funding.
- 3.10 Approximately 5% of that amount is for engineering and administration; 57% for direct costs for civil works (16%), equipment and vehicles (2%), inputs and materials (1%), forestation, protection and surveillance, consultation and coordination, and dissemination of information (38%). Roughly 20% is for associated costs, including land expropriation (19%) and training, consulting services and research (1%); and 17% for contingencies and cost escalation. The remainder consists of 1% for the inspection and supervision fund plus 0.75% for the estimated credit fee covering the period between contract signing and disbursement.
- 3.11 The total cost of the project, by investment category and source of financing, is shown in the table that follows.

3/ This general goal was tailored to the availability of treated wastewater and to the knowledge of species adaptable to MCMA ecological conditions.

COSTS, INVESTMENT CATEGORIES AND SOURCES OF FINANCING (in US\$000s)				
CATEGORIES	IDB	LOCAL	TOTAL	% OF TOTAL
I. Engineering and administration	2,800	7,250	10,050	5.0
1.1 Engineering and design	2,800	1,770	4,570	2.3
1.2 Administration	-	5,480	5,480	2.7
II. Direct costs	70,760	42,740	113,500	56.9
2.1 Civil works	19,080	12,250	31,330	15.7
2.1.1 Conservation and restoration	12,200	7,990	20,190	10.1
2.1.2 Consolidation of settlements	6,880	4,260	11,140	5.5
2.2 Equipment and vehicles	320	4,010	4,330	2.2
2.2.1 Equipment	320	310	630	0.3
2.2.2 Vehicles and parts	-	3,700	3,700	1.9
2.3 Inputs and materials	-	2,730	2,730	1.4
2.4 Forestation	47,920	20,410	68,330	34.3
2.4.1 Technical staff	-	2,340	2,340	1.2
2.4.2 Purchase of plants	18,110	11,930	30,040	15.1
2.4.3 Planting	20,460	4,060	24,520	12.3
2.4.4 Management and irrigation	9,350	2,080	11,430	5.7
2.5 Protection and surveillance	-	1,950	1,950	0.9
2.6 Consultation and coordination and information	3,440	1,390	4,830	2.4
III. Associated costs	1,480	38,290	39,770	19.8
3.1 Expropriation	-	37,130	37,130	18.5
3.2 Training	-	460	460	0.2
3.3 Consulting and research	1,480	700	2,180	1.1
Subtotal	75,040	88,280	163,320	81.7
IV. Unallocated	23,960	11,650	35,610	17.8
4.1 Contingencies	7,500	5,380	12,880	6.4
4.2 Cost escalation	16,460	6,270	22,730	11.4
V. Financing charges	1,000	70	1,070	0.5
5.1 Inspection and supervision	1,000	-	1,000	0.5
5.2 Credit fee	-	70	70	-
TOTAL	100,000	100,000	200,000	100
% by source	50.0	50.0	100	

3.12 Of the foregoing costs - exclusive of contingencies, escalation and financing charges - approximately US\$104 million is for the Federal District (Santa Catarina subprojects, US\$36 million; urban forestation and revegetation US\$41 million; Sierra de Guadalupe, US\$25 million; and general coordination, US\$2 million) and approximately US\$59 million for the State of Mexico (urban-agricultural

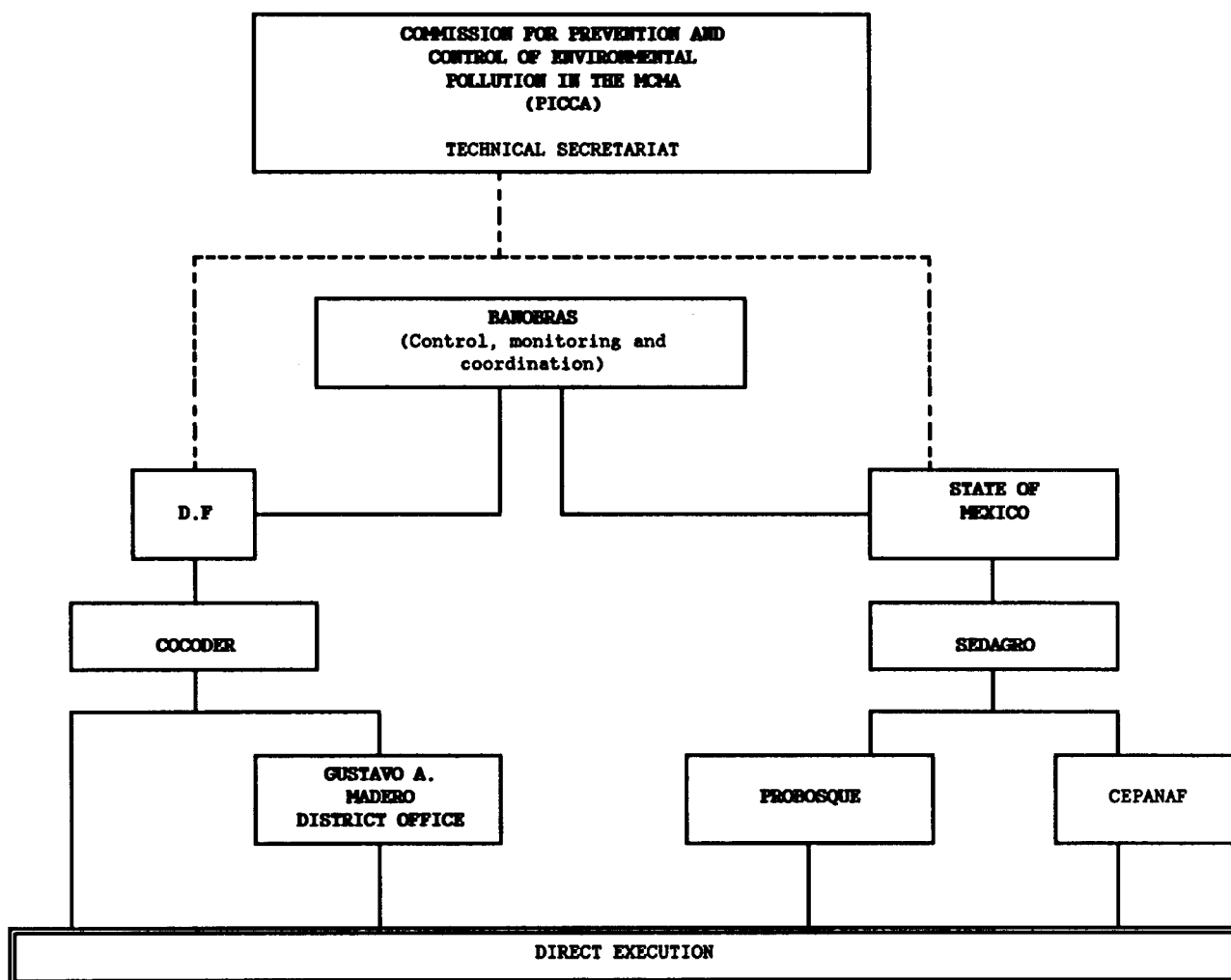
forestation and revegetation subproject, US\$27 million; Sierra de Guadalupe, US\$30 million; and general coordination, US\$2 million).

- 3.13 The Bank would finance up to 50% of the project's total cost, including the portion earmarked for contingencies, cost escalation, and inspection and supervision. Pursuant to the investment categories, the loan would be used to finance up to 65% of the costs of engineering and designs and civil works. The financing would cover 51% of the equipment and up to 83% of the forestation in some items, except for the technical staff, which would be defrayed by the local contribution. The loan would also finance up to 75% of the consultation and coordination and dissemination of information, and up to 70% of the consulting services and research. Based on this breakdown, the local counterpart funds would be used to defray 100% of the costs of administration, vehicles and parts, inputs and materials, technical staff, protection and surveillance, expropriation and training, plus the percentage corresponding to the other categories, including contingencies and escalation.
- 3.14 As agreed with the borrower, the total cost of the project does not include interest expense during the execution period.

IV. PROJECT EXECUTION

A. Executing agencies and execution mechanism

- 4.1 The subprojects called for under this project will be executed in different political jurisdictions by agencies of the Governments of the Federal District and the State of Mexico. Accordingly, the project will be carried out by two executing agencies: the Coordinating Commission for Rural Development in the Federal District (COCODER) and the Department of Agricultural Development for the State of Mexico (SEDAGRO).



- 4.2 The foregoing executing agencies will receive direct assistance from other specialized operating units which will be responsible for executing the specific subprojects. They are: in the Federal District, the Gustavo A. Madero district office for the Sierra de Guadalupe Federal District subproject; and in the State of Mexico,

PROBOSQUE for the urban-agricultural forestation subproject and part of the Sierra de Guadalupe subproject, and CEPANAF for the Sierra de Guadalupe subproject in the State of Mexico. Consultation and coordination, training, and dissemination of information will be handled by CEPANAF/PROBOSQUE in the State of Mexico. All these agencies have the requisite capacity and experience to perform this work.

- 4.3 To ensure proper coordination between the participating agencies, two levels of coordination will be established, one technical and one operational.
- 4.4 Technical coordination at the PICCA level will be conducted through the Technical Secretariat of the Commission for Prevention and Control of Environmental Pollution in the Mexico Valley metropolitan area, which serves as the channel of communication and technical coordination between the Federal Government and the Federal District and the participating agencies.
- 4.5 Operational coordination for this project will be headed by BANOBRAS, as the borrower of the prospective IDB loan, and will include the executing agencies, COCODER and SEDAGRO. In the agreement on the source and use of funds to be signed with both agencies, BANOBRAS will establish the administrative and operating procedures for use of the project resources, and will oversee the application thereof (see Recommendation No. 7). The executing agencies will draw up their specific work schedules and plans and their strategy and organizational structure for the conduct and operation of each subproject for which they are responsible.
- 4.6 The executing agencies for DF and Mexico State have set up the appropriate coordinating units and have recruited the minimum staff necessary to start executing the project.
- 4.7 COCODER will have specific responsibility for the execution, coordination, evaluation and monitoring of the subprojects to be executed in the Federal District: Sierra de Guadalupe, urban forestation and Santa Catarina. The first will be executed by the Gustavo A. Madero District Office, the second by COCODER itself, assisted by the 16 local political offices of the Federal District Department, and the third by COCODER as well.
- 4.8 To coordinate execution of the subprojects, the COCODER coordinating unit will look after the following aspects: (i) administration and finance; (ii) evaluation and monitoring; (iii) dissemination of information; and (iv) research and training.
- 4.9 At the subproject level, both COCODER and the Gustavo A. Madero District Office will operate executing units consisting of the following departments: (i) administration and finance; and (ii) evaluation and technical control.

- 4.10 SEDAGRO will be in charge of coordination, administration and supervision of the subprojects to be executed within the jurisdiction of the State of Mexico: (i) Sierra de Guadalupe; and (ii) urban-rural reforestation. The former will be executed through the offices of CEPANAF and PROBOSQUE and the second by PROBOSQUE, assisted by the 24 municipalities slated for forestation.
- 4.11 The coordinating unit for Mexico State will have the following functions: (i) administrative and financial; (ii) technical; (iii) evaluation and monitoring; and (iv) legal counsel and interinstitutional coordination.
- 4.12 Both PROBOSQUE and CEPANAF will operate specific executing units for the subprojects, consisting of the following units: (i) administrative; (ii) human settlements; (iii) projects and construction; and (iv) conservation of natural resources. In addition, the urban-rural forestation subproject will have a forestry unit and a promotion unit.
- 4.13 The executing agencies will make a special effort to heighten the participation of the private sector in the execution of those forestry investments which have traditionally been performed on force account. In the present case, plans call for participation by the private sector, NGOs, and universities by means of international and national bidding. Agreement would be reached under the project with citizens' groups and other entities in the Federal District and the State of Mexico, to facilitate their participation in coordination with the executing agencies.
- 4.14 The dissemination of environmental information in the Federal District will be handled by COCODER through the media, especially in Santa Catarina, using the staff assigned to social consultation and coordination and an NGO which will be engaged for such work. In the State of Mexico, PROBOSQUE will be responsible for this task, also using the services of promoters to conduct social consultation and coordination activities. CEPANAF will also participate through the environmental education centers in the Sierra de Guadalupe area. The services of an NGO will be hired for environmental education as well.
- 4.15 Training, consulting services and research will be provided by consultants and under contracts with universities, NGOs and other specialized agencies, using national and international public bidding procedures.

B. Expropriation, resettlement and consolidation

1. Sierra de Guadalupe (State of Mexico)

- 4.16 In the jurisdiction of the State of Mexico, the Sierra de Guadalupe subproject requires expropriation of 1,220 ha to set up a buffer

strip 61 km long and 200 m wide. This would be accomplished through consultation and coordination with the owners.

- 4.17 The study made to assess the situation of human settlements in the restoration zone showed a total of 91 dwellings. Since those families will have to be relocated, they will be moved to nearby existing settlements that already have basic services. The normal procedures used by the State to finance the housing managed by FONHAPO will be used for this purpose, so that the relocated families will be given advisory services by SEDAGRO and the municipalities. The lots for these families will be acquired during the first four months of project execution, and the houses are scheduled to be completed around the third year of execution.

2. Sierra de Guadalupe (Federal District)

- 4.18 To set up the restoration zone in the area within the Federal District jurisdiction in the Gustavo A. Madero district, 440 ha have already been expropriated. The 1,141 families living there in 24 settlements will have to be relocated.
- 4.19 To do so, a 21.53 ha site belonging to the San Lucas Patoni *ejido* (community-owned land) was expropriated. The land was declared a territorial reserve, specifically for that purpose, by presidential decree of September 3, 1991. It can accommodate 1,138 lots measuring at least 90 square meters, where subdivision and development are already in progress. Part of this work, such as terracing, the layout of streets, walkways, and a stormwater drainage canal, will be financed by the project. Other items - potable water and sewer systems, electricity and street lighting - will be funded by other agencies outside the project under the National Solidarity Program (PRONASOL).
- 4.20 San Lucas Patoni is located in an area with a high concentration of public services such as schools and medical centers, with green areas, a cemetery and access to public transportation, so that these facilities need not be included in the urban development works.
- 4.21 The order of assignment and location of sites will be established by drawing lots. Each family would build its own home on a lot where the foundation has been laid and connections to the basic services have been installed. FIVIDESU will provide credit for self-construction materials plus technical support such as model blueprints and the guidance of specialized staff. To reduce the costs, FIVIDESU would also set up a depot that would sell materials at reduced prices. The estimated time for completion of basic infrastructure and urban development works is four months from the start of the project. The entire process - including the self-built houses - should be completed in the first year of project execution.

3. Santa Catarina

- 4.22 The Santa Catarina subproject for establishment of the retention or buffer strip requires expropriation of the 938 hectares adjacent to the ecological restoration area. This process, which is about to begin, will be carried out in three stages, the completion of which is scheduled in the first, second and third years of execution, respectively.
- 4.23 For the restoration zone, a process of consultation and coordination with the owners is planned with a view to signing agreements for execution of the forestry work. This process would be intensive during the first four months of each year. To this end, an experienced environmental promotion NGO would be engaged to complement the team of permanent COCODER staff responsible for this task.
- 4.24 Three settlements have been identified inside the Santa Catarina buffer strip, with 90 families to be relocated, 57 of whom have been moved - although the consolidation process is still under way - from two of the settlements to a site in the Tlahuac district that can accommodate 151 lots. Consultation has begun with the remaining 33 families in the other settlement for relocation to the land already acquired by that district. The cost of moving the families is part of the subproject. It does not include the optional mortgage credit that would enable the beneficiaries to purchase materials for self-built housing, which will be provided by FIVIDESU through its regular credit programs. These loans include financing for site development, laying of foundations, and connections to basic services.

C. Procurement of goods and services

- 4.25 The procurement of goods and services will take place in accordance with the Bank's rules and regulations. Annex IV-2 (Annex B to the loan contract) contains the bidding regulations, and Annex IV-3 (Annex C to the loan contract) sets out the procedure for the selection and contracting of consulting services.
- 4.26 The executing agencies have asked that the following items be exempt from public bidding procedures and authorized for performance on force account chargeable to the local counterpart funding: part of the tree production in nurseries in the Federal District and the State of Mexico; and part of the planting and plantation management in urban areas, most of it to be done by laborers and field staff, aggregating, for the five years of project execution, the equivalent of US\$18 million in direct costs, of which US\$2.3 million is for activities costing less than US\$1 million.
- 4.27 It is recommended that this request be granted (see clause 8(f) of the proposed resolution), given the existence of underutilized nursery capacity, for instance that of COCODER in Nezahualcóyotl, that could be used to produce most of the trees for Santa Catarina,

Sierra de Guadalupe and the urban forestation for the Federal District and for PROBOSQUE in the State of Mexico; and considering as well the lack of sufficient technical and economic capacity for high production levels in private nurseries.

- 4.28 COCODER's role in plant production, planting and plantation management is based on the lack of sufficient private companies with an adequate capacity for such work, in particular with a knowledge of exacting ecological conditions in areas such as Santa Catarina. As one of the country's major agencies in urban and rural reforestation, COCODER has the necessary infrastructure and therefore offers significant economies of scale.
- 4.29 For purposes of urban-rural forestation in the State of Mexico, PROBOSQUE is promoting the participation of *ejidos* and rural producers' associations to serve as contractors in the production of plants, the planting, and subsequently as managers of rural plantations. The municipalities would also contribute as contractors to the execution of these activities. Because of the limited execution capacity of those institutions, however, PROBOSQUE will also take part directly in these investments, since it has the technical and institutional capacity for this purpose and offers the advantage of economies of scale.

D. Recognition of previous expenditures

- 4.30 In the course of preparing the project and by the estimated approval date of the prospective loan, the executing agencies will have incurred expenses for the preparation of engineering designs and studies (US\$0.5 million); indemnification for expropriated land (US\$7.3 million), the purchase of plants (US\$0.3 million), and the construction of civil works (US\$2 million). Evidence and proper justification have been presented for these outlays, and their recognition has been requested pursuant to IDB policy in this respect.
- 4.31 It is therefore recommended that the loan contract stipulate recognition of the expenses cited above, up to a maximum of US\$10.1 million (see Recommendation No. 4), which would correspond to the local counterpart funding. Of that amount, US\$9.9 million would represent expenditures made by the DF and the remainder those of the State of Mexico.

E. Maintenance of works, vehicles and equipment, and plantation management

- 4.32 The executing agencies will undertake to maintain the works, goods and equipment in the condition in which they are found upon completion or purchase. The works are to continue being maintained after the project execution period has concluded.

- 4.33 The management of plantations and revegetated areas includes on-going protection against pests, disease, fire and deforestation by man, continuing after the project execution period, according to a maintenance plan to be prepared by the executing agencies. This maintenance plan will be drawn up upon the commissioning of the works, and the allocation of resources entered on the budgets of the appropriate organizations, beginning in the year in which execution of the plan begins.
- 4.34 For five years after the commissioning of the works and within the first quarter of each calendar year, the Bank is to be kept informed of technical measures and budget allocations made in compliance with requirements with respect to the maintenance of works and equipment and the management of plantations for the current year, as well as on the status of maintenance and management of the works, equipment and plantations commissioned previously. If it is found in the inspections performed by the Bank or in the reports received by the Bank that maintenance is being done to a standard below that agreed upon, the borrower and the executing agencies will adopt the necessary measures to remedy the deficiencies detected in their entirety (see Recommendation No. 6).

F. Preparation status

1. Civil works

- 4.35 All of the executing designs for the works in all components are complete, except for road construction and green areas, about 11% of which is ready. Since these works are simple and repetitive in nature, however, the status of project preparation is considered to be adequate for the type of works involved.

2. Forestation and revegetation

- 4.36 Work plans have been drawn up for the first year of project execution, and the forestation sites have been identified for subsequent years. The production of plants in the COCODER and PROBOSQUE nurseries is under way to comply with the goals of the first year of execution. The design of measures for surveillance and protection from fires is simple, and a start has been made on their implementation.

3. Expropriation, resettlement and consolidation

- 4.37 The agreement on the source and transfer of funds to be signed by the borrower with the executing agencies will ensure compliance with the programs and schedules for consultation and coordination, expropriation, resettlement, and provision of basic services for new settlements and those to be consolidated as agreed with the Bank (see Recommendation No. 7(f)).

- 4.38 The process of consultation and coordination for consolidation (legalization of land tenure and basic infrastructure works) of the settlements on the periphery of the conservation zones is 70% complete in Santa Catarina. In Sierra de Guadalupe in Mexico State, 12 settlements have been consolidated (land titling and legalization of tenure only; no basic infrastructure works are planned) and eight more are to be consolidated before the project begins. The 11 remaining ones would be legalized in the course of execution.
- 4.39 The borrower shall, prior to disbursement, present evidence satisfactory to the Bank that the necessary agreements have been signed among the various participating agencies of State of Mexico (see clause 8(d)(iii) of the proposed resolution). In this connection, the DF has signed agreements ensuring participation by FIVIDESU and the Iztapalapa District Office. Nevertheless, the agreements on the source and transfer of funds will include provisions to guarantee such participation during project execution (see Recommendation No. 7(e)).

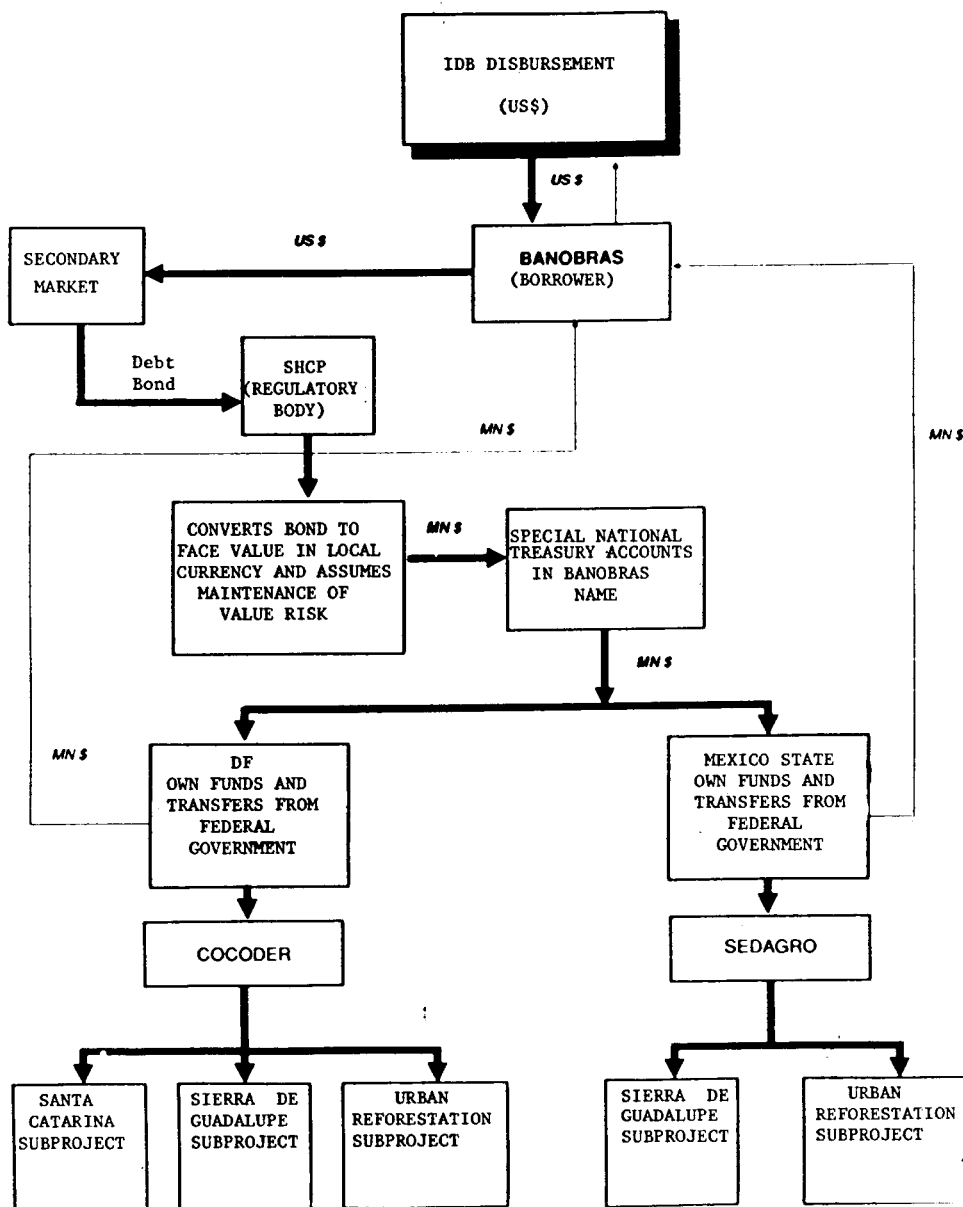
4. Control of activities inconsistent with environmental conservation

- 4.40 Strategies have been defined and action programmed to regulate subsistence farming operations existing in the ecological conservation zones of Santa Catarina and Sierra de Guadalupe, and for control and/or closing of garbage dumps, the asphalt plant and quarries. Environmental impact assessments have been begun for the latter, based on terms of reference agreed upon with the Bank.

G. Financing mechanism

- 4.41 The loan resources would be used to retire external debt, and the proceeds obtained in local currency would be applied to project activities by means of the mechanism described below (see clause 8(a) of the proposed resolution and Recommendation No. 1).

MECHANISM FOR DEBT RETIREMENT, CONVERSION TO
LOCAL CURRENCY, AND REPAYMENT



1. Debt purchase

- 4.42 Using the loan proceeds and subject to consultation with the Bank (see clause 8(d)(i) of the proposed resolution), the borrower would purchase Mexican external debt securities on the secondary market. The Mexican debt being traded on the market was negotiated in 1989 with the private commercial banks and its payment secured with zero-coupon bonds of the United States government. The debt securities negotiated at that time with various groups of creditor

banks are: (i) discount bonds for banks that reduced principal by 35%; these bonds have a 30-year term (maturing in the year 2019) and bear interest at LIBOR plus 13/16%; (ii) par bonds for undiscounted debt, representing the face value of debt negotiated over 30 years at a fixed interest rate of 6.25%; and (iii) multi-year rescheduling agreement (MYRA) bonds for banks that neither discounted principal nor modified interest rates but offered an additional 25% in fresh capital. Most of the transactions on the secondary market relate to the first two types.

- 4.43 These debt securities are traded on the secondary market at different discount prices which, as of March 30, 1992, were as follows:

Instrument	Discount price (%)	
	Buying	Selling
Par bonds	62 7/8	63 1/8
Discount bonds	82 1/4	82 1/2
MYRA bonds	82 1/2	83

- 4.44 The Mexican government, through the Interdepartmental Technical Committee for the Public Debt-to-Equity Swap Program, establishes the terms on which these bonds are to be paid in local currency and how such funds may be used, whether for public debt-to-equity swaps with a private-sector orientation or for swaps authorized specially to support "solidarity programs" in the social and environmental sectors.
- 4.45 In the case of the private sector, transactions take place in public auctions that determine the final price; for solidarity programs such as the operation proposed herein, on May 23, 1991, the Committee approved the terms on which debt securities would be redeemed: (i) discount and MYRA bonds at face value; and (ii) par bonds at 65% of their value. It is considered therefore that for this transaction, discount bonds would be purchased which, upon redemption at face value, would provide local-currency earnings of 21% $((100/82.5)-1.0)$.

2. Maintenance of value

- 4.46 The local-currency proceeds of the debt retirement operation will be deposited in the borrower's name with the Treasury of the Federation, in two special accounts, for exclusive use in the project. Deposited in the first will be the equivalent to the amount of the Bank loan, and in the second additional resources obtained under the debt retirement operation. In both cases the

deposits will be indexed to the free-market dollar rate at the time when the related project expenses are incurred (see clause 8(a) of the proposed resolution).

3. Evidence of retirement of debt

- 4.47 Within a maximum of three months after the disbursement, the borrower shall present evidence to the Bank that it has been used in its entirety for the debt retirement operation on the conditions agreed on with the Bank, together with evidence of the creation and opening of the special accounts (see Recommendation No. 1).

4. Disbursements

- 4.48 The Bank loan will be disbursed in a single tranche (see Recommendation No. 1). The foreign exchange earmarked for procurement under international public bidding during project execution would be provided by the Mexican Government.

5. Transfer of funds

- 4.49 Resources equivalent to the IDB loan, in local currency, would be transferred from the appropriate special account to the executing agencies as project execution progresses, subject to the procedures and investment categories set forth in the loan contract (see Recommendation No. 7).

H. Execution period and disbursements

- 4.50 The execution period will be five years, and disbursements would be made in the following manner:

YEAR		1	2	3	4	5	TOTAL
Source (US\$ millions)	IDB *	11.0	25.0	31.2	23.9	8.9	100.0
	LOCAL	44.0	23.3	15.2	11.7	5.8	100.0
	TOTAL	55.0	48.3	46.4	35.6	14.7	200.0
* Refers to local-currency funds generated by the redemption of external debt securities.							

I. Advance of funds and control and monitoring mechanism

- 4.51 For purposes of the Bank's control and monitoring, the sole disbursement would be considered as an advance of funds to the borrower (see Annex IV-1 and Recommendation No. 1).
- 4.52 To that end, it is recommended that the borrower in turn make provision for an advance of funds in local currency to each of the

executing agencies for up to an amount equivalent to actual projected payments covering a period of not more than 120 days and up to an amount not to exceed 10% of the cost of each executing agency's input in the project (see Recommendation No. 7). Justification for the advances must be submitted to the borrower within 180 days of receipt of the funds. The borrower, for its part, shall not disburse additional resources to an executing agency until it has presented evidence to the Bank justifying the resources advanced to that executing agency.

- 4.53 Pursuant to the project investment schedule, a period of five years from the date the loan contract is signed has been established for full justification of the single disbursement (see clause 7 of the proposed resolution and Recommendation No. 2).

J. Recovery of costs

1. Operating and maintenance costs

- 4.54 These outlays can be recovered for some of the project activities. The most important item is the collection of fees for admission to the parks and sports areas. In the Sierra de Guadalupe, State of Mexico, and in Santa Catarina, Federal District, 100% of the cost of operation, maintenance, protection and surveillance will be recovered starting in the fifth year of the project; in Sierra de Guadalupe, Federal District, beginning in the ninth year. There would be surpluses in all three cases.

2. Capital costs

- 4.55 Recovery of capital costs is not anticipated. Practically all of the investment is public and long-term in nature, with many beneficiaries - most of them belonging to low-income groups. Such recovery could be accomplished only indirectly, by means of taxes and in insignificant amounts.

K. Inspection and supervision

- 4.56 The IDB country office in Mexico would be responsible for project inspection and supervision. In addition, the borrower will undertake to conduct joint annual reviews with the Bank of the progress achieved in the project during the preceding year and planning of the activities for each subsequent year, and to take any corrective measures that may be needed (see Recommendation No. 8).

L. Report on completion of operations

- 4.57 The borrower and the executing agencies will prepare their respective parts of the report as indicated in the new procedures and guidelines for the processing of IDB operations, which entered into effect on January 15, 1992. The borrower will cover financing mat-

ters and the executing agencies will report on details relevant to their respective subprojects.

- 4.58 Since the analysis mission took place prior to approval and entry into effect of the new procedures, it is proposed that the information which will be compiled for the purpose be specified in the initial report to be prepared prior to the first disbursement. 4/
- 4.59 Despite the foregoing, both the borrower and the executing agencies are considered capable of assembling the data which may be requested of them. The compilation of such data will be examined during the annual reviews of progress in the project.

M. Ex post evaluation of the project

- 4.60 Responsibility for compiling the ex post evaluation reports on the project will rest with each executing unit. Six months after the contract is signed, the borrower is to present, to the Bank's satisfaction, the methodology that will be used to evaluate the overall impact of the project and that of each subproject and the principal components (see Recommendation No. 9 and Appendix III).
- 4.61 The findings of the ex post evaluation will be presented three years from the end of the project execution period (see Recommendation No. 10).

4/ General condition.

V. THE BORROWER AND THE EXECUTING AGENCIES

A. The borrower and guarantor

- 5.1 The borrower would be the Banco Nacional de Obras y Servicios Públicos, S.N.C. (BANOBRAS), with the guarantee of the United Mexican States.

B. Transfer of resources

- 5.2 The loan resources would be transferred by the borrower to the Federal District Department (DDF) and the State of Mexico subject to the usual conditions established by the Federal Government for loans in local currency: interest at a prime (CPP, i.e. the Central Bank lending rate; or CETES, i.e. the rate paid on treasury bills), plus an intermediation fee of 0.25% per annum for the first five years and 0.125% per annum on balances outstanding as of the fifth year. The agreement on the source and transfer of funds will establish the final conditions for the transfer of funds, to the Bank's satisfaction, and will be a condition precedent to disbursement (see clause 8(d)(ii) of the proposed resolution).

C. The executing agencies

1. Institutional considerations

a. Coordinating Commission for Rural Development (COCODER)

Organizational structure

- 5.3 The organizational structure is set forth in the current internal regulations of the Federal District Department. COCODER's present setup is adequate for conducting the project's activities, since it has been performing similar activities since it was founded. Given the increase of work fronts, however, the mechanisms of coordination, administration and supervision will be strengthened with the recruitment of additional staff and purchase of the necessary materials, equipment and vehicles.

Staff

- 5.4 COCODER now has 2,511 employees: 860 (34%) are temporary; 1,606 (64%) are permanent; and the remaining 2% comprise executive personnel. The payroll reflects a concentration of staff in the regional offices and in operation of the nurseries, since the chief activity has been reforestation, along with the various rural development measures.

Financial and accounting management

- 5.5 Financial and accounting management is conducted through the Subdirectorate of Administrative Affairs, which is responsible for preparing the financial statements and statements of budgetary execution. The administration and procedures established in the institution are deemed adequate to comply with the Bank's requirements in respect to this area.
- 5.6 The financial statements are audited annually by a firm of independent public accountants and submitted for consideration of the DDF.

Financial situation

- 5.7 As of December 31, 1990, COCODER assets were equivalent to US\$7.9 million, consisting of inventories (62%) and fixed assets (34%), primarily nurseries, warehouses, training centers and offices. Net worth amounts to US\$7 million or 89% of the assets, which indicates that the assets are financed mainly by budgetary revenue.
- 5.8 In constant terms, COCODER revenue declined over the period examined, falling to 6.7% and 17.3% less than in 1988 and 1989, respectively. This cutback results from budgetary restrictions applied by the Mexican Government in the public sector. On the spending side, the list of personal services was slashed from a high of US\$8.2 million in 1988 to US\$5.6 million in 1990, i.e., a real decline of 32%. The drop in staff expenses is chiefly due to the reduction in real wages rather than to a drop in the number of COCODER employees.
- 5.9 Investments in fixed assets in the years examined amounted to about US\$1.8 million in 1988, US\$0.7 million in 1989 and US\$0.5 million in 1990, accompanied by a sharp drop in institutional expenditures in real terms. The present project would involve the investment of some US\$20.6 million a year, or almost double the annual COCODER budget. It is for this reason that the project calls for additional staff and management resources in order to meet the estimated target for local counterpart funds.

b. State of Mexico

Organizational structure

- 5.10 The Department of Agricultural Development (SEDAGRO) comes under the executive branch of the State of Mexico and its minister establishes channels of communication and organizational structure. Three directorates provide support directly to the Minister: Rural Planning, Producer Development, and Rural Infrastructure.
- 5.11 In addition to this structure are the following decentralized agencies: the Commission for Agricultural Development in the State of Mexico, Fertilizers and Agricultural Enhancers for the State of

Mexico (FEDOMEX); the Forest Protection Agency (PROBOSQUE); the Mexico State Parks and Wildlife Commission (CEPANAF); the State of Mexico Institute for Research and Training in Agriculture, Aquiculture and Forestry; and the Bulking Center. Of that group of administrative agencies, PROBOSQUE and CEPANAF are the ones with direct responsibility for execution of the project.

- 5.12 On January 30, 1992, the Bank was notified that the State of Mexico had created a state-level Department which would be responsible for ecological matters to which the PROBOSQUE and CEPANAF administrative units charged with project execution would be assigned. The Department is still in the organization stage.

Staff

- 5.13 PROBOSQUE now has 124 specialized technicians. They include agronomists, forestry engineers, biologists, and a specialist in forestry ecology who holds a doctorate degree. Field work and operations are supported by more than 300 operational technicians. The staff includes 63 office jobs: 21 officers and 42 administrative assistants; and 364 field personnel and 35 unskilled laborers.
- 5.14 The CEPANAF Directorate has a staff of 268, of whom 48 perform administrative tasks and 220 are operating personnel.
- 5.15 The operating unit responsible for the project will be the Subdirector for Development and Control of Parks and Zoos, with four departments and a total staff of 27.

Accounting and financial management

- 5.16 According to the Law Establishing the Public Administration, the State of Mexico Planning Department is charged with controlling, evaluating and monitoring due application of the budgets of state agencies. The Department of the Comptroller is responsible for surveillance, inspection and control of the revenue, expenditures, funds and obligations of the state's public administration and that of its auxiliary sector. In turn, each secretariat and unit of the auxiliary sector has an administrative unit that oversees the use made of resources and monitors finances. In addition to the administrative area, there is a comptroller's office assigned to each state department.

2. Financial considerations

- 5.17 PROBOSQUE started its activities in 1990 when it replaced the former PROTINBOS. Its assets consist of the cash and property assigned to it by the state and federal governments and the revenue obtained from the sale of goods, and from loans, donations and income received. Its present net worth is US\$3.4 million.

- 5.18 Its 1990 budget was US\$5.6 million equivalent, substantially down from the PROTINBOS 1989 and 1988 budgets, which were US\$20.4 million and US\$10.2 million, respectively. The downturn reflects the cutback in the activities previously assigned to this institution.
- 5.19 In the 1990 budget, 85.3% went to the directorates; 10.4% to the eight regional forestry offices; and the remaining 4.3% to special projects. The chief activities financed have been the operation of nurseries, preparation of land, forestry protection and sanitation, and inspection and supervision.
- 5.20 PROBOSQUE will be directly responsible for the Sierra de Guadalupe subprojects and particularly for urban-rural reforestation in the State of Mexico - the cost of which, exclusive of contingencies, escalation and financial charges, amounts to US\$30 million over the five years of execution. The average annual investment of US\$6 million will be a substantial increase in its budget, although still below the level traditionally posted by its predecessor, PROTINBOS.
- 5.21 CEPANAF has been operating on very tight budgets in the last two years: US\$2 million in 1990 and US\$2.1 million in 1989, limiting its activities to maintenance and operation of the parks in its jurisdiction. Investment has been minimal during this period. CEPANAF will be directly responsible for the Sierra de Guadalupe subproject in the State of Mexico, for which the estimated budget, net of contingencies, escalation and financing charges, is US\$27 million equivalent, i.e., US\$5.4 million a year. This project will thus be CEPANAF's principal activity over the next several years.
- 5.22 Given the hefty investment scheduled in the PROBOSQUE and CEPANAF budgets and the need for additional coordination with the municipalities and other State of Mexico offices, the project calls for substantial allocations to strengthen the coordination, administration and supervision functions.

D. Local contribution

- 5.23 The local contribution will be transferred to the executing agencies COCODER and the Gustavo Madero District Office, by the Federal District Department each year pursuant to the project needs established in the initial report 5/ and in the execution schedule reviewed at the meetings to be held in the last quarter of the year to assess progress of the project. As a federal agency of the national government, the DDF is autonomous and is free to distribute its own funds and those transferred by the Federal Government.

5/ General condition.

- 5.24 Similarly, the local contribution for execution of the works delegated to SEDAGRO and its decentralized agencies, PROBOSQUE and CEPANAF, will come from annual budgetary transfers from the Government of the State of Mexico pursuant to the financial schedule that will be established in the initial report 6/ and in the execution schedule reviewed at the annual follow-up meetings. Like the DF, the State of Mexico as another member of the federation has its own funds and federal allocations which it administers in accordance with the execution priorities of public works.
- 5.25 To ensure availability of sufficient local counterpart financing for routine execution of the project, the borrower must submit evidence as a condition precedent to the first disbursement that it has the necessary resources for that purpose in the first year and within the first 90 days of each fiscal year, throughout execution of the works, and that it has the budgetary allocations for continuation and completion of the works scheduled for the corresponding year. 7/
- 5.26 The funds for the payment from the executing agencies to the borrower will come from the same sources as the local contribution, i.e. from the funds available within the Federal District Department and the State of Mexico, as well as transfers from the federal government.

6/ General condition.
7/ General conditions.

VI. PROJECT JUSTIFICATION

A. Technical feasibility

- 6.1 The project is considered technically feasible for the reasons outlined in the following paragraphs.
- 6.2 Mindful of the low survival rate of plantations in the past, the Bank engaged a local expert on urban and rural tree planting in the project preparation stage who drew up specific recommendations on the selection of species, irrigation and the techniques to be used at the nurseries, planting sites and subsequent management to improve the survival rate. Those recommendations have been incorporated into the project design and can easily be carried out by such widely experienced agencies as PROBOSQUE and COCODER. Both are among the country's foremost authorities on tree nurseries and large-scale urban and rural plantations.
- 6.3 As an additional guarantee of the project's success, it is proposed that consultants and training specialists be hired, especially on suitable planting technologies. The conduct of research will produce important information both during the five years of project execution and for ongoing monitoring. Support from NGOs is also included among the investments as an essential input to ensure the success of this type of project with grassroots participation.
- 6.4 Protection and surveillance of the conservation areas, already under way, would be strengthened by the project. Education and dissemination of environmental information would be done through the media, as successfully done in the campaign "A Tree for Every Family" in the DF with support from social promoters and NGOs, using modern teaching techniques in the environmental education centers to be set up.
- 6.5 The civil works slated by the project are simple; the specifications are minimal; and local engineers have had extensive experience in the design, execution and supervision of this type of structure.

B. Environmental feasibility

- 6.6 The project's net environmental impact is highly positive, as outlined below.
- 6.7 The benefits to be derived from the project would relate to a more appropriate use of urban and rural land in the MCMA, particularly in the municipalities involved. The districts rescued from inexorable urban invasion perform essential ecological functions and provide support for human, plant and animal life.

- 6.8 The existing green areas and new plantations will improve the heavily polluted air quality by abating and removing part of the gaseous contaminants and pollutants, increasing oxygen production during the day when the level of air pollution is critical. Their regulating effect on the temperature, together with an increase in relative humidity and the reduction of carbon dioxide, would be other potential benefits accruing to all inhabitants of the areas involved and even the entire MCMA.
- 6.9 The use of ecological preserves for controlled recreational activities, sports and leisure would facilitate the access of large groups of low-income population to such amenities.
- 6.10 Additional project benefits would consist of the damage avoided by controlling unregulated urbanization, eliminating sources of future pollution, and reducing the pockets of infection produced by garbage dumps. At the same time, the works designed for management of the Sierra de Guadalupe basin will cut the cost of flood control and the damage inflicted by deluges and silting.
- 6.11 Mexico's General Law on Ecological Balance and Environmental Protection and the related regulations do not require a statement of environmental impact for the project. However, following the EMC recommendations, the possible effects of the civil works scheduled in the project will be given special attention during the execution period. Action is included for quality control of the waste water to be used for irrigating green areas, for the relocation and consolidation of settlements, and for restrictions on garbage dumping, quarrying and agricultural activities within the ecological conservation zones (see Recommendation No. 5).
- 6.12 The civil works and their specifications are simple, and they are designed to minimize any potential environmental impact on the surrounding area.
- 6.13 The waste water that would be used to irrigate the green areas will consist of the effluent from Mexico City sewage after treatment in activated sludge facilities with disinfection through chlorination, followed by filtration. By 1995 all of the plants would include tertiary treatment. The quality of this water will be monitored to ensure that it conforms to DGCOH standards, pursuant to a plan agreed on with the Bank.
- 6.14 Most of the institutions involved in the relocation and consolidation of settlements - especially the Gustavo A. Madero District Office - have had ample experience in this undertaking and in self-construction or social housing programs. They also usually have very cordial relations with the neighborhood organizations. In addition, these activities will be subject to previous consultation and coordination with the parties affected.

- 6.15 Any activities that are inconsistent with environmental conservation - such as quarrying, asphalt production, garbage dumps and the farming practices now used in the ecological protection areas - will be controlled from the start of the project through coordination with the owners. Where long-term measures are needed, as in the operation of quarries, the respective environmental impact studies have been commissioned pursuant to SEDUE and IDB standards and will be completed prior to the start of the subprojects. The asphalt plant and garbage dumps will be moved out of the area.
- 6.16 The environmental studies on control of quarries in Sierra de Guadalupe and Santa Catarina have already been commissioned by the Gustavo A. Madero District Office and by the national private sector, respectively. Financing for this purpose will not be included in the project. Approval of the studies by the DDF and the Bank will be a condition precedent to the allocation of resources for the Santa Catarina and Sierra de Guadalupe, DF, subproject (see Recommendation 7(c)).

C. Socioeconomic feasibility

1. Economic rationale for project activities

- 6.17 The project is considered socially and economically feasible. Analysis shows that benefits far exceed costs under the recreation and watershed management components when cost-benefit methodologies are used. Urban-agricultural forestation, which accounts for over half the project costs, is an efficient way of combating air pollution, being more economical than all the other alternatives considered. The purchases of land for conservation areas involve anticipated benefits in excess of costs. These components, under a formal evaluation, account for 80% of the total project costs.
- 6.18 Other benefits, deriving from significant environmental services such as aesthetic improvements, wildlife protection, climate regulation and improved health conditions with the elimination of garbage dumps, were not formally evaluated because they are difficult to measure and would require developing special methodologies for each case. Nor were activities for awareness-raising, training and research evaluated. Still, the aggregate social benefits of all these actions are considered to exceed their costs. These activities represent 11.5% of total outlays under the project.
- 6.19 The use of combined evaluation methodologies - cost-effectiveness (CE) for forestation, comparing the costs of alternative measures generating equivalent benefits; and cost-benefit (CB) for recreation and watershed management - makes it impossible to arrive at a

summary measurement in terms of an internal rate of return for the entire project. Market prices were used in evaluation. 8/

2. Methodologies, analysis and evaluation results

a. Forestation

- 6.20 One of the benefits of the large-scale urban forestation in the Federal District and the urban-agricultural forestation in Mexico State is their contribution to controlling air pollution in the entire atmospheric basin of the MCMA. In particular, this would help combat dust and total suspended particles (TSP), reduce sulphur dioxide (SO₂) and nitrogen dioxide (NO₂), two very noxious toxic gases, the latter being a forerunner of ozone formation (O₃). After lead, these are the pollutants having the greatest adverse impact on human health.
- 6.21 Ideally, the effects of an improvement in air quality as a result of forestation, i.e. the benefits of a reduction of morbidity and mortality in the exposed population, should be analyzed by the CB method. In this instance, however, it was not feasible to do so, and the CE method was used to determine the merits and effectiveness of forest plantations, comparing them with similar indicators of other measurements included in the 1991-1995 PICCA.
- 6.22 The PICCA includes several alternative measures for controlling air pollution in the MCMA in the short and medium term, as recently evaluated by the CE method in a study for the World Bank. 9/ Its findings, which are outlined below, are used for purposes of comparison.
- 6.23 In order to estimate the CE of forestation, a bioeconomic simulation model was developed that takes the following basic aspects into consideration: (i) vegetation, mainly trees and bushes, removes pollutants based on leafy area; (ii) this capacity increases with the size of the plant until leafy area stabilizes after about 25 years; (iii) as a result, the physical quantities removed each year increase gradually and at the same pace; and (iv) absorption ratios are different for each individual pollutant, as expressed in physical magnitudes per unit of leafy area.
- 6.24 Since the TSP, SO₂ and NO₂ absorbed by plants involve different hazard levels for human health, they must be assigned different relative weights accordingly, corrected by indicators of the frequency of violations of the air quality standards set for the

8/ Local-currency prices for the month of July 1991 were used. The average exchange rate used in conversion was 3,000 pesos to one U.S. dollar.

9/ Air Pollution Control in the Mexico City Metropolitan Area. Consolidated Final Report. April 15, 1991.

MCMA. The final weighting factors were the same ones used in determining the CE of the comparator measurements.

- 6.25 Economic costs were included in the model and expressed in present value. The same procedure was applied to the weighted physical reductions in the above-mentioned pollutants, which made it possible to add them for the 35 years of useful life for the plantations. Accordingly, the cost of removing a ton or a kilogram of pollutants is expressed in United States dollars at present value. The lower the ratio per comparable physical unit, the more efficient is the measurement considered.
- 6.26 The main findings of the CE analysis applied to the project's forestation systems indicate that the system for the Sierra de Guadalupe, Mexico State, is the most economical of the six. In second place is the urban-agricultural system in Mexico State, and in third place, Sierra de Guadalupe, Federal District. Removal costs range from 5.2 to 8.3 cents per kilogram. The highest cost was posted by urban forestation in the Federal District, at 19.4 cents per kilogram. The costs quoted represent the least favorable project scenario with respect to absorption levels. These costs could be even lower if a greater absorption of pollutants is assumed. The table below shows CE indicators for each forestry system and a ranking of costs.

COST EFFICIENCY INDICATORS FOR PROJECT FORESTATION SYSTEMS (US cents per kilogram of contaminants removed)			
Systems	COST-EFFICIENCY INDICATORS		CE RANKING
	Minimum	Maximum	
Sierra de Guadalupe, State of Mexico	1.7	5.2	1
Rural forestation, State of Mexico	1.9	5.7	2
Urban forestation, State of Mexico	2.8	8.3	4
Sierra de Guadalupe, DF	2.7	8.1	3
Santa Catarina, DF	3.8	11.5	5
Urban forestation, DF	6.5	19.4	6

- 6.27 The above results compare satisfactorily with the estimates for alternative measures under the PICCA intended to reduce emissions of the same or comparable pollutants. The most cost-effective measure in this group, being the recovery of fumes at gas stations, bears a cost of 31 cents per kilogram. The least efficient posts over US\$9 per kg (catalytic converters for new cars). The evaluation could be even more favorable for forestation considering that the duration of the alternative measures would not exceed 10 years.

The CE indicators for the major comparator measures are summarized below:

COST-EFFECTIVENESS OF EMISSION CONTROL MEASURES IN THE MCMA (PICCA)			
CONTROL MEASURE	INVESTMENT (US\$ millions)	CE (US\$/kg)	Investment period (years)
1. Recovery of fumes at gas stations	13.2	0.31	10
2. Improvements, inspection and maintenance	3.6	0.49	6
a. Taxis and buses	12.2	1.76	6
b. Automobiles and trucks			
3. Conversion of engines to LP gas	143.0	0.76 to 1.37	6
4. Replacement of taxi fleet			
a. 1993 standards	622.0	3.80	4
b. 1991 standards	385.0	6.63	4
5. Catalytic converters	60.0	9.09	8
SOURCE: Air Pollution Control in the Mexico City metropolitan area. Consolidated Final Report. April 15, 1991.			

6.28 To complete the analysis, several sensitivity tests were performed by reducing growth in leafy area and shortening the useful life of the trees from 35 to 20 years, an extreme assumption equivalent to raising costs to between 45% and 50% higher than the original scenario. Under these circumstances, the least efficient of the forestry systems analyzed could undergo a 50% cost increase and still be superior to the best alternative comparator measure. This is a clear indication of the advantages of forestation to perform these environmental functions.

6.29 In short, the plantation system, both overall and taken individually, is highly cost-effective, even in comparison with the best short and medium-term measures under the PICCA, given the model's working assumptions.

b. Recreation

6.30 Activities are to be carried out in two major areas: (i) Guadalupe, Mexico State, and (ii) Santa Catarina, Federal District. A third area in Sierra de Guadalupe, under the jurisdiction of the Gustavo A. Madero District (DF), will only be usable by the public after restoration work and natural recovery make this possible. This process will require some five years of ecological closure.

6.31 In order to estimate recreational benefits, special surveys were done of the population in neighboring areas, and the results analyzed with appropriate models to estimate the average value of the consumer surplus per visit to each conservation area. Keeping

in mind the area earmarked for such activities, the kinds of services to be offered and the habits of the population, an estimate was made of the number of annual visits that could be admitted without causing problems with congestion.

- 6.32 The results of the analysis are shown on the table below. They indicate that benefits far exceed costs, as expressed in net present value and internal rate of return. The rates are for a 30-year evaluation period for a range of estimated consumer surplus.

PARK OR AREA	VISITS PER YEAR	CONSUMER SURPLUS	NPV (US\$000)	IRR (%)
Sierra de Guadalupe, Mexico State	900,000	2.70	11,557.2	59.0
	900,000	1.70	6,291.9	39.8
Sierra de Guadalupe, DF	400,000	2.70	2,032.2	21.1
	400,000	1.70	585.6	15.1
Sta. Catarina, DF	450,000	2.70	4,186.8	33.6
	450,000	1.70	1,554.1	19.9

- 6.33 Consequently, the recreational activities involve high benefits, with internal rates of return far exceeding 12%, under several customary sensitivity tests. In the case of Sierra de Guadalupe, Federal District, the result is also satisfactory considering that, given ecological closure, no recreational revenues would be earned until the seventh year.

c. Management of watersheds and existing plantations

- 6.34 The benefits from the watershed management component, which exists only in Sierra de Guadalupe consist mainly of the expense avoided by adjacent municipalities for flood control, cleanup of silting and adequate disposal of that material. The net present value for this component is US\$26,948 and the internal rate of return is 15.93%.
- 6.35 The cost of managing existing plantations includes US\$303,000 for plantations done in recent years (young trees) and US\$410,000 to remove dead trees and prune dead branches in older ones. The first item is justified because the seedlings will not grow without proper care and the benefits would thus decline; and the second because experience in the MCMA and in other cities shows that accidents caused by falling trees or branches in the streets and on electric lines entail much higher costs than preventive measures.
- 6.36 For the expropriations needed to create buffer strips around the ecological restoration zones in Sierra de Guadalupe and Santa Catarina, the financial cost includes the purchase of lands owned by communities (*ejidos*), compensation for certain goods and

improvements, and the administrative and legal costs of the operation. Strictly speaking, the investment represents a change in the government's assets. Its economic cost is low as compared with unevaluated benefits for the ecological restoration zones and the prevention of the future costs involved in the scenario without the project.

- 6.37 The socioeconomic rationale for the component consisting of education and environmental consciousness-raising, professional training, consultancies and research is based on technical factors and the reasonable nature of the outlays when compared with anticipated benefits.
- 6.38 The component for the ecological restoration and conservation of Santa Catarina included the cost of plant material to be used in hedges (nopal, maguey and other cacti), grasses and other types of nonarboreal vegetation the purpose of which is to restore natural physiognomy. Eradication of a large number of garbage dumps was also included in this component. The benefits of these measures are varied, diverse and difficult to quantify. The aforementioned vegetation nevertheless controls erosion, acts as a windbreak, traps dust, promotes infiltration and performs other regulatory functions that are as important as those of trees. In view of the results obtained with forestation, it is reasonable to assume that the benefits of these components exceed the costs, which are low. The same assumption could be made concerning the results of controlling pockets of infection, for which the health benefits are very clear.
- 6.39 In Sierra de Guadalupe, Federal District, where urban pressure is greater, it was found necessary to build a protective wall 33 km long as the only technical alternative that could prevent the continuous invasion of squatters. Its cost is unquestionably high, but past experience shows that without the protection of such a barrier, the entire park area would be lost in two or three years and the adjacent area in the State of Mexico - as well as the entire conservation and recreational development scheme in both areas - would be seriously threatened.
- 6.40 Finally, the costs associated with urban regularization were not evaluated for reasons of a practical nature. They were considered necessary, technically and socially reasonable, and justifiable in each instance. The Bank's contribution is supplementary and designed to minimize conflicts and reduce the number of families subject to relocation. Any other approach would require an analysis of extensive urban development programs in the DF and the State of Mexico, including PRONASOL, which would exceed the confines of the present project.
- 6.41 In light of the foregoing factors, the project is considered socially and economically viable.

D. Distributive impact

- 6.42 The results indicate that the forestation, recreation and watershed management components can be considered to have a high distributive impact, with 86% of benefits going to low-income groups.
- 6.43 The analysis was performed using the Bank's conventional methodology and providing separate calculations of distributive impact ratios deriving from the CB and CE methodologies.
- 6.44 The distribution of earnings among the total population of the MCMA in 1990 was estimated on the basis of the distribution for the economically active population, as summarized below:

DISTRIBUTION OF EARNINGS IN THE MCMA IN 1990			
Zones	Below the low-income ceiling	Above the low-income ceiling	TOTAL
Federal District	87.1%	12.8%	100%
State of Mexico	85.1%	14.8%	100%

- 6.45 The low-income ceiling estimated by the Bank in late 1990 was 3,610,104 pesos per capita per year, or close to US\$1,240. According to the criterion followed in the country, low-income groups are defined as receiving less than three minimum wages per family. Keeping in mind the composition of the average family group, the two estimates are consistent with each other. Accordingly, it can be said that 87.1% of the population in the Federal District and 85.1% of the population in the State of Mexico are below the ceiling.
- 6.46 Under the forestation components, as evaluated by CE, estimates were made of the proportion of goods or services (improvement in air quality) that would accrue to low-income groups, under the most rational assumption that all inhabitants of the MCMA would benefit equally, since no clear distinction can be made of the local effects of a reduction in air pollution given the limitations of predictive models for such impact. Considering that the benefits of the forestation component would relate to both the Federal District and Mexico State, the weighted distributive impact ratio for such investments is 86.2%.
- 6.47 For the recreation and watershed management components, as evaluated by the CB method, the impact ratio is 85.8%, since the distribution of activities under those components between the Federal District and the State of Mexico is not the same as in the previous case.

- 6.48 Among the components not evaluated in quantitative terms is the consolidation of settlements and the relocation of families. The former will affect numerous low-income populations, as in the case of Santa Catarina and Sierra de Guadalupe, Mexico State. Socioeconomic studies indicate that over 90% of the 1,322 families to be resettled have very low income levels. All the families, both those consolidated and those relocated, will clearly benefit from achieving legal land tenure, site titling and access to basic services which they did not have and could not be provided with under the situation existing before the project.
- 6.49 As an additional criterion to assess distributive impact, it should be noted that the forestry activities will call for extensive use of unskilled labor (day workers, unskilled laborers, foremen and field supervisors). By way of example, it was estimated that in the third year of the project 3,380 workers will be needed in the production, acquisition and transportation of the plants; 3,700 in the plantations themselves; 800 in management; and more than 100 for protection and surveillance.
- 6.50 More than 65% of the cost for management of existing plantations represents wages for low-income workers (peons and foremen). In ecological conservation and restoration, production, planting and plant maintenance expenses (also for services performed by low-income workers) account for more than 50% of the direct cost. Other restoration works, such as the protective wall at Sierra de Guadalupe in the DF, require an equal or more intensive use of low-income laborers, to the tune of 681,000 days' wages.
- 6.51 To summarize the results of the analysis, the project is considered to have a high distributive impact, with at least 86% of benefits accruing to low-income groups.

E. Financial feasibility

- 6.52 The project is considered viable since the SHCP has indicated the existence of the necessary allocations in the DDF and Mexico State budgets to cover local counterpart funding. Considering the high priority accorded by the government to the PICCA, and to this project within it, no difficulties are anticipated as to the availability of sufficient funds.
- 6.53 Using the proposed financing modality, the loan resources would be used to purchase securities representing Mexico's external trade debt, and the amount generated in local currency would be applied to project investments. The advantages of this mechanism are as follows: (i) Mexico already has experience and procedures established for executing operations of this nature; (ii) most of the project outlays are in local currency; and (iii) the borrower, upon redeeming the external debt securities with the SHCP, will obtain local-currency resources in excess of the equivalent of the Bank loan which may be used as part of the local contribution to the

project. These additional resources, to be placed in an account with maintenance of value, offer greater assurances for the timely availability of the local contribution.

- 6.54 There are important financial considerations which have to do with the country's external obligations. Discount bonds representing Mexican debt have increased in value on the secondary market since preparation of the project began, and are now listed at 82.5% of their face value. The aforesaid face value at maturity (in the year 2019) is secured by zero-coupon bonds of the United States Treasury, which belong to the borrower but are deposited in an escrow account. In addition, there is a guarantee fund to cover 18 months of interest payments on the discount bonds at a rate of 10%. The zero-coupon bonds may only be redeemed by the United States Treasury, and bear interest at a floating rate calculated by a specific formula which would currently yield approximately 8.14%.
- 6.55 In view of the foregoing, the retirement of external debt on the secondary market liberates the guarantees of the United States Treasury, the instruments securing interest payments, and payments of interest for 27 years. Based on a comparison of these savings with the foreign-currency outlays inherent in the Bank loan, it is concluded that the difference in cost between the debt to be purchased and the Bank loan is a net saving of approximately US\$9.6 million for Mexico in terms of present value (see sample calculation in Annex IV-1).
- 6.56 These factors point to the existence of a not insignificant financial advantage through the debt retirement operation, of about 9.6%. Since the transaction would take place in the secondary market, the price would not be specified until the time of purchase, and its relative financial advantage will depend on the value of discount bonds on the secondary market at that time and the spread between interest at the rate charged by the Bank and accruing on the discount bonds. 10/

F. Institutional feasibility

- 6.57 The execution mechanism is complex due to the inherent features of the project, and its design reflects operational, political and institutional realities. Technical coordination is consistent with the PICCA guidelines as a component thereof. Responsibility for the execution of the project lies with the Federal District and State of Mexico.

10/ The current spread is 2.59%. Even if the spread should widen to 4%, which is unlikely because the Bank's rate is variable as well, the difference would continue to be positive for Mexico. The Mexican government has expressed interest in the debt retirement operation so long as the spread with respect to the Bank loan is not negative.

- 6.58 The institutions directly responsible for executing the subprojects - PROBOSQUE, CEPANAF and the Gustavo Madero District Office - have acquired technical experience in the execution of similar projects but on a smaller scale. Technical and administrative strengthening is therefore planned in terms of both human and material resources to enable them to carry out the activity schedule within the allotted time frame.

G. Women's participation

- 6.59 The family resettlement components will include the provision of housing and access to basic water supply, sewerage and electricity services. The basic services not provided in the settlements which remain to be consolidated will be covered by the customary federal, state and municipal programs and PRONASOL.
- 6.60 In the Federal District, where relocation will be combined with a self-construction mechanism, the executing agencies will have teams of technical personnel and social workers who will give special attention to the needs of households headed by women. The teams can provide technical and social assistance and work for such families.
- 6.61 The PRONASOL mutual aid program for the improvement of secondary service infrastructure and paving offers special arrangements for families who are unable to contribute work. Women heads of households may pay in kind or by exchanging services for work.
- 6.62 Most of the environmental NGOs that are helping with the consultation and promotion activities have staff with experience in strategies for action to elicit women's participation in conservation activities.

H. Community participation

- 6.63 Grassroots participation, whether through community organizations, administrative representatives or the citizens themselves, is an important part of the preparation and execution of the project, through a process of consultation and agreement. It is present in the relocation of settlements and in the reforestation activities in Santa Catarina and the State of Mexico; in the expropriation of both privately-owned and community-owned land; in defining the participation of the DF districts and the State of Mexico municipalities; and in the control of garbage dumps, the asphalt plant, and the operation of quarries.
- 6.64 A number of NGOs have served as social regulatory agencies for reforestation programs conducted in the DF, and their participation and that of other NGOs is anticipated in execution of this project, both in the resettlement processes and in the research activities scheduled.

I. Natural disasters

- 6.65 Pursuant to the Bank's policy approved by the Board of Directors for natural disasters, the project analysis addresses such risks.
- 6.66 It is concluded that the major risks in the project are: (i) seismic disturbances in the entire MCMA; and (ii) flooding in Sierra de Guadalupe and the surrounding area. Because of the type of works contemplated by the project, earthquakes would affect construction and the Sierra de Guadalupe retaining wall in the DF. Both the structural design of the ecological centers and that of the wall took the seismic risk into account, as required under prevailing standards in Mexico.
- 6.67 As to flooding in Sierra de Guadalupe, the measures included in the watershed management component (filtration and gabion dams, water catchment trenches and terracing) and in the forestation and replanting work will help mitigate the effects of flooding on neighboring urban areas.
- 6.68 The dams are small-scale flexible structures and thus adaptable to the seismic features of the region. Their design took into account hydrological variables in accordance with the size and characteristics of the works, and the risk of overflowing is minimal since the purpose of these filtration dams is to screen out sediment and dissipate the thrust of the flow, not to store water.

J. Project risks

- 6.69 As in any project involving the resettlement of families, this aspect is complex and its success depends not only on a satisfactory solution of the needs for housing and basic service infrastructure, but also on the degree of the families' acceptance of and participation in the design and execution of the process.
- 6.70 No particular problems are anticipated, in execution of the family relocation components, however, since: (i) the three resettlement activities are designed to substantially improve the families' living conditions; (ii) most of the families have not lived at this location for a long time and thus the uprooting would not be too severe; (iii) the move will be to a nearby location, so there will be no drastic changes in access to job markets, service infrastructure, or social relations; (iv) the housing and credit components will be executed by institutions with extensive experience in low-income housing projects; and (v) the process of consultation and coordination is conducive to participation and acceptance by community organizations and individual families.
- 6.71 In the forestry planting, there is the risk that plant survival levels may not be satisfactory due to the high degree of air and soil pollution in the MCMA. In order to attenuate this risk, special efforts are being made to use the appropriate species and

techniques to offset the adverse effects of possible factors such as drought and disease. In addition, in rural areas, the survival of plantations will also depend on the establishment of ties with the community, which is covered in the design of the project.

- 6.72 The probability that responsibility for project coordination in the State of Mexico will be delegated to the recently created Department of Ecology constitutes an additional risk. The fact that PROBOSQUE and CEPANAF would continue to bear direct responsibility for project execution in that state, however, lessens that risk.
- 6.73 Aside from the above, the chief risks facing the project have to do with: (i) the degree of coordination, capacity and participation of the agencies that are necessary for execution of the different components; (ii) the complexity of and the time needed for consultation and coordination with the communities affected, the land expropriations and resettlements that have yet to be accomplished, and completion of the legal procedures and processes; (iii) fulfillment of the commitments undertaken with resettled families; (iv) compliance with the government's commitments to regulate certain activities now conducted in the project area (quarries, garbage dumps and the asphalt plant) which have an adverse impact on the environment; and (v) maintaining ecological restoration zones free of further urban development and new invasions of human settlements.
- 6.74 The following factors minimize the risks cited: (i) the high priority which the Mexican authorities assign to the project; (ii) the decision of the Mexican authorities to find solutions to Mexico City's environmental problems; (iii) the experience acquired in similar situations in Mexico City in connection with expropriations and resettlements; (iv) the measures included in the project to control problems in the areas involved and to regulate land use; (v) surveillance and protection from forest fires; and (vi) the specific contractual conditions which would be included to address some of these issues.

ANNEXES

M E X I C O

Frame of Reference

A. Recent Economic Trends

- 1.01 The year 1990 was characterized by the continuation of efforts to stabilize and restructure the Mexican economy with a view to improving its efficiency and competitiveness; efforts that have established the foundations for economic growth. Economic activity accelerated in the second half of the year, bolstered by the effects of the external debt negotiations, the increase in world oil prices and, to a certain extent, the initiation of discussions on a free-trade agreement with the United States and Canada. These factors helped to improve the outlook of the economy and to attract foreign capital. The gross domestic product (GDP) grew by 3.9 percent in 1990, with an upward trend occurring throughout the year, as evidenced by the 1.9 percent GDP growth rate during the first quarter and the 5.8 percent growth rate during the fourth.
- 1.02 In contrast to the decrease experienced in the two previous years, agricultural production rose in 1990 at a annual rate of 3.4 percent, the largest increase since 1985 when the rate of growth was 3.8 percent. Agricultural production benefitted not only from the availability of credit but also from a good rainy season that resulted in a significant increase in rain-fed crops such as beans (117 percent), corn (34 percent), and sorghum (24 percent).
- 1.03 For the fourth year in a row, the manufacturing sector experienced an increase greater than that of the economy as a whole, reaffirming that sector's importance within overall productive apparatus. In the third quarter the sector grew by as much as 8.4 percent, dropping slightly at the end of the year, probably as a result of the recession in the United States. The most active subsectors were metal products, machinery, and equipment, in which the real increase in production was 12.9 percent; this rate of growth was primarily the result of the vitality of the automotive sector, which, in the second half of 1990, as a result of the start-up of production units shut down during expansion works, was able to overcome the relative stagnation of the previous year.
- 1.04 Construction activity showed an increase of 7.7 percent, its highest in nine years. Even so, the 1990 level remained below that of 1980, because this sector was one of the hardest hit by the economic crisis of the 1980s. The 1990 recovery was the result of infrastructure and residential construction, the former being spurred by an increase in public investment and the latter by the greater availability of credit at lower interest rates.

- 1.05 As in 1989, economic expansion in 1990 was driven by the dynamic growth of final demand. Of particular note was the performance of private sector investment, whose rate of growth between 1989 and 1990 rose from 9 percent to 14 percent. In addition, public sector investment grew by 13 percent, thus reversing the trend observed in recent years.
- 1.06 The increase in private sector investment was financed by an important flow of funds from the securities market, from capital repatriation, as well as the growing availability of credit at lower interest rates. In fact, bank credit in 1990 experienced a real increase of about 34 percent, most of which was channeled to the private sector; by year-end approximately 50 percent of the balances of credit provided by the banking system was with the private sector--a much greater percentage than the average of 28 percent recorded during the past decade, when most of the credit was for the financing of the public deficit.
- 1.07 The sharp drop in domestic interest rates during the year was, in part, the result of the conclusion of external debt negotiations at the end of March 1990, when the exchange of bonds took place which helped to reduce the perceived risk of holding assets in Mexican pesos and, in general, to improve the expectation on the economy. This view was strengthened by the renewal of the Pact for Stability and Economic Growth (PECE), and the announcement of the privatization of commercial banks in May of 1990. Nominal interest rates began falling in April 1990, and in the case of one-month Treasury certificates (CETES), annual rates fell from 46.6 percent to 26.0 percent between March and December 1990; in spite of that, financial savings continued to increase. Furthermore, lower interest payments on the domestic public debt reduced the financing needs of the public sector, thus releasing more funds for private sector financing.
- 1.08 Starting in the second quarter and particularly in the third and fourth quarters, the money supply (M1) was influenced by large inflows of external capital. This inflow resulted both in an accumulation of reserves in the Bank of Mexico and, within the context of an exchange rate system with predetermined devaluation, in a monetary expansion that was not completely sterilized by the Bank of Mexico, probably to avoid arresting the trend toward lower interest rates.
- 1.09 During 1990, the government maintained fiscal discipline and, for the eighth consecutive year, achieved a primary surplus amounting to 8.1 percent of GDP. Despite reduced interest payments on the domestic and external public debt, these payments continued to exceed the primary surplus and resulted in a financial deficit of 3.5 percent of GDP--even so, the lowest in more than a decade. This deficit was financed chiefly through the placement of government securities on the domestic market. Meanwhile, the net financing of the Bank of Mexico was negative, given that the government reduced its debt with this institution.

- 1.10 Following the success achieved in 1989, when inflation rate fell to 20 percent, after having reached levels higher than 100 percent in the previous two years, December to December inflation in 1990 rose to around 30 percent, exceeding the target ceiling of 15 percent set by the government. This occurred because the lag in prices was corrected twice during the year within the moderating framework of the Pact for Stability and Economic Growth. The vitality of final demand also influenced prices, causing an upward trend throughout the year.
- 1.11 The exchange rate policy agreed under the Pact for Stability and Economic Growth resulted in a nominal devaluation lower than the relative inflation rate between Mexico and its principal trading partners, resulting in a slight real appreciation of the peso against major international currencies.
- 1.12 In this context, trade liberalization and the demand for imported products associated with economic growth caused a deficit of the trade balance, without including the net revenues generated by the in-bond industries' exports, that rose from \$645 million in 1989 to \$3,025 million in 1990.
- 1.13 Merchandise imports registered a 27 percent nominal growth in dollars, the most prominent component being the 44 percent increase in consumer goods imports, which--although down from the 82 percent recorded in 1989--resulted from both a recovery of the repressed demand prior to trade liberalization and the strength of final consumption. The 43 percent increase in the import of capital goods was attributable to the robust recovery of investment.
- 1.14 The 18 percent increase in merchandise exports was less than the increase in merchandise imports, and had a differentiated behavior depending on the product. The 28 percent increase in oil exports, for instance, was caused to a great extent by the rise in oil prices beginning in August 1990 that resulted from the Persian Gulf crisis. Among non-oil exports, agricultural products recorded a growth of 23.4 percent, with exports of beans, fresh vegetables, and beef cattle leading the way. Also significant was the recovery of automotive exports in the second half of the year, which contributed to the annual growth rate of 11 percent in manufactures exports.
- 1.15 The balance of nonfactor services showed a surplus, primarily because of the dynamism of the in-bond assembly industry, but interest payments on the external debt contributed to a deficit in the overall balance of services. Therefore, the current account ended the year with a deficit of \$5,253 million. This deficit was, however, easily financed by the capital account, supported by important flows of foreign direct investment and the stock exchange, together raising \$4,627 million. By the end of 1990 Mexico had increased its gross reserves by \$3,414 million, with the total balance constituting the equivalent of more than four months' worth of merchandise imports.

B. Economic Policies

- 1.16 Consensus on the economic policy was reflected in the renewal of the Pact for Stability and Economic Growth for the implementation of its fourth and fifth phases. In the fourth phase, announced in May 1990, agreement was reached to increase some energy prices, to reduce the exchange depreciation from one peso to 80 cents per day, and to freeze minimum wages. In the fifth phase, which covers the period from November 1990 to the end of 1991, the minimum wage was increased by 18 percent, exchange rate depreciation was reduced once again from 80 to 40 cents per day, and the prices of some fuels and electricity were increased.
- 1.17 The government continued to adapt its fiscal policy with a view to increasing public revenue and improving efficiency in resource allocation. With respect to tax policy, the tax rate for companies was further reduced from 37 percent to 36 percent, and in 1991 to 35 percent. Moreover, the maximum rate for individuals was reduced from 40 percent to 35 percent. In addition, tax collection procedures were improved, for instance in the payment of the value-added tax (VAT), which is now collected through the major credit institutions along with other federal taxes. These measures resulted in an increased tax revenue from 9.8 percent in 1989 to 10.4 percent of GDP in 1990. With respect to expenditures, the policy of decreasing current expenditures was maintained in order to allow increases in capital and social expenditures. Among social expenditures, the government has given priority to education, health, urban development, and the national solidarity program (PRONASOL), which is designed to assist specific communities whose needs have been deemed a priority.
- 1.18 In the area of finance, the government continued its efforts for the transition towards a more dynamic and efficient financial sector. In 1990, constitutional reforms were approved in order to allow a majority participation of the private sector in commercial banking. In this respect, the legal framework was established for the creation of multi-purpose banking institutions, allowing the participation of foreign investment up to a maximum of 30 percent of their social capital. A law regulating financial groups was also approved, enabling the integration of financial groups with financial intermediaries, as well as a capital markets law allowing the participation of brokerage firms in financial groups. These measures are in addition to those adopted in 1989 such as the replacement of the legal reserve ratio by a liquidity coefficient of 30 percent, the possibility of interest-bearing checking accounts and the elimination of selective credits that had mandated loans to specific sectors.
- 1.19 Also, the government pursued its deregulation endeavors with a view to improving the efficiency of the economy. In the telecommunications sector the regulatory framework governing the industry was revised to encourage a more competitive market structure. Equally important were the reforms aimed at deregulating the transportation

sector that are expected to reduce transportation costs and indirectly production and marketing costs.

- 1.20 Finally, the process of privatization initiated in 1982, when there were approximately 1,155 public enterprises in existence, continued in 1990, when the number of public enterprises amounted to only 285. In this context, the sale of the state-owned shares of TELMEX for a total of \$1,750 million, representing 20.4 percent of the capital stock of the company, shifted the management of TELMEX to the private sector.

C. Outlook

- 1.21 The measures adopted by the government and the present performance of the economy suggest a stable economic performance for 1991 with growth similar to that of 1990 and a lower inflation rate.
- 1.22 Economic growth should be sustained by a continued increase of final demand and by a productive apparatus revitalized by the recovery of investment since 1988 within the framework of a more efficient and competitive economy.
- 1.23 To a certain extent, price behavior will continue to be determined by the terms of the Pact for Stability and Economic Growth, which has helped to moderate price rises. Clearly, the fiscal discipline and the political consensus of the parties to the pact have given credibility to this instrument. As the economy is moving toward a future of less regulation and greater competitiveness, there remains the longer-term problem of transition from a coordinated system of prices, wages, and exchange rates to one of greater autonomy in their determination.
- 1.24 As in 1990, the promising economic outlook and the increased confidence that Mexico enjoys should contribute to a surplus in the capital account. This confidence on the part of international markets was made clear by the return of Mexico to the voluntary capital market with the placement in 1990 of international bonds by PEMEX, TELMEX, BANCOMEXT, and NAFIN. Moreover, in February 1991, for the first time since the 1982 foreign-debt crisis, the government sold international bonds for a value of approximately 300 million German marks.
- 1.25 Another important aspect is that in order to minimize the risk from oil price fluctuations on international markets, the government adopted several innovative measures. First, it adopted a prudent approach anticipating the end to the Persian Gulf conflict, preparing its 1991 budget on the basis of an estimated price of \$17 a barrel, at a time when uncertainty concerning oil supply had caused a significant increase in the price of oil, which had reached around \$30 a barrel; at the same time, futures transactions were executed on international markets in order to guarantee income from the sale of oil consistent with the budget. Second, the government established

a contingency fund with the proceeds from the privatization of state enterprises to be used to avoid a balance of payments crisis in the event of a further drop of oil prices. The announcement in June 1990 of negotiations to establish a free-trade zone between Mexico and the United States, with the subsequent inclusion of Canada, clearly contributed to even greater expectations of the performance of the Mexican economy. In addition to the economic opportunities that this agreement would provide for Mexico, the signing of the agreement would confirm the government's commitment to maintaining an open, competitive, and deregulated economy. Mexico has also entered into negotiations with Chile, Colombia, Venezuela, and the Central American countries to establish similar agreements.

- 1.26 Finally, within the framework of restructuring the economy, the government has also announced that it will privatize commercial banks and will continue with the sale of TELMEX shares it still owns, as well as with the privatization of other enterprises in the insurance, fertilizer, steel, fishing, and sugar sectors, which suggests that the process of transforming Mexico's economy will continue in 1991.

IDB PROJECT PIPELINE

1992-1993

PROJECT	SECTOR	PROJECT TITLE	AMT. IN US\$ MILL.
ME-0059	Education	Basic Education Program	100.0
ME-0056	Sanitation	Guadalajara Potable Water Supply and Sewer System	300.0
ME-0057	Environment	Forestry Development Program	50.0
ME-0152	Industry	Global Industrial Credit Program - NAFIN	200.0
ME-0051	Urban Development	Municipal Development Program	80.0
ME-0053	Urban Development	Housing Program for Low-Income Population	100.0
ME-0148	Agriculture	Global Agricultural Credit Program	400.0
ME-0042	Transportation	Rural Road Rehabilitation and Modernization Program	300.0
ME-0041	Education	Science and Technology Program	150.0
ME-0127	Tourism	Tourism Development Program	200.0
ME-0006	Energy	Investments in Electric Sector II	350.0
		TOTAL	2,230.00

SPECIAL FINANCING FACILITY**1. Description**

The Bank would advance the disbursement of the financing proceeds to the borrower for use in an operation to retire Mexico's external debt to the commercial banks. The proceeds of this transaction will be used exclusively to finance the project.

2. Debt retirement

Once the terms of the debt retirement operation are known, the Bank would approve the respective disbursement and the borrower would purchase external debt securities on the secondary market.

3. Debt conversion

The securities purchased would be converted to local currency in accordance with prevailing practices and procedures.

4. Maintenance of value

The local-currency resources obtained through the debt retirement operation will be deposited in the borrower's name with the Treasury of the Federation in two special accounts, for exclusive use in the project. The amount to be deposited in the first is the equivalent of the amount of the Bank loan, and in the second the additional resources obtained as a result of the debt retirement operation. In both cases the deposits would be indexed to the free-market dollar at the time when the corresponding project expenses are incurred.

5. Disbursements

The local-currency resources corresponding to the amount of the Bank loan will be disbursed to the executing agencies from the first of the special accounts described in paragraph 4 above, based on project progress and in accordance with the investment standards and categories set forth in the loan contract, maintaining the pari passu agreed upon with the Bank.

CONTROL AND MONITORING MECHANISM

1. The features of the financing will allow the Bank to make a disbursement of 100% at the start of the program.
2. For control and monitoring purposes, the Bank will consider this disbursement to represent an advance of funds.
3. The deadline for presenting justification for the advance to the Bank will be established in accordance with the program investment schedule.
4. The contract on the source and transfer of funds which the borrower will sign with the executing agencies must stipulate that BANOBRAS shall not disburse additional funds to each executing agency until the agency has submitted justification to BANOBRAS and such justification is in turn submitted by BANOBRAS to the Bank for partial advances charged against the special account set up for the executing agency.
5. In the event that foreign exchange is needed to pay for services from foreign sources as a result of international public bidding, it will be provided by the Mexican Government using any of the procedures available to it for this purpose.
6. The justifications to be presented by the borrower shall be drafted in accordance with procedures established by the Bank about which the borrower and the executing agencies have been notified ("Guidelines for the Processing of Disbursement Requests for Specific Projects and Multiple Works Programs").
7. The borrower shall present semiannual progress reports broken down by executing agency and by activity.
8. The borrower shall present audited financial statements for BANOBRAS and for each executing agency.
9. The Bank, the borrower, the guarantor and the executing agencies will perform annual evaluations in the month of October, to include a qualitative review of progress made in the project during the previous year and the activities planned for the following year, at which time any necessary corrective measures would be implemented.

FINANCIAL ASPECTS OF MEXICO'S DEBT RESTRUCTURING
A WORKED EXAMPLE 1/

Suppose that the Borrower takes a 20 year loan from the Bank for US\$100 million in one tranche, with a five year grace period during which only interest, not principal, is repaid. After the fifth year the Borrower repays the principal in fixed installments over fifteen years, and pays interest on the outstanding balance, so a series of unequal periodic payments results. 2/

The Borrower uses the Bank loan to extinguish an outstanding foreign debt by redeeming its long term bonds (discount bonds) in the secondary market. These bonds sell at a discount below face value, which in this case is 82.5 percent of face value. Hence, for every dollar loaned by the Bank, the borrower can retire more than one dollar of its outstanding long term foreign debt. Specifically, \$1.21 of outstanding debt can be retired per dollar (because $1.21 = 1/0.825$).

Finally, the face value at maturity of the securities the borrower retires on the secondary market (the discount bonds) is guaranteed by zero coupon U.S. government securities. These U.S. Treasury bonds belong to the Borrower, but are held in escrow. Eighteen months worth of interest payments on the discount bonds are also backed by a rolling interest guarantee fund held by the Borrower. Hence retirement of foreign debt on the secondary market frees up the present value of the U.S. government securities and the interest guarantee instruments backing them up. 3/ The zero coupon Treasury bonds can only be redeemed with the U.S. Treasury according to a redemption formula. It stipulates that the value of redemption will be based on a 3-day average of the higher of i) the Strips yield; or the yield on a comparable Treasury bond with maturity closest to Dec. 31, 2019, plus 1/12 of 1%. At the moment the Treasury bond (February 2020) yield is 7.95% and the Strips yield is 8.06%, so the Strips yield plus .08%, or 8.14%, would be used.

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- 1/ This Annex is based on information supplied by the Mexican authorities. The basis for the financial calculations can be found in: Kent, F.C. 1924. Mathematical Principles of Finance. New York: McGraw Hill.
- 2/ This scheme is unlike the more familiar fixed periodic repayment covering both principal and interest to be made to the lender. Strictly speaking amortization is the extinction of an interest bearing debt, including principal and interest, in a series of equal periodic payments (Kent 1924). More generally amortization is a method of liquidating a debt on an installment basis. Interestingly, a 20 year Bank loan with 5 years of grace and straight line principal repayment with an interest rate of, say, 7.9% is equivalent to a 20 year conventional loan charging 7.55% interest, no grace period, and equal periodic repayments.
- 3/ In words, this present value is the amount that would have to be put into an interest bearing account today and left there to accumulate to the face value of the bonds being guaranteed at the date of their maturity in year 2019.

As for the rolling 18 months of interest payment support backing, it was originally agreed that the rate would be 10%, so US\$120 million discount bonds have interest backing of US\$18 million held offshore in short term instruments. When the collateral zero coupon bonds are freed up by extinguishing the Mexican discount bond debt, the 18 month's worth of interest support in escrow would be released as well. The way it can be used is subject to an agreement with the World Bank. The World Bank not require that it be used as prepayment for its interest support loan, as long as the liberated funds are used to reduce debt or finance imports.

The advantages of this refinancing arrangement depend on the terms of the various payment obligations in a manner demonstrated in Table 1 (Tables 2 and 3 provide supporting detail for Table 1). The calculations assume that none of the relevant interest rates will change over the analysis period, and assume a 4% rate of inflation in world markets.

Using the Bank's real accounting rate of interest of 12%, the Refinancing Comparison in Table 1 shows a US\$ 9.6 million net present value gain to Mexico from the refinancing operation, if the 18 months of interest backing are included as a net foreign exchange gain in the first year. The reason is that the operation brings in a positive net foreign exchange gain immediately as well as a gain in years 21 to 27 which is only partially offset by the net outflows in years 2 to 20.

TABLE 1
REFINANCING COMPARISON INCLUDING INTEREST ESCROW

KEY PARAMETERS*		OPPORTUNITY COST OF CAPITAL*		000 US\$ NPV OF NET EXCHANGE FLOW	
		Nominal Rate	Real Rate**		
IDB LOAN INTEREST RATE	0.079	0.00%	n.a.	4461	< -SIMPLE SUM
DISCOUNT BOND INTEREST RATE	0.0531	10.00%	6.00%	3952	
COLLATERAL INTEREST RATE	0.0814	14.00%	10.00%	7937	
SECONDARY MARKET DISCOUNT	0.825	16.00%	12.00%	9635	<-DISCOUNTED FLOWS
IDB LOAN AMOUNT [000 US\$]	100000	20.00%	16.00%	12362	
DEBT EXTINGUISHED [000 US\$]	120000	* IDB accounting rate of interest (real) is 12% ** Mexican medium term (10 yr.) bond rate is 9.44%. *** Real rate assumes 4% annual inflation.			

* As of 3/30/92.

NET EXCHANGE FLOWS FROM REFINANCING EXISTING
DEBT WITH AN IDB SINGLE TRANCHE LOAN
[000 NOMINAL US\$]

TIME [A]	IDB LOAN COST	DISCOUNT BOND COST [B]	EXCHANGE FLOW DIFFERENCE [C]=[B] - [A]
1	4158	35694	31536
2	7900	6375	-1525
3	7900	6375	-1525
4	7900	6375	-1525
5	7900	6375	-1525
6	14435	6375	-8060
7	13908	6375	-7533
8	13382	6375	-7007
9	12855	6375	-6480
10	12328	6375	-5953
11	11802	6375	-5427
12	11275	6375	-4900
13	10748	6375	-4373
14	10222	6375	-3847
15	9695	6375	-3320
16	9168	6375	-2793
17	8642	6375	-2267
18	8115	6375	-1740
19	7588	6375	-1213
20	7062	6375	-687
21	0	6375	6375
22	0	6375	6375
23	0	6375	6375
24	0	6375	6375
25	0	6375	6375
26	0	6375	6375
27	0	6375	6375
TOTALS	196983	201444	4461

NOTES:

IDB LOAN HAS 5 YEAR GRACE PERIOD AND STRAIGHT LINE AMORTIZATION OF PRINCIPAL.
 DISCOUNT BOND REQUIRES ANNUAL INTEREST PAYMENT AND REDEMPTION OF FACE VALUE AT MATURITY.
 DISCOUNT BOND BACKED BY US TREASURY BILL COLLATERAL, WHOSE PRESENT VALUE OF \$17,694 APPEARS IN YR. 1.
 RETIRING THE DISCOUNT BONDS ALSO LIBERATES \$18,000 IN INTEREST ESCROW (10% RATE, 18 MONTHS) IN YR. 1.
 A POSITIVE VALUE IN COLUMN C MEANS THE IDB LOAN IS CHEAPER (I.E. SAVES FOREIGN EXCHANGE), AND VICE-VERSA.

TABLE 2
MEXICAN DISCOUNT BOND AMORTIZATION SCHEDULE (5.31% DISCOUNT BOND INTEREST RATE, 8.14% COLLATERAL INTEREST RATE)
[Thousand US\$]

TIME	REDISCOUNT DEBT OUTSTANDING	TOTAL PAYMENT	INTEREST PAYMENT	COLLATERAL PURCHASE/ REDEMPTION
1	120000	17694	3188	14506
2	120000	6375	6375	0
3	120000	6375	6375	0
4	120000	6375	6375	0
5	120000	6375	6375	0
6	120000	6375	6375	0
7	120000	6375	6375	0
8	120000	6375	6375	0
9	120000	6375	6375	0
10	120000	6375	6375	0
11	120000	6375	6375	0
12	120000	6375	6375	0
13	120000	6375	6375	0
14	120000	6375	6375	0
15	120000	6375	6375	0
16	120000	6375	6375	0
17	120000	6375	6375	0
18	120000	6375	6375	0
19	120000	6375	6375	0
20	120000	6375	6375	0
21	120000	6375	6375	0
22	120000	6375	6375	0
23	120000	6375	6375	0
24	120000	6375	6375	0
25	120000	6375	6375	0
26	120000	6375	6375	0
27	120000	6375	6375	0
28	0			-120000
CONTROL TOTALS		183444	168938	

NOTES:

1. COLLATERAL IS A 1-TIME UP-FRONT DEPOSIT (PURCHASE OF A ZERO CUPON SECURITY) THAT, WHEN COMPOUNDED AT THE COLLATERAL RATE, WILL ACCUMULATE TO THE VALUE OF THE REDISCOUNT DEBT (120 MILLION) IN 27 YEARS.
2. FOR EQUIVALENCE WITH THE IDB LOAN, ONLY 6 MONTHS OF INTEREST IS CHARGED IN YR. 1.

TABLE 3
IDB LOAN AMORTIZATION SCHEDULE, INTEREST RATE = 7.9%
[Thousand US\$]

YEAR	DEBT OUTSTANDING	ANNUAL PAYMENT	FIV AND INTEREST	PRINCIPAL AMORTIZATION
1	100000	4158	4158	0
2	100000	7900	7900	0
3	100000	7900	7900	0
4	100000	7900	7900	0
5	100000	7900	7900	0
6	93333	14435	7768	6667
7	86667	13908	7242	6667
8	80000	13382	6715	6667
9	73333	12855	6188	6667
10	66667	12328	5662	6667
11	60000	11802	5135	6667
12	53333	11275	4608	6667
13	46667	10748	4082	6667
14	40000	10222	3555	6667
15	33333	9695	3028	6667
16	26667	9168	2502	6667
17	20000	8642	1975	6667
18	13333	8115	1448	6667
19	6667	7588	922	6667
20	0	7062	395	6667
CONTROL TOTALS		196983	96983	100000

ANNEX IV-2
TENDER PROCEDURES

Ecological Conservation Project in Metropolitan Mexico City

I. APPLICABILITY

A. Amount and Types of Entities

- 1.01 These Procedures shall be used by the Tendering Entity ^{1/} in all procurement of goods and execution of works for the Project ^{2/} whenever the value of such goods or works exceeds the equivalent of two hundred and fifty thousand (US\$250,000) and one million (US\$1,000,000) United States dollars respectively and provided such Entity 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.

B. Local Law

- 1.02 The Tendering Entity may apply in supplementary form to the provisions of these Procedures, formal requirements or procedural details prescribed under local law and not included in these Procedures, when their application does not contravene basic bidding guarantees or relevant Bank policy. ^{3/}

II. GENERAL RULES

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- ^{1/} In these Procedures, the term "Tendering Entity" refers to the entity charged with carrying out the bidding process for the Project, both for services as well as for goods. This entity may correspond, depending on the circumstances, to the Borrower, to the Executing Agency or to certain official entities or specialized agencies which may be granted authority, pursuant to local law, over the entire public sector bidding processes or only over the selection and adjudication stages.
- ^{2/} "Project" means the Project or Program for which the Financing has been extended.
- ^{3/} Because these Procedures are uniformly employed by the borrowing countries, and because bidding legislation varies from country to country in both form and detail, the rules and procedures established herein set forth only the general guidelines of the bidding process, its basic guarantees (such as publicity, equality, competition, formality, confidentiality, and free access) as well as the relevant policies of the Bank. For this reason, local laws may supplement the provisions of this procedure in regard to certain practices or procedural details, such as the membership of bidding boards or technical committees, formalities for registration of firms, periods for the award or evaluation of bids, formal requirements of the minutes of the meeting to publicly open bids, and so forth.

II. GENERAL RULES

A. Public International Bidding

- 2.01 The system of public international bidding shall be used whenever the acquisition of goods or the execution of works is to be partially or totally financed with foreign exchange from the Financing and the cost of such goods or works exceeds the equivalent of two hundred and fifty thousand (US\$250,000) and one million (US\$1,000,000) United States dollars, respectively.
- 2.02 When foreign exchange from the Financing is to be 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 preclude or restrict the offer of goods and services, including those related to any mode of transport, or the participation of bidders from such countries, may be imposed.

B. Public Bidding Which May Be Restricted Locally

- 2.03 The acquisition of goods or execution of works to be totally financed with local currency from the Financing, or with local counterpart funds, whose amounts exceed the amounts set forth in paragraph 2.01, shall be accomplished through public bidding which may be limited to the national market.

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

- 2.04 Whenever the procurement of goods or the execution of works is financed exclusively by resources other than those of the Financing or of the Borrower ^{4/}, the Tendering Entity may follow procedures agreed upon with the supplier of such resources, provided that such procedures are tailored to the technical requirements of the Project and guarantee that both the cost of the goods or works and the financial terms and conditions governing the resources are deemed reasonable by the Bank. The Bank may request that the Tendering Entity provide it with information on the applicable procedure and the results obtained therefrom.

D. Procedures Applicable to Bids in amounts less than or equal to the limits of Paragraph 2.01

- 2.05 The procurement of goods or the execution of works for amounts less than or equal to the amounts set forth in paragraph 2.01 above, shall, as a general rule, be governed by the provisions of the respective local law. Insofar as possible, the Tendering Entity shall establish procedures

the minutes of the meeting to publicly open bids, and so forth.

^{4/} Such as resources from commercial banks, suppliers or other international financial institutions.

permitting the participation of several bidders and give appropriate consideration to economy, efficiency and reasonable price. Whenever foreign exchange from the Financing is to be utilized, the procedures employed shall permit, in addition, the participation of bidders for goods or services from the Bank's member countries.

E. Participants and Eligible Goods

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

1. Bidding Procedures for Works

- 2.07 Only firms from the Bank's member countries may bid on works. To determine the nationality of the bidding firm, the Tendering Entity must verify the following criteria:
- (a) that the firm be constituted and in operation, in accordance with the laws of the member country in which the firm has its principal domicile;
 - (b) that the firm have its principal place of business located in a member country;
 - (c) that more than 50% of the firm's capital be owned by one or more persons or legal entities of one or more member countries 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 where located;
 - (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 persons not citizens or bona fide residents of member countries or to legal entities that are not eligible in accordance with the nationality requirements set forth in this paragraph;
 - (f) that in the case of a contract for the execution of works, not less than 80% of all persons who will perform services 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. In making this computation with respect to a firm from a country other than that in which the construction site is located, citizens or permanent residents of the country where the construction is to be carried out will not be counted; and
 - (g) that 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 paragraph must be communicated to interested parties, who shall provide the Tendering Entity with the information necessary for verification of their nationalities on the prequalification, registration or bid forms, as appropriate.

2. Bidding Procedures for the Procurement of Goods

2.08 Only goods whose country of origin is a Bank member country may be acquired. The term "country of origin" means:

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

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

2.09 The Tendering Entity 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 from the country of the Borrower participate in public bidding, the Tendering Entity may apply a national margin of preference in favor of such local suppliers. The following criteria shall be utilized:

- (a) A good 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 its total cost.
- (b) In comparing local and foreign offers, the bid or offered price of goods of local origin shall be the delivered price at the Project site, with deductions for: (i) import duties paid on significant raw materials or manufactured components; and (ii) local sales, consumption and value-added taxes incorporated into the cost of the item or items being offered. Proof of the amounts to be deducted under (i) and (ii) shall be provided by the local bidder. The foreign bid or offered price shall be the CIF price, excluding import duties or consular and port fees, to which will be added port handling charges and any local transportation from the port or frontier to the Project site.

- (c) The conversion of currencies to provide price comparisons shall be made on the basis of the exchange rate utilized by the Bank itself in this Contract.
- (d) In adjudicating bids, the Tendering Entity may add a 15% margin of preference or the actual import duty, whichever is the lesser, 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 Borrower 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 from a country (other than the country of the Borrower) that is a party to an integration agreement to which the country of the Borrower is also a party, participate in a bidding, such suppliers of goods are entitled to a regional margin of preference utilizing the following criteria:
 - (i) A good shall be considered to be of regional origin if it originates in a country that is a party to an integration agreement to which the country of the Borrower is also a party and if it complies with the standards governing origin and other matters relating to trade liberalization programs established in the respective integration agreements.
 - (ii) The local value added shall not be less than that stipulated for the national margin of preference.
 - (iii) In comparing foreign offers, the Tendering Entity may add to the price of offers of 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. General Procurement Notice

1. General Rule and Specific Requirements

3.01 Except as the Bank may otherwise agree, every Project shall require the publication of General Procurement Notices ("GPN"). These notices, which are intended to give interested parties timely notification of acquisitions for works or goods that may result from the Project, as well as to provide a tentative schedule for such biddings, shall include the following information:

- (a) name of the country;
- (b) reference to the Inter-American Development Bank loan;
- (c) name of the Project, amount and purpose of the loan;
- (d) brief description of each bidding or group of biddings that would take place as part of the Project, indicating in which quarter or half of each year the biddings are likely to take place;
- (e) brief description of the Bank's policy on publicity for specific biddings, with an indication of the type of publication to be used as well as other sources of information (embassies or others); and
- (f) name of the Tendering Entity, its postal address, telephone and fax numbers at which interested parties may obtain additional information.

2. Method of Publication

3.02 When the first GPN is not in the process of being published or has not been published prior to the signature of this Contract, the Bank will arrange on behalf of the Tendering Entity, to have the GPN published in the United Nations Journal "Development Business". For such purpose, the Tendering Entity shall send to the Bank, for its review and publication, within 30 days from the date of this Contract, the text of the GPN to be published, following the requirements of paragraph 3.01, above. Once the final text has been agreed upon, the Bank shall carry out its publication, which may be in any of the official languages of the Bank.

3. Subsequent Annual Publications

3.03 So long as any goods or works remain to be procured through biddings, the Tendering Entity agrees to present annually to the Bank, for its review and publication, the text for a new updated GPN. This presentation by the Tendering Entity shall be made within a time period so as to allow

publication of the new GPN on a date approximately one year from the publication of the prior GPN. This GPN, which follow the requirements of paragraph 3.01 above, shall be published by the Bank once its definitive text has been agreed upon.

B. Prequalification. Registration of Bidders

1. Applicability. General Rule

- 3.04 In bidding conducted for the execution of works, the Tendering Entity shall utilize the system of prequalification or registration of bidders in the case of large or complex civil works. The Tendering Entity may also use a system of prequalification or registration in bidding conducted for the procurement of goods, if deemed appropriate by such Entity.
- 3.05 Two-Envelope Procedure. Unless prohibited by local law, the Bank and the Tendering Entity may agree to utilize a two-envelope procedure whenever, in their judgment, circumstances render it advisable. 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 sealed envelopes containing the following:
- (a) Envelope 1 - information on the financial, legal and technical qualifications of the firms, such as: financial solvency, capacity to contract, general and specific experience, key personnel and machinery available for the project, contracts executed, ongoing contracts, and current obligations and litigation.
 - (b) Envelope 2 - the bid itself, with the respective price quotation.
 - (i) 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 it shall be verified whether the bidders have included the documents required by the bidding specifications. If the Envelopes do not contain the required documentation, that fact will be recorded in the minutes of the session along with a description of the missing or incomplete information, and Envelopes No.2 shall be returned unopened to the respective bidders. 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.
 - (ii) Based on this information, prequalification of bidders shall take place within the periods set forth in the bidding documents. 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. In this second public ceremony, Envelopes No.2 shall be returned unopened to the firms not prequalified. Envelopes

No. 2 of the firms that did prequalify shall then be opened, the price of each offer shall be read aloud, and a record of the prices and most relevant details of the tenders shall be made in the minutes.

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

2. Registration of Bidders

- 3.06 No conditions which would impede or discourage the participation of foreign companies or violate the principle of bidder equality shall be established in the procedures for prequalification or registration of bidders. Registers shall be opened, whether for updating of registered firms' information or for the incorporation of new firms, on a frequent basis, and shall in any case be opened for each bidding to be financed with Project resources.

3. Term for Prequalification

- 3.07 The Tendering Entity shall conclude the prequalification within a time period compatible with the timetable of investments mutually agreed upon by such Entity and the Bank.

4. Content and Publicity of the Invitation to Bid

a. Prior Bank Approval of the Bidding Documents

- 3.08 The bidding documents, including the texts of the public notices and bidder prequalification or registration forms, as the case may be, shall be mutually agreed upon by the Tendering Entity and the Bank prior to the publication of the call for registration or prequalification. The bidding documents shall also comply with the provisions of paragraphs 3.21 through 3.28 herein.

b. Content of the Public Notice

- 3.09 The public notice of prequalification or registration of prospective bidders shall include, at a minimum, the following information:
- (a) general description of the Project and of the work which is the subject of the bidding, its site and its principal characteristics. In the case of bidding on goods, their description and special characteristics, if any;
 - (b) the proposed method of prequalification;

- (c) approximate dates for issuance of the invitations to bid, opening of tenders, initiation of the works which are the subject of the bidding, and completion of construction;
- (d) the fact that the Project is being partially financed by the Bank and that the procurement of goods or contracting for works covered by said Financing shall be subject to the provisions of this Contract;
- (e) the place, time and date at which firms may obtain the prequalification or registration forms agreed upon by the Tendering Entity and the Bank, as well as the cost of these forms; and
- (f) any other requirements which must be fulfilled by interested parties so that they qualify and are subsequently invited or are able to participate in public biddings.

c. Publicity

- (a) Newspapers and Trade Journals. The public notice of prequalification or registration, and that of the invitation to bid, when invitation is not restricted to prequalified firms, 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 period of at least three calendar days between each of the three publications of the notice. In the case of bidding for works, the value of which is estimated to be above the equivalent of one million United States dollars (US\$1,000,000), the public notice of prequalification or registration and that of submission of bids, when there has been no prequalification, shall be published in two of the following publications:
 - (i) a well-known technical magazine;
 - (ii) the United Nations journal "Development Business"; or
 - (iii) a newspaper with a large international circulation.
- (b) In bidding for goods for amounts in excess of the equivalent of two hundred and fifty thousand United States dollars (US\$250,000), the Tendering Entity may opt to carry out international publicity exclusively in the journal "Development Business", or in each of the two following publications:
 - (i) a well-known technical magazine; and
 - (ii) a newspaper with a large international circulation.
- (c) Embassies or other entities. The Tendering Entity shall deliver copies of the notices of prequalification, registration and opening of tenders, as the case may be, to the embassies or, if there is no

embassy, to the consulates of each of the Bank's member countries on the same date they are delivered to the press for publication. Whenever a member country advises the Bank of its desire to have such announcements sent to another organization instead of the respective embassy or consulate, the Bank shall so advise the Tendering Entity and such Entity shall send the announcements to the designated organization.

5. Content of the Prequalification or Bidder Registration Form

3.10 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 respective constituting documents shall be attached. The information regarding nationality shall comply with paragraph 2.07 herein ^{5/};
- (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 works 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 works contemplated by the Project and an indication of where such staff and equipment are located; and
- (h) description, in broad terms, of the systems the firm would use to execute the works.

6. Deadline for Delivery of the Forms

3.11 Interested parties shall have at least 45 calendar days from the final publication of the notice to file prequalification or registration forms. This deadline may be reduced to 30 days when bidding is restricted to the domestic market.

^{5/} In the instances in which prequalification is conducted with respect to bidding for the procurement of goods, the information to which reference is made in this subparagraph (a) must include information on the origin of the goods, pursuant to paragraph 2.08.

7. Selection of Prequalified Firms

a. Qualified Firms

- 3.12 Only firms that have demonstrated, pursuant to requirements set forth in the bidding or registration documents, the necessary technical, financial, legal and administrative capacity to carry out the works may be prequalified or entered in the registry of bidders. Forms which are defective in form or which contain obvious errors may be accepted and corrections requested so long as said defects or errors do not relate to fundamental requirements, and so long as making such corrections does not alter the principle of equality among proponents.

b. Technical Report

- 3.13 The Tendering Entity shall prepare a technical report on firms that presented themselves, indicating which were prequalified or duly qualified in the register and which were not, together with the grounds therefore. The report shall be sent to the Bank promptly so that it may express its approval or reservations.

c. Notification of Results

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

d. Later Disqualification

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

e. Duration of Eligibility

- 3.16 If one year has elapsed since prequalification or registration, and an invitation for bidding has not been issued, the Tendering Entity 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 originally provided. The new call shall meet the requirements established in these Procedures.

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, as in the first, unless the Bank authorizes private bidding on the terms set forth in the following subparagraph or authorizes the direct hiring of the contractor or supplier.

- (b) If, after the second call, there are not two or more firms that have qualified, 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 previously prequalified, if there was one.

g. Prequalification for Multiple Biddings

- 3.17 (a) The Tendering Entity may agree with the Bank to call for a single prequalification of contractors for multiple biddings when it is anticipated that, in a short period of time, several biddings for the construction of a group of similar works will take place and when, due to the geographical location of such works or other considerations acceptable to the Bank, such works may not be carried out through a single bidding.
- (b) If so established by the bidding documents, contractors thus prequalified may participate in one or more of the scheduled biddings. In each invitation for bids, the Tendering Entity may request that the bidders update information that may have changed since prequalification, and in particular, demonstrate that their capacity to execute the work continues to be that required by the bidding documents.
- (c) The duration of the validity of prequalifications for a group of bids shall not exceed one year.

C. Bidding

1. Invitation to Bid

a. Following Prequalification

- 3.18 If prequalification has taken place, the Tendering Entity shall send or deliver invitations to bid only to those firms that were prequalified. Prior to sending or delivering such invitations, the Tendering Entity 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 3.09 c (Publicity) herein.

b. Without Prequalification

- 3.19 In the absence of prequalification, the invitation to bid shall be publicized as set forth in paragraph 3.09 c (Publicity) herein. The bidding documents shall clearly specify the minimum prerequisites which would qualify bidders to carry out the works or supply the goods involved. For this purpose, the documents shall include a questionnaire similar in content to the form specified in paragraph 3.10 of this Chapter, which is

to be filled out by interested parties and submitted by them along with their respective offers.

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

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

- (a) the description of the Project, purpose of the bidding and source of funds destined to finance the cost of the procurement of goods or works;
- (b) the fact that the Project shall be partially financed by the Bank and that the procurement of goods or contracting of works payable from said Financing shall be subject to the provisions of this Contract;
- (c) the general description of the equipment, machinery and materials required, as well as of the works, the volume or quantity of work, its principal parts and the 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 submitted and the authority responsible for their approval and adjudication; 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

3.21 The bidding documents (bidding guidelines or specifications) including, *inter alia*, instructions to bidders, administrative bases, plans and specifications, if any, and the draft of the contract, shall be approved by the Bank prior to their release to interested parties.

b. Clarity of the Documents

3.22 The bidding documents prepared by the Tendering Entity shall be clear and coherent. Particular care must be taken to ensure that the goods or works to be supplied are described with sufficient clarity and in sufficient detail. The cost of such documents must be reasonable.

c. Free Access to the Tendering Entity

3.23 The Tendering Entity 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 Tendering Entity, and clarifications made known to the other interested parties that have acquired the bidding documents and the Bank.

d. Standards of Quality

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

e. Specifications for Equipment: Brand Names

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

f. Currency to be Used in Payments

- 3.26 The bidding documents should state the currency or currencies to be used in payments, in accordance with the provisions of this Contract. Whenever expenditures in both local currency and foreign currency are involved, the bidding documents should require that the amounts of these expenditures be detailed separately in the bids.

g. Bid Bonds

- 3.27 Bid bonds or other tender guarantees should not be set so high ^{6/}, nor their validity extended over such long periods, as to discourage responsible bidders from tendering. Bid bonds shall be returned to the winning party once the contract is executed and the party's performance bond or guarantee has been accepted. Bid bonds shall be returned to the second and third-place bidders, within a period of no more than three

^{6/} Some bidding practices limit the amount of the bid bonds (tender guarantees) to 1 percent of the value of the construction contract. Others recommend that the Executing Agency set a fixed monetary amount for all bidders instead of requiring the bidder to base his guarantee on a given percentage of the value of his bid. This is to avoid disclosure of the price of each tender prior to the opening of the bids, should the amount of the guarantee or bid bond become public knowledge.

months from the date of the award or upon execution of the contract, if the latter occurs prior to such deadline. However, if such bidders indicate lack of interest, the bond shall be returned within five days following the award. Bid bonds shall be returned to other bidders within five days following the award.

h. Performance Guarantees

- 3.28 Specifications for construction works should require performance bonds or other forms of guarantee to ensure that the works will be carried out 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 Tendering Entity adequate protection. The amount of the bond should be sufficient to ensure completion of the work, at no increase in expense to the Tendering Entity, in case of default by the contractor in the performance of the work. The life of the bond or guarantee should extend sufficiently beyond completion of the contract to cover a reasonable warranty period. If necessary, performance bonds or other forms of guarantee may be required in connection with contracts for the supply of equipment. This guarantee may consist of the retention of a percentage of the total payment during a warranty period.

4. Deadlines for Submission of Bids

a. Normal Term

- 3.29 The normal deadline for filing offers in international public bidding shall be not less than 45 calendar days from the date of the last publication of the notice of bidding or the date of availability of bidding documents, whichever is later.

b. Term for Large or Complex Civil Works

- 3.30 Where large or complex civil works are involved, a minimum of 90 calendar days shall be allowed for contractors to submit their bids.

c. Deadline for Filing of Domestic Bids

- 3.31 When the bidding is limited to the domestic market, the Tendering Entity may reduce the period for filing offers to 30 calendar days.

5. Confidentiality of Bidding and Prequalification Documents

- 3.32 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 the day scheduled for their opening. Once opened, no copies shall be made of the documents in the envelopes. Except as the law may require to the contrary, after the public opening of bids and reading of the bid prices, and before the announcement of the contract

award, information relating to the examination, tabulation, clarification and evaluation of bids or relating to recommendations concerning awards may be communicated only to those officials of the Tendering Entity who are officially involved in the respective bidding process.

6. Modification or Amplification of the Bidding Documents

- 3.33 Any modification or amplification of the bidding guidelines or specifications or the filing date must first be approved by the Bank and communicated to all interested parties who have officially received the bidding documents. In the event that such modification or amplification is substantial, in the opinion of either the Tendering Entity 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 Shall not Modify Bidding Documents

- 3.34 Consultations regarding the interpretation of bidding documents addressed to the Tendering Entity 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

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

9. Opening of Bids

- 3.36 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 minutes of the proceedings, which shall be signed by the representative of the Tendering Entity and by any bidders present who wish to do so.

10. Clarification of Bids

- 3.37 The Tendering Entity may request clarifications from the bidders with respect to their offers. 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

- 3.38 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 selecting the winning bid.

b. Lowest Evaluated Bid

- 3.39 In addition to the bid price, adjusted to correct arithmetical errors, the Tendering Entity may also consider other relevant factors in determining the lowest evaluated bid.

- (a) These factors should, to the extent possible, be expressed in monetary terms or be given a relative weight. In any case, the factors, along with the weight assigned each of them, must be specified in the bidding documents. No factors may be used in bid evaluation which are not set forth, along with their corresponding value, in the bidding documents. The amount of price readjustments, if any, included in the bids should not be taken into consideration.
- (b) The currency or currencies in which the price offered in each bid would be paid by the Tendering Entity if that bid were accepted should be valued in terms of a single currency selected by the Tendering Entity 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

- 3.40 The Tendering Entity shall reject those bids that do not comply with the bidding documents. It may, however, accept those that present defects in form or obvious errors, so long as these defects do not relate to fundamental requirements and so long as their correction does not alter the principle of equality among bidders. Additionally, the Tendering Entity, may, after consultation with the Bank, reject all bids presented if none of them satisfies the intent of the bidding, or where there is evidence of lack of competition or collusion. The Tendering Entity may also reject all bids if the low bids exceed the official budget by amounts that justify 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 sufficient period should be allowed for the submission of the new bids. In the absence of a 100% performance bond, the Tendering Entity may reject individual bids in cases where the particular bid is so much lower than the official budget that it is reasonable to conclude that the bidder

will not be able to complete the works or supply the goods within the specified time and according to the conditions stipulated.

12. Bid Evaluation Report

- 3.41 The Tendering Entity 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 these Procedures, it will promptly inform the Tendering Entity of its determination and state the reasons therefore. Such contract will not be eligible for financing by the Bank, unless the inconsistencies giving rise to the Bank's objections can be corrected. The Bank may cancel an amount of the Financing which, in the Bank's opinion, corresponds to the amount of expenditures declared ineligible.

13. Award of Contract

a. Bank Approval

- 3.42 The award shall be made to the bidder whose bid has been determined to be the lowest evaluated bid and in conformity with the bidding documents, once the Bank has approved the draft notice of award.

b. Award Notification and Contract Signature

- 3.43 The Tendering Entity shall notify all bidders of the award, at the addresses they have provided, within three working days from the date of the award. It shall promptly send to the Bank, for its approval, a copy of the draft 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 and the Tendering Entity shall promptly send a copy of the signed contract to the Bank.

14. Modification of the Award

- 3.44 If for any reason the winning bidder does not sign the contract within the period set for that purpose, the Tendering Entity may award it, without a new invitation to bid, to the other bidders in the order in which they have been evaluated.

15. Bidding Declared Null and Void

a. Report to the Bank

- 3.45 Whenever the Tendering Entity has justified grounds for declaring the bidding null and void, it shall request the prior favorable opinion of the Bank for such action by sending it a complete report, including the reasons and grounds for proposing such a measure.

b. Effects of the Declaration

- 3.46 Once the bidding is declared null and void, the Tendering Entity shall issue a second invitation to bid following the provisions set forth in these Procedures. If the second bidding is declared null and void, the Tendering Entity and the Bank shall agree on the procedure to be followed for the procurement involved.

IV. DUE PROCESS

- 4.01 Regulations applicable to bidding carried out under these Procedures must guarantee the legal protection of bidders, permitting the use of the review mechanisms necessary to guarantee such protection.
- 4.02 The Tendering Entity shall not impose conditions which would impede, restrict or increase the cost of submission of protests by firms participating in bidding for the acquisition of goods or execution of works with resources of the Project.
- 4.03 The Tendering Entity shall notify the Bank promptly of any protest or claim that it has received in writing by participating firms and of any responses to such protests or claims.

V. NONOBSERVANCE OF THESE PROCEDURES

- 5.01 The Bank reserves the right not to finance any acquisition of goods or contracting for works with respect to which, in the Bank's opinion, there has been noncompliance with the provisions set forth in these Procedures.

ANNEX IV-3

SELECTION AND CONTRACTING OF CONSULTING
FIRMS AND/OR INDIVIDUAL EXPERTS

Ecological Conservation Project in Metropolitan Mexico City

In the selection and contracting of consulting firms, specialized institutions and/or individual experts (hereinafter referred to without distinction as "Consultants") necessary for the execution of the Project, the following shall be applicable:

I. DEFINITIONS

The following definitions are established:

- 1.01 A consulting firm is any legally constituted association, composed primarily of professional personnel, for the purpose of offering consulting services, technical advice, expert opinions, and professional services of other kinds.
- 1.02 A specialized institution is a non-profit organization such as a university, foundation, autonomous or semiautonomous organization or an international organization which offer consulting services. For the purpose of this Annex, the same rules shall apply to specialized institutions as to consulting firms.
- 1.03 An individual expert is any professional or technician specialized in some form of science, art or craft.

II. CONFLICTS OF INTEREST

- 2.01 The resources of the Bank shall not be used to contract Consultants from the country of the Borrower if: (i) they are part of the regular or temporary staff of the State or of the institution which receives the Financing, or if such institutions are to be the beneficiaries of the services to be provided by the experts; or (ii) they have pertained to such entities within the six months prior to one of the following dates: (a) that of the presentation of the application; or (b) that of the selection of the individual expert, unless the Bank agrees to reduce that period.
- 2.02 A fully-qualified professional services firm which is a subsidiary or affiliate of a construction contractor, equipment supplier or holding company normally will be considered acceptable only if it agrees in writing to limit its role to the provision of professional consulting services and agrees in the contract to disqualify itself and its associates from any construction work, material or equipment supply or financial participation in the same Project.

III. ELIGIBILITY AND NATIONALITY REQUIREMENTS

- 3.01 The Executing Agency shall not establish in the implementation of the procedures set forth in this Annex, provisions or conditions which may restrict or impede the participation of Consultants from member countries of the Bank.
- 3.02 Only Consultants who are nationals of countries that are members of the Bank may be contracted. To determine the nationality of a consulting firm the following criteria shall be considered:
- (a) The country in which the firm is duly established or legally organized.
 - (b) The country in which the firm maintains its principal place of business.
 - (c) The nationality of any firms or the citizenship or the bona fide residency of individuals possessing ownership, with the right to participate in profits, of more than 50% of the consulting firm, as established by the certification of a duly authorized officer of such firm.
 - (d) The existence of arrangements whereby a substantial portion of the profits or other tangible benefits of the firm accrues to firms or individuals of a given nationality.
 - (e) A determination by the Bank that the firm constitutes an integral part of the economy of a country, as evidenced by bona fide residency in the country of a substantial portion of the executive, professional and technical personnel of the firm, and that the firm has available in the country the operating equipment or other elements necessary to provide the services to be contracted.
- 3.03 The nationality requirements established by the Bank shall also be applicable to firms proposed to provide part of the respective services in joint venture with or under sub-contract to a qualified consulting firm which itself meets the nationality requirements.
- 3.04 The nationality of an individual expert shall be established by means of the individual's passport or other official document of identity. The Bank, however, may allow exceptions to this rule in those cases in which the individual expert, not being eligible by reason of nationality: (i) has established his domicile in an eligible country, is legally entitled to work there (as other than an international civil servant) and has no known intention of returning to his country of origin in the immediate future; or (ii) has established permanent domicile in an eligible country and has resided therein for at least five years.

IV. PROFESSIONAL QUALIFICATIONS

- 4.01 An analysis of the professional qualifications of a consulting firm for a specific project will take cognizance of the firm's: (i) experience and that of its principals in providing successful consulting services for

projects of a comparable size, complexity and technical specialty as those of the task involved; (ii) assigned number of professionally qualified personnel; (iii) previous experience in the region and in foreign areas; (iv) language capability; (v) financial capacity; (vi) present work load; (vii) ability to organize sufficient personnel to do the work within the required time; (viii) high ethical and professional reputation, and (ix) position being completely free from any potential conflict of interest.

V. PROCEDURES FOR SELECTION AND CONTRACTING

A. Selection and Contracting of Consulting Firms

5.01 In the selection and contracting of consulting firms:

(a) Prior to the selection of the firm, the Executing Agency shall submit the following for the approval of the Borrower, which in turn shall require the agreement of the Bank:

(i) The procedure to be used in the selection and contracting of the firm, including:

(A) the role of the Executing Agency Staff or the Selection Committee designated to:

1. review and approve documents;
2. select a short list of firms;
3. determine the order of merit of the short listed firms; and
4. approve the firm finally selected.

The entity contracting the Consultants shall furnish the Bank with the names and positions of the people it chooses to participate in the preselection and selection processes.

(B) the specific points system to be used in preselecting the firms. This system shall include, as a minimum, the following aspects:

1. general background of the firm;
2. similar work done;
3. prior experience in the country where services are to be rendered, or in similar countries;
4. general knowledge of local language; and
5. the utilization of local consultants.

(C) the specific point system to be used as selection criteria. This system shall include at least the following factors:

1. qualifications and experience of personnel to be assigned;
2. evaluation methodology (where applicable);
3. proposed method of implementation;
4. execution schedule;

5. language proficiency; and
 6. management support systems to assure quality control during execution of the consulting services (regular reports, budget controls, etc.).
- (D) the specific local laws, taxation requirements and procedures which may be relevant to the selection and contracting of the consultant firm.
- (E) if it is estimated that the cost of the services will exceed two hundred thousand United States dollars (US\$200,000) or its equivalent, calculated in accordance with the provision of Article 3.05(a) of the General Conditions, the selection and contracting shall be advertised in the Development Business of the United Nations and in the national press. These announcements should state the intention of contracting professional consulting services along with a brief description of the services required and inviting interested firms and consortia to apply and to furnish detailed information regarding their technical ability, prior experience with similar work, etc. within 30 days of the date of publication. This announcement should also advise interested firms and consortia of the requirement of maintaining an updated DACON registration form with the Bank and of submitting a copy of this form to the contracting entity with their statement of interest. A copy of the announcements shall be sent to each embassy of the member countries of the Bank accredited in the country. Clippings of these advertisements shall be sent to the Bank specifying the date and the name of the publication in which they have appeared;
- (ii) The terms of reference (specifications) describing the work to be done by the firm, together with an estimate of the cost; and
- (iii) A list of at least three and no more than six firms from which proposals for the work would be invited.
- (b) Once the Bank has approved the foregoing requirements, the approved firms shall be invited to present proposals in conformity with the procedures and terms of reference approved. The approved firms shall be informed regarding the specific selection procedure and evaluation criteria adopted, specific local laws, taxation requirements and procedures relevant to the selection of consulting firms as well as the names of the other firms invited to present proposals.
- (c) In the invitations to present proposals the use of one or the other of the following procedures shall be specified, as appropriate:
- (i) If the first procedure is utilized, a single sealed envelope including only the technical proposal, without a price quotation, shall be used. The Executing Agency shall examine

the proposals received and establish their order of merit. If the complexity of the case so requires, the Executing Agency may resort, with the prior approval of the Bank and at its own expense, to the use of consulting services to review the proposals and provide technical and expert advice in establishing the order of merit.

Once an order of merit has been established among the firms, the firm listed as first shall be invited to negotiate a contract. During these negotiations the details of the terms of reference shall be reviewed completely to assure full and mutual understanding with the firm; the contractual and legal requirements of the agreement shall be reviewed; and finally, detailed costs shall be developed. If agreement cannot be reached with the firm on the terms of the contract, it shall be notified in writing that its proposal has been rejected and negotiations shall be initiated with the second firm and so on until a satisfactory agreement has been reached;

- (ii) If the second procedure is utilized, two sealed envelopes shall be used for presenting proposals, the first containing the technical proposal exclusive of costs and the second containing the proposed costs for the services.

The Executing Agency shall analyze the technical proposal and establish their order of merit. Contract negotiations shall commence with the firm offering the best technical proposal. The second envelope presented by this firm shall be opened in the presence of one or more of its representatives and shall be utilized in the contract negotiations. All the second envelopes presented by the other firms shall remain sealed and, if an agreement is reached with the first firm, they shall be returned unopened to the respective firms. If an agreement on the terms of the contract is not reached with the first firm, it shall be notified in writing of its rejection and negotiations shall be initiated with the second firm and so on until a satisfactory agreement is reached.

- (iii) Inability to agree on detailed costs or compensation for services or a judgment on the part of the Executing Agency that such costs or compensation are inappropriate or excessive, shall be sufficient cause for the rejection of the proposal and for the initiation of negotiations with the firm which follows in the order of merit. Once a firm has been rejected it shall not be recalled for further negotiations on such contract.
- (d) Before initiating negotiations with a firm based on the order of merit, the Executing Agency shall provide the Bank with a copy of the report summarizing the evaluation of technical proposals submitted by the short listed firms identified in Section 5.01(a)(iii) of this Annex.

- (e) The final draft of the contract negotiated with the consulting firm shall be submitted by the Executing Agency for the approval of the Borrower, which in turn shall require the agreement of the Bank before it is signed. A true copy of the text as signed shall be promptly sent to the Bank.

B. Selection and Contracting of Individual Experts

5.02 In the case of the selection and contracting of individual experts:

- (a) Before the selection of the experts, the Executing Agency shall submit the following for the approval of the Borrower, which in turn shall require the agreement of the Bank:
 - (i) The selection procedure;
 - (ii) the terms of reference (specifications) and the schedule of the services to be performed in the respective study;
 - (iii) the names of the experts tentatively selected, setting forth in detail their nationality, domicile, background, professional experience and knowledge of languages; and
 - (iv) the form of contract to be used in retaining the experts.
- (b) Once the Borrower and the Bank have approved the foregoing requirements, the Executing Agency shall proceed to contract the experts. The contract to be entered into with each of them shall be consistent with the form of contract which the Borrower and the Bank shall have agreed upon. A true copy of the signed text of each contract shall be sent promptly to the Bank.

5.03 Notwithstanding paragraphs 5.01 and 5.02 above and at the request of the Executing Agency, the Bank may assist in the selection and contracting of the Consultants as well as in drafting the pertinent contracts. It is understood however, that the final negotiation and signing of such contracts, under terms and conditions acceptable to the Bank, shall be the sole responsibility of the Executing Agency and that the Bank assumes no commitment on this matter.

VI. CURRENCIES OF PAYMENT TO CONSULTANTS

6.01 The following provisions are established with respect to the currencies with which the Consultants shall be paid:

(a) Payments to Consulting Firms: Contracts entered into with consulting firms shall reflect one of the following formulations, as the case may be:

- (i) If the consulting firm is domiciled in the country in which it is to perform the services, its compensation shall be paid exclusively in the currency of that country, except for expenses incurred in foreign exchange for foreign travel or per diem expenses abroad which shall be reimbursed in dollars, or its equivalent in other currencies that form part of the Financing, except that of the country wherein the study is made;
- (ii) if the consulting firm is not domiciled in the country in which it is to perform the services, the highest possible percentage of its compensation shall be paid in the currency of such country and the rest in dollars or the equivalent in other currencies that form part of the Financing, except that of such country, with the understanding that the part corresponding to per diem expenses shall be paid in the currency of the country or countries in which the respective services are to be performed. In the event that the percentage to be paid in the currency of the country in which the services are to be performed is less than 30% of the total compensation of the consulting firm, a complete and detailed justification shall be submitted to the Borrower, which in turn shall submit it to the Bank for its examination and comments;
- (iii) in the case of a consortium composed of firms domiciled in the respective country and firms not domiciled therein, the part of the compensation which corresponds to each of the members shall be paid in accordance with paragraphs (i) and (ii) above, as pertinent; and
- (iv) the provisions of Article 3.05(a) of the General Conditions shall apply with respect to the rate of exchange.

(b) Payments to Individual Experts:

- (i) If the expert is domiciled in the country in which his/her services are to be performed, his/her honoraria shall be paid exclusively in the currency of that country;
- (ii) if the expert is not domiciled in the country in which his/her services are to be performed and is hired to work for less than six months, his/her honoraria and per diem shall be paid totally in United States of America dollars;

- (iii) if the expert is not domiciled in the country in which his/her services are to be performed and is hired to work six or more months, his/her honoraria and post adjustment shall be paid in the following manner: (1) 40% in the currency of that country; and (2) 60% in United States of America dollars. Per diem, installation and change of residence allowances and withholding of compensation when applicable, shall also be paid in United States of America dollars;
- (iv) fixed lump sum compensation for services, including honoraria, transportation tickets and per diem, may be paid in United States dollars; and
- (v) the provisions of Article 3.05(a) of the General Conditions shall apply with respect to the rate of exchange.

VII. RECOMMENDATIONS OF CONSULTANTS

- 7.01 It is understood that the opinions and recommendations of the Consultants obligate neither the Borrower, the Executing Agency nor the Bank, and that they reserve the right to put forward such observations or exceptions as they deem appropriate.

VIII. SCOPE OF COMMITMENT OF THE BANK

- 8.01 It is agreed that the Bank assumes no commitment to finance all or part of any programme or project which, directly or indirectly, might result from the services performed by the Consultants.

IX. SPECIAL CONDITIONS AND REQUIREMENTS

- 9.01 The final payment for services to the Consultants shall be contingent upon prior acceptance by the Borrower, the Executing Agency and the Bank of the Consultant's final report. Such payment shall consist of not less than 10% of the total amount to be paid to the Consultants in the accordance with their respective contracts.

PROPOSED RESOLUTION¹

MEXICO. LOAN /OC-ME TO BANCO NACIONAL DE OBRAS
Y SERVICIOS PUBLICOS S.N.C.
Ecological Conservation Project in Metropolitan Mexico City

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 Banco Nacional de Obras y Servicios Públicos S.N.C. de México, as Borrower, and the Estados Unidos Mexicanos, as Guarantor, for the purpose of granting the former a financing to cooperate in the execution of an ecological conservation project in metropolitan Mexico City, hereinafter called "the Project". This financing shall be subject to substantially the following provisions:

1. Amount and currencies: Up to US\$100,000,000 or its equivalent in other currencies (except that of Mexico) 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. Source of funds: The ordinary capital resources of the Bank.
3. Guarantee: The joint and several guarantee of the Estados Unidos Mexicanos.
4. Credit fee: 0.75% per annum on the undisbursed portion of the financing, which fee shall commence 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 contained in Appendices I, II, III, IV will be final only 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 on the first interest payment date, six months after the date scheduled for the last disbursement of the financing.
6. Interest: The Borrower shall pay interest semiannually on the outstanding daily 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.
7. Disbursement and execution: The term for disbursement of the resources of the financing and for execution of the Project shall expire five years after the effective date of the loan contract.
8. Special conditions:
 - (a) The loan resources disbursed in advance pursuant to paragraph 1 of Appendix II may be used by the Guarantor to purchase instruments representing the external debt of Mexico on the secondary market, pursuant to the terms and guidelines set forth in Appendix IV.
 - (b) The Project shall be executed in its entirety by the Borrower through the Comisión Coordinadora para el Desarrollo Rural del Distrito Federal [Coordinating Commission for Rural Development in the Federal District] (COCODER) and the Secretaría de Desarrollo Agropecuario del Estado de México [Department of Agricultural Development for the State of Mexico (SEDAGRO)], hereinafter called the "Coexecuting Agencies". If modifications are approved in the legal provisions or the basic regulations concerning the Borrower or the Coexecuting Agencies which, in the opinion of the Bank, may substantially affect the Project, the Bank shall have the right to require the Borrower, the Guarantor or the Coexecuting Agencies to provide explanatory and detailed information in order to determine whether such modification or modifications may have an adverse impact on the execution of the Project. Only after hearing the information and clarifications requested may the Bank take such measures as it deems appropriate in accordance with provisions to be set forth in the loan contract and the guarantee contract.
 - (c) The proceeds of the loan shall be used to participate in the financing of a Project the total cost of which is estimated at the equivalent of US\$200,000,000.

Consequently, the loan contract shall contain appropriate provisions to ensure that such resources as may be necessary, in addition to the loan, for the complete execution of the Project shall be duly provided, in accordance with an investment schedule acceptable to the Bank, in an amount estimated at the equivalent of US\$100,000,000.

- (d) Prior to the disbursement of the financing, the Borrower shall present to the satisfaction of the Bank that: (i) the terms under which the debt retirement operation is to take place through the purchase of instruments on the secondary market, as stipulated in subsection 8(a) above; (ii) evidence that the Funds Transfer agreement or agreements have been signed, setting forth the terms on which the Borrower is to disburse the resources of the financing to the Coexecuting Agencies; (iii) evidence that the competent authorities of the State of Mexico have issued formal internal instruments and have signed the necessary agreements with the participating agencies to ensure that the activities, works and services to be financed both under the Project and with other resources will be provided in a timely and efficient fashion; and (iv) the terms of reference for the consultants necessary for the first year of the Project, to be contracted in accordance with the timetable agreed upon with the Bank.
- (e) In the acquisition of machinery, equipment and other goods for the Project, and in the awarding of construction contracts, the system of public bids shall be followed in each case in which the value of such acquisitions exceeds the equivalent of US\$250,000 or the value of such contracts exceeds the equivalent of US\$1,000,000. The bidding shall be subject to the procedures to be appended as an annex to the loan contract.
- (f) The provisions of the foregoing subsection (e) notwithstanding, the Coexecuting Agencies may carry out forestation activities by force account for an amount of up to the equivalent of US\$18,000,000 from the sources of the local contribution, provided such activities have been approved by the Bank.
- (g) The Bank shall establish such inspection procedures as it deems necessary to assure the satisfactory execution of the Project, and the Borrower and the Guarantor 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\$1,000,000 shall be allocated for credit to the accounts of the Bank to meet expenses of general inspection and supervision.

RECOMMENDATIONS:

- A. It is recommended that the following conditions be included in the loan contract or the guarantee contract, as applicable, in addition to the conditions set forth in the proposed resolution, to be met to the Bank's satisfaction.
1. Pursuant to paragraph 8(a) of Appendix I, upon fulfillment of the requirements set forth in paragraph 8(d) of that Appendix and the remaining requirements set forth in the loan contract, the Bank may disburse in advance up to the entire amount of the resources of the financing so that the Borrower, through the Guarantor may utilize them in the debt retirement operation referred to in Appendix IV. Within a period of three months after the date of disbursement on the aforesaid terms, the Borrower shall present to the Bank, evidence that: (i) all of the resources have been used in the debt retirement operation, in accordance with the conditions agreed upon with the Bank; and (ii) the special accounts referred to in paragraph 4 of Appendix IV have been set up and opened.
 2. Upon expiration of the five year period specified in Section 7 of Appendix I for execution of the Project, the Borrower shall have 180 days to justify the use of any disbursed resources from the financing that have not yet been justified, in the execution of the Project. Any resources not justified are to be returned to the Bank within such period.
 3. Unless otherwise agreed upon by the parties, the Borrower shall, through the Coexecuting Agencies, submit the following to the Bank before initiating each public call for bids or, if a call for bids is not to be issued, before the purchase of the goods or initiation of the works: (a) the general plans, specifications, budgets, and other documents necessary for the purchase or the works and, if applicable, the specific conditions and other documents necessary for the call for bids; and (b) in the case of construction projects, evidence that it is in legal possession of the land on which construction for the project is to take place or holds easements or other pertinent rights thereon.
 4. The Bank may recognize, as part of the local contribution to the Project, up to the equivalent of US\$10,100,000 for expenses incurred within the 18 months preceding the date of the Resolution, for the preparation of engineering studies and designs, the payment of compensation for land expropriation, the purchase of plants and in the construction of civil works as long as requirements substantially similar to those

established in the Resolution and the loan contract have been met.

5. The Guarantor, in coordination with the Coexecuting Agencies, shall undertake: (a) to take, during the first year of Project execution, measures and decisions to prevent the authorization of any new quarry operations in the Santa Catarina and Sierra de Guadalupe zones; (b) to study, during the first year of Project execution, different techniques for operating the existing quarries in order to minimize the environmental degradation caused by them and prepare the land for reforestation; (c) not to extend operating agreements beyond 1992 for existing quarries until environmental impact assessments have been done and until, on the basis of the results, an operating strategy has been defined that is consistent with the ecological conservation of those zones; (d) to renew the operating concessions for existing quarries lot by lot, assessing the ecological features and proposed technology according to the recommendations issued in the respective environmental impact studies agreed upon with the Bank; (e) to perform, during the first year of Project execution, quality control on wastewater to be used to irrigate green areas, according to the program agreed upon with the Bank; (f) during Project execution, to transfer the asphalt plant outside the Santa Catarina zone and close down existing dumps in Santa Catarina and Sierra de Guadalupe, both in the Federal District and in the State of Mexico; (g) to maintain the buffer strips and conservation zones of the Project, in their environmental function so as to prevent activities inconsistent with ecological conservation; (h) to provide to families relocated to new settlements and those remaining in consolidated settlements as a result of the Project, in accordance with the settlement plan agreed upon with the Bank, after their relocation or consolidation, basic services for water supply, waste disposal and electric power, and access to education and health facilities.
6. The Borrower undertakes to ensure that in the funds transfer agreements it signs with the Coexecuting Agencies, the latter undertake to: (a) maintain the Project works, goods and equipment in accordance with generally accepted technical standards; and (b) present to the Bank, for five years following the completion of the respective works and within the first quarter of each calendar year, the annual maintenance plan for the Project works and equipment for that year and a report on the status of maintenance, pursuant to Section VII of Appendix III. If the inspections conducted by the Bank or the reports received by the Bank should indicate that maintenance is being carried out to a lesser standard than that agreed upon, the Borrower and the Coexecuting Agencies shall take the necessary steps to see that the deficiencies are fully corrected.

7. The Borrower undertakes to ensure that, in the funds transfer agreements it signs with the Coexecuting Agencies, the necessary provisions are stipulated to ensure: (a) the coordination of Project activities that shall be executed by the Coexecuting Agencies under the responsibility of the Borrower; (b) the making of advances of funds for up to an amount equivalent to the actual estimated payments for a period of not more than 120 days, such amount not to exceed 10% of the cost of the portion of the Project corresponding to each Coexecuting Agency. The Coexecuting Agencies shall justify the use of the advance to the Borrower within 180 days of having received it, and the Borrower shall not disburse any additional funds until the advance has been justified to the Bank; (c) prior to the disbursement of funds by the Borrower for the Santa Catarina and Sierra Guadalupe subprojects, in the Federal District, the approval by the corresponding Federal District authorities and by the Bank, of environmental studies on existing quarries in such areas; (d) the control of the quality of the residual waters for irrigation of the green areas which form part of the COCODER, in accordance with the timetable agreed upon with the Bank and the presentation of the annual reports indicated in Section IX of Appendix III; (e) that the activities, works and services that will be provided by entities other than the Coexecuting Agencies will be timely and efficiently provided during the execution of the Project; and (f) fulfillment of the respective work programs, including the relocation of the human settlements and for the contracting of consulting services, in accordance with the programs agreed upon with the Bank.
8. During Project execution, the Borrower, the Guarantor, the Coexecuting Agencies and the Bank shall, in the last quarter of each calendar year, perform a review of Project progress in the corresponding year and decide on corrective actions as necessary for the following year.
9. Within a period of six months after the effective date of the loan contract, the Borrower shall present to the Bank the methodology to be followed in evaluating the effects of the Project overall, of each subproject individually and of its major components, as indicated in Section VIII of Appendix III.
10. Within a period of three years after the date of completion of Project execution, the Borrower shall present to the Bank an ex-post evaluation report on the results of the Project, in accordance with the guidelines agreed upon with the Bank and following the principles outlined in Section VIII of Appendix III.
11. The financial statements of the Project and the coexecuting Agencies during execution of the Project, and those of the Borrower during the life of the loan contract shall be presented yearly to the Bank, duly audited by a firm of

independent public accountants designated by the Office of the Comptroller General of the Federation and acceptable to the Bank.

- B. The loan contract shall include an annex whose content is substantially similar to that of Appendix III ("The Project").

ANNEX A

THE PROJECT

I. PURPOSE

1.1 The purpose of the Project is:

- a. to restore and preserve plant cover in the urban area of the Federal District and the conurban municipalities of the State of Mexico;
- b. to restore and preserve the ecological zones of Sierra de Guadalupe and Santa Catarina from urban advancement; and to improve the living and environmental conditions of the disadvantaged human settlements adjacent to them; and
- c. to contribute to improving air quality and the quality of life in metropolitan Mexico City.

II. DESCRIPTION

2.1 The Project¹ consists of financing investments for the ecological conservation of Sierra de Guadalupe and Santa Catarina, the reforestation and revegetation of the Federal District (D.F.) and the conurban area of the State of Mexico and for coordination, dissemination of environmental information, training and research in D.F. and the State of Mexico. In both Sierra de Guadalupe and Santa Catarina, peripheral buffer strips shall be established with the objective of preserving the ecological restoration area contained therein.

1. Ecological conservation of Sierra de Guadalupe

2.2 This component includes the following investments: (i) civil works consisting of four ecological promotion centers, access roads, walls, silt retaining dams, terraces, complementary services for sports facilities, fire surveillance stations and towers, trenches to retain water, highway administration and mitigation of the environmental impact of waste dumps; (ii) acquisition of vehicles and equipment; (iii) acquisition of components and materials; (iv) forestation and initial management of native species plantings in

¹ The goals described below may be modified as a result of the annual reviews of the investment program referred to in part VI of this appendix.

3,650 Ha.; (v) protection and supervision of existing vegetation and new plantings in approximately 7,580 Ha.; (vi) coordination, including the resettlement of families and the consolidation of settlements through titling and regularization of land possession; and (vii) acquisition of land.

2. Ecological conservation in Santa Catarina

- 2.3 This component includes the following investments: (i) civil works for physical boundaries, control stations, secondary roads and paths, development of green areas and sports zones, construction of an indigenous tree reproduction center, highway administration, and mitigation of the environmental impact of waste dumps; (ii) acquisition of equipment and vehicles; (iii) acquisition of inputs and materials; (iv) forestation and revegetation on approximately 1,040 Ha., soil stabilization with turf on about 240 Ha green areas and parks on about 203 Ha., groves on about 290 Ha., and irrigation of plantations; (v) fire control and surveillance; (vi) coordination, dissemination of information and resettlement of families and consolidation of settlements through land tenancy regularization and construction of infrastructure works; (vii) acquisition of lands.

3. Forestation and revegetation in the Federal District and the conurban area of the State of Mexico

- 2.4 This component includes the following investments: (i) acquisition of equipment and vehicles; (ii) inputs and materials; (iii) acquisition of plants, planting and handling of some 5.7 million trees, 20.6 million bushes and 13.2 million ornamental plants in approximately 64,500 Ha. in the Federal District; planting of some 2.5 million trees on a total surface area of approximately 16,600 Ha. in the urban area of the State of Mexico and some 19.3 million trees on a total area of approximately 99,000 Ha. in the agricultural zone, in the form of groves, fences and live barriers; and rehabilitation of 9 nurseries in the State of Mexico.

4. Coordination, environmental information activities, training and research

- 2.5 Also to be carried out would be: (i) in the Federal District, publicity through the media, 16 training courses in the country and 6 abroad, and research activities; and (ii) in the State of Mexico, coordination and information and research activities will take place, 28 training courses will be held in the country and 7 abroad. For the preceding activities, both in the Federal District and in the State of Mexico, approximately 36.5 person/months of local consulting services and 20.5 person/months of international consulting services will be hired. In addition, national experts will be hired for approximately 128 person/months for social coordination, and national instructors for approximately 104 person/months.

III. TOTAL COST AND FINANCING

- 3.1 The total cost of the Project is estimated at the equivalent of US\$200,000,000, broken down as follows by investment category and source of financing:

COSTS, INVESTMENT CATEGORIES AND SOURCES OF FINANCING (US\$ 000s)				
CATEGORY	IDB	LOCAL	TOTAL	% TOTAL
I. Engineering and administration	2,800	7,250	10,050	5.0
1.1 Engineering and design	2,800	1,770	4,570	2.3
1.2 Administration	-	5,480	5,480	2.7
II. Direct Costs	70,760	42,740	113,500	56.9
2.1 Civil Works	19,080	12,250	31,330	15.7
2.1.1 Conservation and Restoration	12,200	7,990	20,190	10.1
2.1.2 Consolidation of Settlements	6,880	4,260	11,140	5.5
2.2 Equipment and Vehicles	320	4,010	4,330	2.2
2.2.1 Equipment	320	310	630	0.3
2.2.2 Vehicles and spare parts	-	3,700	3,700	1.9
2.3 Inputs and materials	-	2,730	2,730	1.4
2.4 Forestation	47,920	20,410	68,330	34.3
2.4.1 Technical Staff	-	2,340	2,340	1.2
2.4.2 Acquisition of plants	18,110	11,930	30,040	15.1
2.4.3 Planting	20,460	4,060	24,520	12.3
2.4.4 Management and irrigation	9,350	2,080	11,430	5.7
2.5 Protection and surveillance	-	1,950	1,950	0.9
2.6 Coordination and information activities	3,440	1,390	4,830	2.4
III. Concurrent Costs	1,480	38,290	39,770	19.8
3.1 Expropriations	-	37,130	37,130	18.5
3.2 Training	-	460	460	0.2
3.3 Consulting and research	1,480	700	2,180	1.1
Sub Total	75,040	88,280	163,320	81.7
IV. Unallocated costs	23,960	11,650	35,610	17.8
4.1 Contingencies	7,500	5,380	12,880	6.4
4.2 Cost escalation	16,460	6,270	22,730	11.4
V. Financial costs	1,000	70	1,070	0.5
5.1 Inspection and supervision	1,000	-	1,000	0.5
5.2 Credit fee	-	70	70	0.0
TOTAL	100,000	100,000	200,000	100
% by sources	50.0	50.0	100	

IV. BIDDING PROCEDURES

- 4.1 When the goods or services which are to be purchased or contracted for the Project, including any of these related to means of transport, are financed in whole or in part using foreign exchange from the financing, the procedures and the specific bidding conditions for the call for bids or other form of purchase or contracting must permit the free competition of goods and services originating in the Bank's member countries. Accordingly, no conditions may be imposed in such procedures or specific bidding conditions that might limit or restrict the offering of goods or the participation of contractors from those countries.

V. CONSULTING SERVICES

- 5.1 In the selection and hiring of consultants whose services are to be financed in whole or in part using the resources of the financing, the procedures agreed upon with the Bank must be followed, and conditions may not be imposed conditions or provisions made that would preclude or restrict the participation of consultants from the Bank's member countries.
- 5.2 When consulting services are to be financed using the local counterpart resources, the Bank reserves the right to approve or reject the names and background information of the individual consultants or consulting firms selected, the terms of reference for their appointment, and the fees agreed upon.

VI. ANNUAL REVIEW OF INVESTMENT PROJECT

- 6.1 For the purposes of the provisions of paragraph 8 of Appendix II, at the meetings held between the Guarantor, the Borrower, the Coexecuting Agencies and the Bank, the execution of the investment program for the current year and the work plan for the following year shall be reviewed. This will be done with updated information on the budget and the individual projects. The aspects to be reviewed shall be, inter alia, the following: use of the loan resources in executing the Project during the corresponding year, consolidation of conservation areas, including coordination, expropriations, consolidation and relocation of settlements; provision of basic services to those settlements; forestation and revegetation; recreation; management of watersheds; the contracting of consulting services during the corresponding year; information, training and research; and control of activities inconsistent with environmental conservation, including waste dumps, asphalt plants and quarries.

VII. MAINTENANCE

- 7.1 The annual maintenance reports referred to in paragraph 6 of Appendix II shall include at least the following:

- a. Maintenance performed during the year on civil works, equipment and vehicles, and information on the maintenance program for the following year.
- b. Management of plantings of trees, bushes, cactaceae and vegetation done during the year and information on the management program for the following year.
- c. Information on the funds to be invested in maintenance and management during the current year and the amount of such funds to be allocated in the proposed budget for the following year.

VIII EX-POST EVALUATION

8.1 In order to achieve the objectives of the Project evaluations referred to in paragraph 9 of Appendix II, the following elements of each component are to be taken into account:

1. Forestation component

- a. Areas covered, apparent densities and number of trees or other species planted.
- b. Percentages of plants surviving, in each Project year and as an average, after the initial planting and replanting and 5 years after established.
- c. Adaptation of the different varieties and species by area and/or conditions of stress.
- d. Annual growth of plants (height, diameter and foliage) and development of leafy surface for most important species and plantation average for each subproject. Corroborate differential growths.
- e. Health of plants and resistance or tolerance to air pollutants. Growth of biomass.
- f. Cost of production, planting and management of plants for each system and by type of execution (force account and contracting).
- g. Maintenance work and costs for plantations (urban, rural and park zones).
- h. Efficiency of management and protection of pre-existing plantations.
- i. Simple measurements of pollutants deposited on the leaves, especially suspended particles, according to the methodology available for the country.

- j. Concentration of pollutants, among others NO₂, SO₂ and PST, inside and outside the existing and newly planted area (forests and groves).

2. Recreation component of Santa Catarina and Sierra de Guadalupe

- a. Estimation of assistance to parks, recreational activities and sports areas, at the beginning of activities and each year thereafter.
- b. Calculation of average visits (monthly and yearly). Services most and least in demand and congestion indicators.
- c. Revenues from park entrance fees, and how they are used.
- d. Operation and maintenance: costs and effectiveness.
- e. Cost of protection and surveillance (shared with forestation or independently). Number of fires observed and affected areas.
- f. Origin and principal socioeconomic features of most frequent visitors to the park and recreational or natural areas.

3. Watershed management component in Sierra de Guadalupe

- a. Number, type and location of civil works built.
- b. Expansion of the Gradoni terracing system (in hectares). Efficiency of sediment retention (soil erosion) and water retention.
- c. Volumes of silt and other materials retained by trenches, dams and walls.
- d. Other benefits of civil works in terms of damage prevented.

4. Ecological restoration of Santa Catarina and Sierra de Guadalupe

- a. Areas covered with cactaceae, different plant material, trees or bushes. Growth and development of plantations, soil cover, erosion control and increased infiltration. Effectiveness as wind barriers.
- b. Areas covered with (natural or seeded) turf. Effects on dust retention and soil erosion control.
- c. Cost of various restoration efforts (investment, operation and maintenance). Time required to achieve various degrees of restoration.

5. Environmental training and education

- a. Types of training, participating professionals and their areas of specialization, course locations and times. General and specific results.
- b. Analysis and evaluation of results as compared with Project objectives and goals.
- c. Number of courses in environmental education, persons attending and their characteristics (age, sex, previous education, reasons for taking course).
- d. Results observed, by year. Analysis and evaluation.
- e. Cost indicators by course and by participant. Effectiveness of models for technical training and community environmental education.
- f. Areas not covered and/or unmet demand.

6. Human resettlements

- a. Number of families relocated and resettled by area (Santa Catarina and Sierra de Guadalupe, both in the Federal District and in the State of Mexico).
- b. Evaluation of the process of assigning lots, delivering materials, obtaining credit and other kinds of help for self-construction of low-income housing. Surface covered per family and socioeconomic characteristics.
- c. Provision of services (water, electricity, garbage collection), access to schools and other facilities (hospitals, clinics).
- d. Needs not met by the Project or by governmental institutions.
- e. Community and NGO participation in this component.
- f. Cost of resettlements by the Project and by governmental institutions. Estimate of costs incurred by those resettled.

7. Debt retirement mechanism

- a. Evaluation of the financial advantages and disadvantages of utilization of the resources of the Project for the debt retirement mechanism, compared to a normal operation.
- b. Problems detected in the course of the operation, and ways of overcoming them to make this type of operation more efficient.

IX. QUALITY OF WATER FOR IRRIGATION

9.1 For the purposes of the provisions of paragraph 7 of Appendix II, the Borrower shall present yearly reports including at least the following information:

- a. The sampling program carried out during the year and information on the sampling program for the following year.
- b. Average, standard deviation, and maximum and minimum monthly values for the respective parameters.
- c. Frequency with which such parameters exceeded the minimum values under the Dirección General de Construcción y Operación Hidráulica of the Federal District "Quality Standards for Treated Water to be Used in the Irrigation of Green Areas."

(ANNEX D TO THE LOAN CONTRACT)

DEBT RETIREMENT MECHANISM

1. Description

The Bank would disburse in advance the resources of the financing to the Borrower for use in a Mexican external debt retirement operation with commercial banks. The proceeds of this transaction shall be utilized exclusively for the financing of the Project.

2. Debt retirement

Once the terms and conditions of the debt retirement operation are known, the Bank would approve the respective disbursement and the Borrower, in coordination with the Department of Finance and Public Credit, would purchase external debt securities on the secondary market.

3. Debt conversion

The bonds purchased would be converted to local currency in accordance with current mechanisms and practices.

4. Maintenance of value

The local currency funds resulting from the debt retirement operation shall be deposited with the Federal Treasury in the Borrower's name in two special accounts, for exclusive use in the Project. In the first account shall be deposited the amount equivalent to the Bank loan, in the second account, the additional resources obtained as a result of the debt retirement operation. In both cases, the deposits shall be indexed on the basis of the free-market dollar at the moment the respective expenses of the Project are made.

5. Disbursements

The local currency resources corresponding to the amount of the Bank loan shall be disbursed to the Executing Agencies, from the first special account mentioned in paragraph 4 above, as progress is made in the Project on the basis of the investment guidelines and categories as set forth in this Loan Contract, while maintaining the pari passu agreed upon with the Bank.