

ROAD REHABILITATION AND IMPROVEMENT PROGRAM

(NI-0068)

EXECUTIVE SUMMARY

BORROWER AND GUARANTOR: Republic of Nicaragua

EXECUTING AGENCY: Dirección General de Vialidad (Highway Department) (DGV) of the Ministry of Construction and Transportation (MCT)

AMOUNT AND SOURCE:

| | |
|---------------------|--------------------------|
| IDB: | US\$ 75.0 million (FSO) |
| Cofinancing: | US\$106.5 million |
| Local contribution: | US\$ <u>41.5 million</u> |
| Total: | US\$223.0 million |

FINANCIAL TERMS AND CONDITIONS:

| | |
|-----------------------------|--|
| Amortization period: | 40 years |
| Disbursement period: | 4 years |
| Interest rate: | 1% during the grace period and 2% thereafter |
| Grace period: | 10 years |
| Inspection and supervision: | 1% of the loan |
| Credit fee: | 0.5% of the undisbursed portion |

COFINANCING: The program will be cofinanced by the International Development Association (IDA), which will contribute US\$30 million, OPEC with US\$5 million, Danish International Development Assistance (DANIDA) with US\$33 million, the Venezuelan Investment Fund with US\$30.95 million, and the European Union with US\$7.5 million.

OBJECTIVE: The program's objective is to advance economic and social development by improving the country's road infrastructure and institutionally strengthening the subsector. The purpose is to afford a sound infrastructure for the transport of goods and persons and to promote foreign and domestic trading, to be accomplished through the anticipated reduction in transportation costs and more efficient maintenance.

DESCRIPTION: The program is designed as a time-slice operation, with four annual plans of execution consisting of three components: (i) rehabilitation and improvement of rural roads, collector roads and main highways; (ii) improved road maintenance, and (iii) technical, administrative, environmental and financial strengthening of the subsector.

Road rehabilitation and improvement component. This investment component will go toward rehabilitating the deteriorated network of: (i) rural roads, whose purpose is to assimilate rural areas in the country's interior and elsewhere into the national network and thus accelerate the production process; (ii) collector roads that combine with the rural roads to form integrated production corridors, and (iii) priority stretches of the main highways that are foreign trade corridors. The works will be selected on the basis of the program's objectives and eligibility criteria, using the findings of the economic, technical, social and environmental impact evaluation.

The Bank-financed works slated to begin in the first year include approximately nine rural roads and one collector road. The total cost of the works is estimated at the equivalent of US\$31.3 million. The MCT and the Bank jointly selected and scaled the works based on the established priorities and selection criteria, implementation capacity and available budget. Progress will be evaluated at annual monitoring meetings.

Road maintenance and improvement component. The Government of Nicaragua pledges to contribute the equivalent of US\$12 million annually during the program to finance maintenance investments, including supervision. Studies in the following areas will also be funded to craft new policies within this subsector: (i) database on the physical condition of the road system and the system for planning maintenance works and their order of priority; (ii) alternative mechanisms for recovering maintenance costs; (iii) an effective vehicle load and size enforcement system, and (iv) implementation of a decentralized rural road maintenance system run by the municipalities.

Technical and administrative strengthening component. The DGV is to be strengthened both technically and administratively, which will include training in the various areas necessary to carry out the program properly. This element fits into the Public Sector Reform Program that the government is presently preparing with the assistance of the IDB and IBRD.

**ENVIRONMENTAL
CLASSIFICATION:**

At the meeting on February 14, 1995, the Environment Committee classified this operation under Category III. At the meeting on August 1, it approved the environmental summary.

BENEFITS:

The program will have a positive impact in that it will strengthen the country's macroeconomic performance by improving operation of the transportation infrastructure. The road rehabilitation and improvement is expected to provide a better road communications system for foreign and domestic commerce, lower the cost of operating and maintaining the vehicles that travel those roads, and increase the volume and value of agricultural production. Rehabilitating and improving rural and collector roads will raise the rural population's standard of living by making it easier for them to produce and market their products, while reducing their operating costs and making basic services accessible. The improved maintenance system will institute a sustainable and efficient system for recouping maintenance costs. The MCT technical and administrative strengthening measures are to ensure that the program operates soundly and as an integrated whole. These benefits will accrue largely to the low-income population of the service areas of the projects.

RISKS:

The main risks for the program have to do with the continuity and level of road maintenance and the weak structure for planning and managing road conservation. Therefore, the program emphasizes the necessity of system reform and of maintenance financing. Execution of the program will place added technical, administrative and coordination-related demands on the various DGV offices, which is why it is suggested that the Bank's financing include resources to build up these areas.

The MCT is poised to begin to reconfigure its functions and organic structure as part of the Public Sector Reform Program. The government has asked the Bank and the IBRD to assist by providing sectoral adjustment loans, along with technical cooperation already approved by the IBRD. The subsector's two institutional reform programs will be closely coordinated and the appropriate measures have been taken to ensure that the program's execution will be compatible with that reorganization.

**THE BANK'S
COUNTRY AND SECTOR
STRATEGY:**

The IDB's strategy is to: help rebuild the country's social and economic infrastructure, especially in the less developed regions; support economic reform, an enhanced investment climate, and reactivation of the country's agricultural development; increase the Bank's role in supplying basic health and education needs; support stronger protection of the environment in the country; and assist with the modernization of

the public sector and development of human resources. Given this strategy, the Bank and the country's authorities agreed that its lending program would include an operation for the transportation sector aimed at linking various rural areas with the country's markets and thereby improving the standard of living of the people living in those areas.

**IMPACT ON
POVERTY:**

The program qualifies as poverty-targeted for purposes of the Eighth Replenishment mandates as to projects designed to reduce poverty. In 1993, according to the Bank's definition of the poverty line for Nicaragua, 75% of the country's total population was poor.

A recent sample survey in three major cities found that some 43% of those surveyed were living in absolute poverty and almost 50% of them lived in extreme poverty or were indigent. Other studies paint an even grimmer picture. Poverty is worse in rural areas, where 60% of the poor and 78% of the indigent live. Consequently, small farmers in the impact areas of the rural roads can be classified in low-income groups. Most of the program's beneficiaries in these areas are low-income (small farmers, local carriers), though some benefits would accrue to higher-income groups as well. These latter benefits cannot be quantified.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

Apart from the conditions that are standard for this type of operation, the loan contract will include the following special conditions:

1. As part of the continuous monitoring, the executing agency will meet with the Bank by no later than September 30 each year for the life of the program to examine the progress made and to agree upon the measures for the following year. To that end, a report will be presented to the Bank each year, at least 15 working days prior to each meeting. If failings in program implementation come to light that do not bear on the performance benchmarks listed in paragraph 3.22, a report outlining proposed corrective action and an implementation timetable for same must be submitted to the Bank for approval. If the problems identified do pertain to these benchmarks, the Bank may suspend authorization for further commitment of the proceeds of the financing until all the deficiencies have been remedied (see paragraph 3.24).

2. Two years after the effective date of the loan contract or when 60% of the loan proceeds have been committed, whichever occurs first, a comprehensive review of the program is required. If significant faults are identified in the execution of the program such as would affect its targets and objectives, the executing agency will be required to present to the Bank for approval a proposal on measures to be taken to rectify the problems, and a timetable for their completion. If such remedial measures are not implemented to the Bank's satisfaction, it may suspend authorization for further commitment of the proceeds of the financing (see paragraph 3.25).
3. Within six months of the effective date of the loan contract, consultants will have to be hired to do the studies on: support for the road maintenance planning and contracting system; alternative mechanisms for financing road maintenance; transfer of rural road maintenance services to the municipalities, and a system for enforcing vehicle load and size restrictions (see paragraph 3.17).
4. Before the bidding on program-related works is announced, the consulting firm in charge of supervising those works will have to have been hired (see paragraph 3.19).
5. To ensure that the rehabilitated roads and highways are maintained in satisfactory condition, the borrower pledges to invest the equivalent of US\$12 million in maintenance each year for the four-year life of the program (see paragraph 3.18).
6. The borrower will study the best means to involve the private sector in executing pilot rehabilitation and maintenance projects for the program works and will in due course present the corresponding proposals to the Bank for consideration, with a view to their eventual implementation as part of the program. The borrower may use up to 10% of the resources from the loan to execute Bank-approved pilot projects that meet the criteria set out in documentation in the project technical files (see paragraph 3.11).
7. A plan of action for environmental protection measures will be presented to the Bank within six months of the effective date of the loan contract

and must cover the areas listed in paragraph 3.21. The annual monitoring meetings will review the execution of that plan.

8. International competitive bidding will be used to procure goods costing the equivalent of US\$250,000 or more and to contract construction works of US\$1,500,000 and more. Firms will have to be prequalified (registered) for the works listed in the Tentative Procurement Plan (see paragraph 3.27).

Other special conditions having to do with the criteria for selecting projects, preparing and presenting bidding documents, environmental matters, progress reports and annual and midterm reviews are described in detail in paragraphs 3.3, 3.7, 3.13, 3.15, 3.16, 3.24 and 3.25 of this document.

I. FRAME OF REFERENCE

A. Economic recovery and the transportation sector

- 1.1 After more than a decade of stagnation, the economy is showing signs of recovery, growing at an estimated 3.2% in 1994 thanks to a strong performance by the agricultural sector and exports. The 1995 growth rate is expected to be even higher. The macroeconomic outlook will depend in large part on how those sectors perform, both of which need a proper transportation infrastructure.
- 1.2 A study completed by the World Bank (IBRD) in June 1995 on recovery strategies for the transportation sector found that most problems are within the road subsector, which past economic and political sets of circumstances have left in a bad state of repair. According to the IBRD report, the roads have to be rehabilitated without delay and adequately maintained to prevent further deterioration and to eliminate obstacles to the country's economic recovery. Given the limited local resources available, infrastructure spending must target road rehabilitation and maintenance. The proposed program is designed to remedy these problems as part of the Public Sector Reform Program that the government is presently launching with the support of the Bank and the IBRD.

B. Prospects of the road subsector

1. Physical description of the road system

- 1.3 Since 1939, when construction of the Pan American Highway began, the growth of the national road system has closely paralleled the country's economic development. The total length of the country's road system is estimated at approximately 15,300 km: 1,700 km of paved roads, 2,400 km of surfaced roads, 5,600 km of all-weather roads, and 5,600 of dry-season roads. Presently there is no complete survey of the condition of the roads, although it is obvious that they have deteriorated rapidly as maintenance work has been deferred. Estimates are that only 20% of the paved roads are in good condition.
- 1.4 The rural roads (approximately 7,700 km) make communities in rural areas accessible and support farming activities. The traffic from farming areas reaches urban centers and markets via farm-to-market roads that feed into collector roads (6,300 km). The main highways (1,300 km) include the two principal corridors: (i) North-South (Pan American Highway), consisting of the Chinandega-Guasaule and San Benito-Las Manos highways leading to Honduras, and the Managua-Peñas Blancas road leading to Costa Rica, and (ii) East-West, consisting of the Corinto-Chinandega-León-Managua and Managua-Tipitapa-San Benito-Rama highways, leading to the ports of Corinto

(Pacific coast) and Rama (Atlantic coast), respectively. The poor condition of the San Benito-Rama highway is holding up Rama's development as a river port for trade with Europe and the United States.

2. Insufficient maintenance and its consequences

- 1.5 Inadequate maintenance owing to insufficient funds is the main cause of the seriously deteriorated condition of the road system. The shortage of funds was the result largely of the economic hardships of the eighties. Other factors that contribute to the disrepair are vehicles hauling loads that are heavier than the road was designed to carry, damage caused by Hurricane Joan in 1988, and the heavy rainfall in recent winters.
- 1.6 Since 1990, some patching and minor surface repairs were undertaken in an effort to improve the overall condition of the roads. However, the amount of work done was insufficient and a major investment in rehabilitation and improvements is needed.
- 1.7 Routine maintenance dropped off drastically, from 3,600 km serviced in 1992 to 756 km in 1994, only 5% of the national road system; periodic maintenance has fluctuated from 3,400 km in 1992 to 1,300 km in 1993 to 4,000 km in 1994 (some figures may include minor rehabilitation works). The key problem is the Nicaraguan government's inability to come up with the needed resources. The budget appropriations for routine and periodic maintenance have dropped 27%, from US\$11.9 million in 1992 to US\$8.8 million in 1994 (see Annex I-1). In 1993, US\$7 million was spent maintaining unpaved roads (in part with grant monies) and US\$2 million was spent on paved roads. The appropriations for maintenance, therefore, are substantially below the minimum that the national system needs, which is an estimated US\$20 million to US\$25 million each year. On the other hand, with the externally funded projects carried out, the resources for road rehabilitation and improvements increased by 60% during the same period.

3. Institutional reforms in the subsector

- 1.8 The Ministry of Construction and Transportation (MCT), which is in charge of transportation sector policies and oversight and road construction and maintenance, focuses its activities on carrying out and administering works. Overseeing and monitoring work done by other parties is not one of its main functions. The functions and organization of the MCT are about to be reconfigured as part of the Public Sector Reform Program (PSRP). Based on diagnostic studies of the institutional weaknesses and the needed sectoral reforms, individual Acuerdos de Reestructuración Institucional [institutional restructuring agreements] (ARIs) have been concluded between the executive board in charge of the PSRP and some 20 ministries. The MCT's agreement was concluded in August 1995 and its reorganization will begin in late 1995 (see the technical

files of the project for the ARI). This agreement includes a plan of action whereby the MCT will head up the sector and plan, regulate and oversee its regulations and policies, but will gradually cease to function as a direct executing agency.

- 1.9 At the present time, the MCT hires the services of private firms to do road construction, rehabilitation and improvement work and, in some regions, maintenance work as well. The PSRP is studying the idea of decentralizing management of the road maintenance work that will be done by the firms in the Corporación de Empresas Regionales de Construcción [Regional Construction Companies Corporation] (CERC) that are affiliated with the MTC. They maintain the roads and do some of the construction or rehabilitation work in geographically remote areas that are not attractive enough or are too problematic for private companies.
- 1.10 To decentralize management of the maintenance system, the government, as part of the PSRP, is considering a pilot program to transfer maintenance of rural roads to the municipalities. Procedures are being devised for transferring the resources that would be used to hire microenterprises, cooperatives and other entities. Under the proposed program, the condition of these businesses will be examined and a decision will be made on the best strategy for transferring these activities to the private sector in the near future.
- 1.11 Given the existing limitations and the need to do more maintenance work, under the proposed program the government has been examining alternative financing mechanisms to guarantee sufficient funds to cover the costs of the needed maintenance. One mechanism that would be examined with the help of the resources from the eventual Bank loan would be the creation of a road maintenance fund, mainly financed with user charges. These would take the form of a fuel levy, vehicle licensing fees, and driving license fees (see Annex I-1).
- 1.12 Another idea being considered is that of having private businesses carry out and finance pilot rehabilitation and maintenance projects on specific sections of the most heavily traveled roads. An initial study of concessions or contracting for these projects is under review. The program proposed here plans additional studies and consulting services to craft a sound legal and institutional framework that involves private enterprise in infrastructure projects, specifically in road concessions.
- 1.13 As the previous paragraphs and paragraph 2.6 indicate, the government is already implementing a variety of measures and recommendations that should guarantee that a proper road maintenance system will be in place and operating in the very near future. These efforts testify to the government's commitment to the PSRP and to the program proposed here.

C. Bank participation in the road subsector

1. The Bank's country strategy

- 1.14 The Bank's strategy consists of the following: (i) help restore the nation's social and economic infrastructure, especially in the poorest regions; (ii) assist economic reform, improve the investment climate and reactivate the country's productive development; (iii) increase attention to basic social needs in health and education; (iv) support protection of the country's environment; and (v) further the modernization of the public sector. In keeping with this strategy, the Bank and the country's authorities agreed to include in its lending program an operation for the transportation sector aimed at assimilating rural areas into the country's market system, thereby improving the income of the population in those areas.

2. The Bank's experience with the road subsector

- 1.15 To date, the Bank has approved five operations in the road subsector totaling the equivalent of US\$111.5 million. The rural roads rehabilitation and maintenance program (REMECAR) currently under way is being financed by loans 902/SF-NI for US\$10 million and 756/OC-NI for US\$36 million, both approved by the Bank in July 1993, and cofinanced by the Nordic Development Fund. This program has been assisting with rehabilitation of 557 km or 7% of the rural roads. As of now, some 70% of the assigned resources are committed; by December 1995, 90% will have been committed.

3. Lessons learned from the REMECAR program

- 1.16 The Bank has learned some important lessons in executing the components of the REMECAR program, financing it and programming the needed technical assistance, and about the rural transportation problem in the country, including roads administration. This experience proved useful when determining what the components, size and investment priorities of the proposed program would be. The experience gained in administering the REMECAR program also figures in the proposed operation, which will strengthen its executing unit and environment unit and establish a rural roads maintenance management system.
- 1.17 The REMECAR program is moving ahead successfully and has been carried out according to the planned technical and economic parameters. The program has rehabilitated rural roads to a good standard. Estimates are that approximately 60% of the projects' cost went toward drainage works, which will keep the roads in good condition year-round and keep down future maintenance costs. The rural roads that have been rebuilt will be able to remain open to traffic even during the rainy season, which will further economic development of the areas they serve.

- 1.18 The increased private-sector involvement under the present administration and the lessons learned from the REMECAR program have led to a surge in numbers and activity of Nicaraguan engineering firms and construction companies. Given these developments, local businesses should have no problem coping with the greater number and size of the maintenance works planned under the program.
- 1.19 Although the REMECAR program has been a success, the Bank's experience in the subsector shows that despite the government's best intentions, it has been unable to adequately service the national system's maintenance needs, which have always been less of a priority than road rehabilitation and improvement. The reasons include fiscal constraints and the fact that external funding has gone primarily to rehabilitation and improvement and not to maintenance. In the proposed operation, maintenance would be one of the most important components.

4. Other institutions' support for the subsector

- 1.20 Since 1990, studies have been undertaken and rehabilitation of certain important stretches of the system has gotten under way. The feasibility of rehabilitating the Izapa-León-Chinandega highway (IBRD) and others Central American Bank for Economic Integration (CABEI) has been studied. Nejapa-Izapa road (CABEI), the Villa 15 de Julio-El Guasaule road (European Union), and part of the Managua-Izapa and San Benito-Rama roads and a number of roads in the coffee-growing regions (Danish International Development Assistance) have been rehabilitated. At this writing, the government itself is funding road investments to restore 4 km of the main highway between San Marcos and La Concepción, bridges are being rebuilt and strengthened (OECF of Japan), and rural roads are being rehabilitated and upgraded (REMECAR).

5. Coordination with the Public Sector Reform Program

- 1.21 The Nicaraguan government has asked the Bank and the IBRD to support the PSRP through sectoral adjustment loans. Technical-cooperation funding of US\$23 million for institutional development, approved by the IBRD in March 1995 and linked to that program, will assist with the institutional reorganization of the various ministries, among them the MTC, and the decentralization of agencies within a five-year period. However, other sources of funding are needed to finance technical assistance in specific areas. Some of those areas will be financed with the resources from the program, i.e.: four studies provided for in the ARI are directly related to the objectives of the program (paragraph 1.22(b)). This program and the PSRP will be closely coordinated for purposes of the needed institutional reforms. Accordingly, the MCT will implement a system to coordinate projects that are externally funded and whose objective is to strengthen institutional reorganization, eliminate

duplication in the use of funds, and improve channels of communication and the use of technical assistance.

D. Anticipated results of the program

- 1.22 This program focuses on the key aspects mentioned earlier. The following actions are proposed:
- a. To improve the poor condition of the road system, the program includes investments to help rehabilitate and improve roads. Initially, seven collector roads have been selected to be either rehabilitated or improved, as have priority stretches of the main highways and 332 km of rural roads the first year; feasibility studies have been done on another 320 km of other roads that could be rehabilitated in the near term.
 - b. To help prepare policies and activities needed to monitor maintenance of the national network, the following is proposed: (i) update the database on the physical condition of the road network and review the system for planning maintenance works and their priority; (ii) design and implement alternative mechanisms to finance maintenance costs; (iii) implement an effective vehicle load and size enforcement system; (iv) implement a decentralized system for maintaining rural roads, run by the municipalities; and (v) devise and implement a system that allows private investment to participate in infrastructure projects in general, and more specifically in road projects. The studies for these activities will begin around the date of the first disbursement, according to the terms of reference that are in the technical files for this project. Based on those studies, plans are to launch a Bank-approved plan of action as of the start of the program's second year.
 - c. Technical and administrative strengthening measures in specific areas will be included as well.
- 1.23 The solutions will require a political commitment to reform the system and to finance road maintenance. The content of the program is described in chapter II. Its implementation will be monitored by means of a comprehensive set of performance benchmarks described in chapter III..

II. THE PROGRAM, ITS COST AND FINANCING

A. Objectives and goals

- 2.1 Based on the assessment of the subsector's problems presented in chapter I, the program's objective is to further economic and social development by improving the road infrastructure and strengthening the subsector's institutions. The purpose is to expedite the transportation of goods and persons and to promote foreign and domestic trading. This will be achieved thanks to the anticipated reduction in transportation costs and more efficient maintenance.

B. Description of the program

- 2.2 In February of 1995, the Nicaraguan government produced a blueprint for a national transportation plan for the period 1995 to 2005, which included a program of medium- and long-range spending on road rehabilitation between 1996 and 1999. Recommendations in the World Bank study on recovery strategies for the transport sector, referred to earlier, have been taken into account in that program. The proposed program, which basically will finance the government's 1996-1999 road investments program, is designed as a time-slice operation consisting of four annual plans of execution. With this method the accomplishments will be reviewed each year and the findings used to make adjustments to the activities planned for the following year.
- 2.3 The program has three components: (i) rehabilitation and improvement of rural roads, collector roads and main highways; (ii) activities and policies to improve maintenance of the national road system, which includes devising and implementing cost-recovery mechanisms; and (iii) specific technical, administrative, environmental and financial strengthening measures.

1. Road rehabilitation and improvement component

- 2.4 This physical improvements component will involve rehabilitation and maintenance works on existing roads: (i) rural roads, thereby complementing the REMECAR program, to connect rural areas in the center of the country with the national network and thus speed up the production process; (ii) collector roads which, when combined with the rural roads, form integrated production corridors, and (iii) important stretches of the main highways. A new approach is being studied, which is to involve the private sector in rehabilitating and maintaining the most heavily traveled sections of the main highways. Consideration will be given to the possible use of up to 10% of the loan for pilot projects in which private businesses participate in a system of public works concessions with the institutional and organizational underpinnings that meet the

requirements of efficiency and transparency specified in documentation in the technical files for the program proposed herein.

- 2.5 The following will be the eligibility criteria used for the rural roads projects: (i) the agricultural potential of the roads' area of influence; (ii) access to bulking or marketing centers; (iii) the connection with the social services in the region; (iv) the environmental impact, and (v) the poverty level in the area served. For collector roads, the criteria will be the amount of traffic they carry and whether or not they connect to rural roads rehabilitated under the REMECAR program and other rural roads, such that production circuits are created. Depending on the works selected, as many as 650 km of rural roads and 150 km of collector roads could be rehabilitated and improved with the Bank's loan, which will increase the percentage of rural roads in reasonable condition from 36% to 45% and the collector roads from 46% to 50%.

2. Improved maintenance component

- 2.6 As mentioned in paragraph 1.22(b), it is imperative that the policies and actions needed to upgrade the road maintenance system be instituted. This reform process will begin by preparing the following Bank-financed studies intended to provide the information needed to make later decisions:
- a. To provide a basis for monitoring the physical condition of the road system and the periodic and routine maintenance needed, the following will be done: (i) a study on ways to improve the system used to establish the order of priority of maintenance work in the national system, to be financed by DANIDA, and (ii) extend the system, with Bank financing.
 - b. A study will be done of alternative cost-recovery schemes for maintenance financing and of the legal framework for their creation and implementation.
 - c. A study will be done of the implementation of an effective vehicle load and size enforcement system for the road network; new scales and ancillary equipment will be installed and put into operation.
 - d. In connection with a transfer of rural road services and other infrastructure to the municipalities in the near term, a study will be done and training provided on how to implement a decentralized rural road maintenance system managed by the municipalities, where grassroots organizations, NGOs or cooperatives are contracted to do maintenance work.
- 2.7 The studies mentioned above will begin around the time of the first disbursement and are expected to take some six to eight months to

complete. Based on these studies, the plan is to begin implementing a Bank pre-approved plan of action (see paragraph 3.17) during the program's second year.

3. Institution-strengthening component

- 2.8 The procedures and methods used by the MCT for overall planning of activities and projects will be upgraded. The program includes consulting services built around modern techniques and models. At the present time, planning work is done on the basis of a practical knowledge of the system; the Highway Design and Maintenance Model (HDM) and the like are not being used.
- 2.9 The bulk of the technical and administrative strengthening and staff training will begin during the first year. The technical assistance operations are listed in Annex II-1 and the terms of reference are in the technical files. Funds are included for studies to design a system that enables private enterprise to participate in infrastructure projects in general and, more specifically, identifies the measures that must be taken to grant road concessions to private businesses. Also included are unallocated funds for studies and consulting services to assist the MCT with the issues and areas considered necessary. These will be decided during the annual monitoring meetings.

C. Scale of the program

- 2.10 The cost of the program has been estimated at the equivalent of US\$223 million for the four years from 1996 through 1999. The following factors were considered to determine the program's size and cost: the deteriorated condition of the road system; the government's financial constraints; and the capacity of the MCT and of the private sector to carry out and supervise the maintenance works and activities.

D. The program's first year

- 2.11 The works to be started in the first year include approximately nine rural roads, similar to those built under REMECAR, and one collector road. These works were selected on the basis of the approved criteria (see technical files) and the DGV's planned budget for 1996. The majority of the institution-strengthening activities planned under the program will begin during the first year, so that the DGV will see quick results. The cost of the rehabilitation and improvement works that will begin in the first year is estimated at the equivalent of US\$31.3 million (see Annex II-1).

E. Status of program preparation

1. Road rehabilitation and improvement

- 2.12 The technical and economic feasibility studies, the environmental evaluation and the engineering designs are ready for 332 km of rural roads, which is 40% of the total that would be financed with Bank resources. The bidding documents for these roads will be ready in late 1995. The technical and economic priority studies are ready for two stretches of collector roads that will be paved, representing a total of 91 km or 60% of the roads planned for Bank financing. The working drawings were commissioned in July 1995 and will be completed in February 1996. A list is ready identifying roads whose studies are in varying stages of completion.
- 2.13 The works that the Bank would finance during the first year were analyzed on the basis of feasibility studies and engineering designs prepared by consulting firms, in accordance with Bank approved terms of reference. The projects presented meet the technical and environmental requirements and show a sound economic return. The quality of the studies was good, which means that the cost variations will be within acceptable ranges for projects of this type. The feasibility studies and engineering designs for the second year's projects are being prepared.

2. Improved maintenance

- 2.14 The terms of reference for the maintenance studies mentioned in paragraph 2.6 are ready.

3. Institution-strengthening

- 2.15 Technical and administrative strengthening under this component consists of implementation of an integrated system of information, supervision and monitoring of works and includes training.

F. The program's cost

- 2.16 Table II-1 itemizes the program's cost by type of investment and source of financing. The general value-added tax, stamp taxes and municipal taxes on the works and taxes on services to be hired (estimated at the equivalent of US\$33.3 million) are not included, nor are the operating costs of the Program Coordination Unit (PCU), which figure in the MCT's regular budget. The estimated escalation and contingencies are factored in.

| TABLE II-1: TOTAL COST OF THE PROGRAM AND ITS FINANCE (in US\$ millions equivalent) | | | | | | | | | | |
|--|-------|-------|--------|------|-------|------|------------------------------------|---------------------------|--------|--------------|
| INVESTMENT CATEGORY | IDB | IDA | DANIDA | OPEC | FIV | EU | TOTAL EXTERNAL RESOURCE S | LOCAL CONTRI BUTION | TOTAL | TOTAL (%) |
| 1. Supervision, design and administration | 9.5 | | | | | | 9.5 | | 9.5 | 4.3 |
| 1.1 Supervision, design and administration | 8.4 | | | | | | 8.4 | | 8.4 | |
| 1.2 Advisory support - PCU | 1.1 | | | | | | 1.1 | | 1.1 | |
| 2. Direct costs | 61.0 | 30.0 | 30.0 | 5.0 | 31.0 | 7.5 | 164.5 | 41.0 | 205.5 | 92.1 |
| 2.1 Rehabilitation rural roads | 35.3 | | | 5.0 | | | 40.3 | | 40.3 | |
| 2.2 Improvement collector roads | 24.7 | | | | 31.0 | | 55.7 | | 55.7 | |
| 2.3 Rehabilitation main highways | | 30.0 | 30.0 | | | 7.5 | 67.5 | | 67.5 | |
| 2.4 Road maintenance | | | | | | | | 41.0 | 41.0 | |
| 2.5 Load enforcement | 1.0 | | | | | | 1.0 | | 1.0 | |
| 3. Associated costs | 1.9 | | 3.0 | | | | 4.9 | | 4.9 | 2.2 |
| 3.1 Institution-strengthening | 1.6 | | 3.0 | | | | 4.6 | | 4.6 | |
| 3.2 Support equipment | 0.3 | | | | | | 0.3 | | 0.3 | |
| 3.3 Right-of-way | | | | | | | | | | |
| 4. Finance charges | 2.6 | | | | | | 2.6 | 0.5 | 3.1 | 1.4 |
| 4.1 Interest | 1.9 | | | | | | 1.9 | | 1.9 | |
| 4.2 Credit fee | | | | | | | | 0.5 | 0.5 | |
| 4.3 Inspection and supervision | 0.7 | | | | | | 0.7 | | 0.7 | |
| Total | 75.0 | 30.0 | 33.0 | 5.0 | 31.0 | 7.5 | 181.5 | 41.5 | 223.0 | 100.0 |
| Percentage | 33.6% | 13.5% | 14.8% | 2.2% | 13.9% | 3.4% | 81.4% | 18.6% | 100.0% | |

- 2.17 Supervision, design and administration. The cost of works supervision, engineering designs and program administration is estimated at US\$9.5 million (4.3% of the program). Supervision of the construction works, technical studies and engineering designs for the road rehabilitation and improvement works, and the advisory services to the PCU will be paid with funds from the loan.
- 2.18 Direct costs. This category totals US\$205.5 million (92.1%) and includes the direct costs of the investments planned for rural roads (US\$40.3 million); collector roads in the intercity network (US\$55.7 million); main corridors (US\$67.5 million); the cost of routine maintenance (cleaning weeds from ditches and rain sewers,

cleaning up after small rockslides and other minor jobs) and periodic maintenance for the national network (US\$41 million), and the cost of the equipment needed for the weigh stations in the national network (US\$1 million).

- 2.19 Associated costs. The amount assigned for this category is the equivalent of US\$4.9 million (2.2%) and is earmarked for the institution-strengthening component. It includes studies, technical assistance from consultants, training for staff from the MCT, the DGV and its Environment Unit, and the computer equipment needed for the PCU and the DGV's accounting and data-processing section, and strengthening of the Environment Unit.
- 2.20 Finance charges. These total US\$3.1 million (1.4% of the program) and include the interest on the Bank's loan for the life of the program; the credit fee, and 1% of the loan amount to cover the Bank's inspection and supervision costs.

G. Financing of the program

- 2.21 The program would be financed with funds from the Bank, the International Development Association (IDA), Danish International Development Assistance (DANIDA), the Organization of Petroleum Exporting Countries' Fund (OPEC), the Venezuelan Investment Fund, (FIV) the European Union and the local contribution, for a total of US\$223 million. The Bank's loan was the catalyst for the other cofinancing, especially that of the IDA, DANIDA and the OPEC Fund. The financial package was put together by coordinating the cofinanciers' sectoral policies, especially where the maintenance system was concerned.

1. The Bank

- 2.22 The Bank's share will be in foreign currencies from the Fund for Special Operations, in an amount equivalent to US\$75 million, or 33.6% of the program's total cost. The works and services that the Bank is financing are described in section B of this chapter.

| | |
|-----------------------------|--|
| Amortization: | 40 years |
| Interest rate: | 1% during the grace period and 2% thereafter |
| Disbursement period: | 4 years |
| Grace period: | 10 years |
| Credit fee: | 0.5% of the undisbursed portion |
| Inspection and supervision: | 1% of the loan |

2. Cofinancing

- 2.23 The IBRD is examining an IDA foreign-currency loan for some US\$30 million, or 13.5% of the program. The IBRD plans to submit this proposal to its Executive Board during the first half of 1996.

The investments under consideration include the rehabilitation of parts of the east-west highway (Chinandega-Corinto and Rama-San Benito) and the north-south highway (Chinandega-Guasale).

- 2.24 The US\$76.5 million (34.3% of the program) that other donors are contributing to the program are as follows:
- a. DANIDA will provide a grant of US\$33 million, US\$30 million of which will go toward financing the rehabilitation of the east-west highway (Rama-San Benito) and the north-south highway (Managua-Peñas Blancas); the other US\$3 million will be for studies.
 - b. OPEC expressed an interest in financing a stretch of rural roads for up to US\$5 million, as a parallel loan in that amount. The Bank will manage the bidding and disbursements. The specific terms of this cofinancing will be determined shortly. However, judging by OPEC's general policies, one can expect soft terms for Nicaragua; in other words, an interest rate of around 3%, a 5-year grace period and a 17-year amortization.
 - c. The FIV has provided financing totaling US\$30.95 million for construction of the Boaco-Río Blanco highway, at 6% per annum and a 10-year amortization.
 - d. The European Union has provided a grant of US\$7.5 million to rebuild bridges and for various types of assistance with road maintenance.
- 2.25 No further investments in roadwork are envisaged during the course of the proposed program.

3. Local counterpart

- 2.26 The local contribution will be the equivalent of US\$41.5 million, 1/ representing 18.6% of the program's total cost. The government will provide these funds by earmarking the equivalent of US\$12 million in the budget each year (including, for the first year, the local contribution of US\$7 million equivalent for the final year of the REMECAR program). The local counterpart resources will finance the road maintenance costs (US\$41 million) in the form of payments to contractors for maintenance and supervision, plus the credit fee (US\$0.5 million).

1/ This does not include the contribution in the last year (1996) of the REMECAR program, which is the equivalent of US\$7 million.

III. PROGRAM EXECUTION

A. Implementation arrangements

1. Borrower and executing agency

- 3.1 The borrower will be the Republic of Nicaragua and the executing agency will be the MCT through its Dirección General de Vialidad [Highway Department] (DGV). Administration and supervision of the program and coordination with the Bank and the cofinancing institutions will be handled by the PCU. The implementation system will be the same as the one used to execute the REMECAR program (see institutional analysis in Annex III-1).

2. Highway Department

- 3.2 The DGV is responsible for administration of the national road system and consists of the Highway Division, Road Maintenance Division, Financial Administration Division and the PCU. The technical caliber of the staff in these areas is satisfactory.

3. Program Coordination Unit

- 3.3 The PCU, created by the MCT in 1992 as part of the DGV's structure to coordinate execution of the REMECAR program, will be strengthened and used to coordinate the program under consideration. Since its creation, the PCU has been assisted by an international consulting firm, which has advised it on the technical and financial management of the REMECAR program. In terms of quality and efficiency, the PCU has successfully performed its functions (see Annex III-1). Since it is important that the PCU be protected against the structural changes planned under the ARIs, it is recommended that the Bank be consulted before any change that might affect the PCU is implemented.

4. Consulting firm

- 3.4 The advisory assistance and support provided by the consulting firm hired with funds from the REMECAR program will continue until March 1998, which means it will be there to assist the PCU for the first two years of this program. The PCU's staff is efficient and has gained enough from these consulting services that the latter need not be extended.
- 3.5 However, consulting services will be needed in specific, narrower areas, especially the tendering process and prioritizing of works. Computer equipment is also needed for the data system and vehicles for works inspection and supervision (see Annex II-1 for the list of equipment, and the technical files for the terms of reference).

B. Execution of the program

1. Rehabilitation and improvements

a. Investments planning

- 3.6 The annual investment plans will be developed on the basis of the following: up-to-date investigations and measurements of the conditions of the highways and roads; practical observations based on professional know-how; the availability of financial resources; the experience gained with the REMECAR program; and, if advisable, analytical tools like the HDM or others and, in the case of rural roads, the Bank's Rural Road Model.
- 3.7 The projects financed under this program must meet certain general eligibility criteria for rehabilitation and improvement works, agreed upon with the Bank. The basic conditions are: they must be existing roads, selected because of their proven economic, technical, financial and environmental feasibility, and there must be no outstanding legal problems involving rights-of-way or the like.

b. Design, execution and supervision of works

- 3.8 Design. Following Bank procedures, specialized firms will be hired to prepare the engineering designs for the works.
- 3.9 Execution. All works financed with program resources will be performed by private contractors selected according to the corresponding procedures.
- 3.10 Supervision of works. The technical supervision and quality control of the works and of measures to mitigate any adverse environmental effects are complex and therefore require equipment and highly qualified personnel. Hence, specialized firms will be hired to perform them. The staff of the Road Maintenance Division will supervise minor maintenance work.

c. Private sector participation in rehabilitation and maintenance projects

- 3.11 The best means to advance private sector participation in the program's pilot rehabilitation and maintenance projects, discussed in paragraph 2.4, will be examined and the corresponding proposals will be presented in due course to the Bank, with a view to their eventual implementation under the program. Up to 10% of the loan funds could be used to finance Bank-approved pilot projects that meet the requirements stipulated in the documentation in the technical files for the proposed program. 2/

2/ See special condition 6 of the contract.

d. Environmental measures when carrying out works

- 3.12 At its meeting of February 14, 1995, the Environment Committee classified the program in Category III. The environmental summary was approved by that Committee on August 1, 1995. The program's emphasis on rehabilitating existing highways and rural roads rather than building new roads minimizes the negative environmental effects. For each works project in the first year, the impact on the environment was analyzed and suitable measures proposed to mitigate any adverse impact.
- 3.13 Before calling for tenders, or when no tendering is required, prior to initiation of the works, the executing agency will present the Bank with the plans and specifications of the works, which are to include the measures needed to minimize any direct negative environmental effects that construction of the work in question might cause.
- 3.14 Within 120 days of the effective date of the loan contract, the Environment Unit must have in place an environmental quality monitoring system and the corresponding administrative procedures and must have purchased the equipment and furnishings needed to complete its installation (with REMECAR resources). Suitable measures will be taken to make certain that environmental quality control procedures are included in all program projects and in the various stages involved in planning, executing and supervising the works. At each monitoring meeting a progress report will be presented on the program's environmental issues and will include a summary of the environmental impact assessments, the measures taken to mitigate the negative impact, environmental monitoring and inspection of the works and activities to strengthen the MCT institutionally.
- 3.15 The following will also be part of the annual monitoring meetings (see technical files): (i) review and implementation of the Handbook of Procedures for Environmental Impact Assessments, presented to the Bank for advance approval, and (ii) a review of the MCT's consultations with local communities concerning the road rehabilitation and improvement works. The purpose of the consultations is to commit the local communities to maintaining local roads and to encourage their involvement in decisions on environmental impact mitigation measures and environmental protection measures in the roads' service areas.

2. Road maintenance

- 3.16 One of the MCT's routine activities is to prepare an annual road maintenance contracting plan. Within six months of the effective date of the loan contract, the plan for the first year of the program will be presented to the Bank and must demonstrate that the MTC has the financial resources necessary. For the duration of the

program and for five years thereafter, annual road maintenance reports will be submitted to the Bank.

- 3.17 To make certain that measures are taken to upgrade maintenance, the consultants for the studies mentioned in paragraph 2.7 must be hired within six months following the effective date of the loan contract. 3/ At the first monitoring meeting held following completion of the studies, a plan of action based on the recommendations will be presented to the Bank for approval. Subsequent annual monitoring meetings will track the plan's implementation using the performance benchmarks listed in paragraph 3.22.
- 3.18 To ensure that maintenance investments increase and that the rehabilitated roads and highways are satisfactorily maintained, it is recommended that the borrower invest no less than the equivalent of US\$12 million each year in periodic and routine maintenance. This is US\$3 million a year more than the local contribution under the REMECAR program, plus an additional sum for paved roads. 4/

3. Technical and administrative strengthening

- 3.19 The consultants who are to supervise Bank-financed works must be hired before tenders on those works are solicited, so that they can review the designs and the tender documents in advance. 5/
- 3.20 Considering the activities involved in coordinating with the other cofinanciers and the additional works that the program will represent, within two years after the effective date of the contract the executing agency will strengthen the staffing of the PCU by adding a contracts administrator competent in tendering procedures, and a works planner.
- 3.21 For a comprehensive focus and approach to the environmental issues associated with the program, environmental protection measures will involve: (i) a review of the technical specifications; (ii) development of strategies so that activities to mitigate negative environmental effects and to protect the environment are better coordinated with other State offices by means of the Comité Interinstitucional Ambiental de Caminos Rurales [Rural Roads Interagency Environment Committee] (CIACAR); (iii) effective placement of the Environment Unit within the MCT's organizational structure, with the appropriate functions and authority; (iv) strengthening of that unit by supplying basic equipment, basic and advanced training and technical assistance; (v) consulting services needed to carry out the activities to reduce the negative environmental impact and protect the environment; and (vi) independent environmental auditing and monitoring needs. Within six

3/ See special condition 3 of the loan contract.
4/ See special condition 5 of the loan contract.
5/ See special condition 4 of the loan contract.

months of the effective date of the loan contract, a plan will be presented to the Bank seeking approval for implementation of these activities. The annual monitoring meetings will review the execution of that plan. 6/ The program will use resources from the Bank's loan to assist with environmental institutional strengthening (see technical files).

C. Performance benchmarks

3.22 The annual monitoring meetings will review the performance indicators described in Annex III-2 (Logical Framework), including those below:

a. By the end of the first year of execution, the program should have:

- Established: (i) the system for planning road maintenance works and their priority; (ii) the system through which rural road maintenance will be transferred to the municipalities; (iii) the proposal for effective institution of a vehicle load and size enforcement system, and (iv) the policy for granting concessions for the country's most heavily traveled roads.
- The Bank must have received a description of the legal framework for establishment of a highway maintenance cost recovery system, which is to include requirements that will ensure that revenues collected thereby are used exclusively for road maintenance (this could be a trust fund arrangement).

b. By the end of the second year of execution, the program should have:

Implemented: (i) the system for planning road maintenance works and their order of priority; and (ii) the system for enforcing vehicle load and size.

- It must have been demonstrated to the Bank that a highway maintenance cost recovery system has been put into practice, and that the special accounts needed to manage the system have been opened. Information also must have been furnished on the planning of road maintenance works such as will alleviate needs in this respect, an on cost recovery projections for successive years.
- Transfer of rural road maintenance to the municipalities must have begun.

6/ See special condition 7 of the loan contract.

c. By the end of the third year, the program should have:

- Achieved satisfactory operation of the maintenance cost recovery system and alleviated road maintenance needs.
- In place and operating the system for planning maintenance works and their priority and the system for enforcing vehicle load and size.
- Stepped up the transfer of rural road maintenance to the municipal governments.

d. By the end of the fourth year, the program should have:

- Fulfilled the targets under subparagraph (c).
- Rehabilitated approximately 650 km of rural roads, 150 km of collector roads, and 150 km of main highways.

D. Bank monitoring and evaluation of the program

3.23 The program's overall administration will be the job of the project team; regular supervision will be the responsibility of the Bank's Country Office in Nicaragua. Also, annual administration and monitoring meetings and a comprehensive midterm review of the program have been planned and are crucial tools with which to monitor the program.

1. Annual monitoring meetings

3.24 Starting with the first year of execution, the executing agency is to meet with the Bank by no later than September 30 of each year, to examine the progress made in the plan of action and evaluate the previous year's investment plan. The meeting will examine the targets, objectives and performance benchmarks attained and agree upon an investment plan for the following year and any corrective measures needed. It will also assess the performance of the DGV, including Road Maintenance Division, the internal audit office and the Environment Unit, and will review progress on the environmental aspects of the program. Finally, the meeting will agree upon the additional consulting services needed. To that end, at least 15 working days prior to the start of every year's meeting, the MCT will have to submit to the Bank a report on the degree to which the performance benchmarks listed in Annex III-2 (Logical Framework) and the matter outlined in documents in the technical files (annual reports) have been achieved. ^{1/} If failings in program implementation come to light that do not bear on the performance benchmarks listed in paragraph 3.22, a report outlining proposed corrective action and an implementation timetable for same must be submitted

^{1/} See special condition 1 of the loan contract.

to the Bank for approval. If the problems identified do pertain to these benchmarks, the Bank may suspend authorization for further commitment of the proceeds of the financing until all the deficiencies have been remedied.

2. Midterm review

- 3.25 A thorough review of the program will be done two years from the date of the first disbursement made from the loan or when 60% of the funds have been committed, whichever occurs first. If significant faults are identified in the execution of the program such as would affect its targets and objectives, the executing agency will be required to present to the Bank for approval a proposal on measures to be taken to rectify the problems, and a timetable for their completion. If such remedial measures are not implemented to the Bank's satisfaction, it may suspend authorization for further commitment of the proceeds of the financing. 8/

3. Ex post evaluation

- 3.26 The borrower did not consider a specific ex post evaluation to be necessary, since the program will be monitored and the performance of its objectives evaluated continuously through the annual monitoring meetings and the midterm review.

E. Other implementation procedures

1. Contracting for works and procurement of goods

- 3.27 No exception to the Bank's procurement policy is being proposed. The procurement of goods and related services and the contracting for rehabilitation and improvement works will be done in accordance with the procedures stipulated in Annex B to the loan contract. Prequalification (registration) of firms will be required for all works financed with program funds. The Tentative Procurement Plan in Annex II-1 shows planned acquisitions in the first year. International competitive bidding will be required for goods valued at over US\$250,000 and for works and consulting services valued at over US\$1,500,000. 9/ These thresholds are reasonable when one considers the nature of the works and services and the experience gained with the REMECAR program.
- 3.28 In the case of works or goods financed exclusively with funds from the local counterpart or valued at less than the amounts indicated above, the bidding will conform to the laws in effect in Nicaragua, which require competitive bidding when the amount involved is over the equivalent of approximately US\$133,000, but allow limited

8/ See special condition 2 of the loan contract.

9/ See special condition 8 of the loan contract.

bidding when lesser amounts are involved, which is consistent with basic Bank requirements.

- 3.29 Given the experience gained in the REMECAR program and the maturity of companies, the packages of projects that will be put together for bidding purposes will involve more kilometers of roadwork than what was offered under the REMECAR program, the aim being to elicit more attractive offers. The Tentative Procurement Plan (Annex II-1) shows the approximate dates when tenders will be called for the first investment plan financed wholly or in part with Bank resources.

2. Rights-of-way

- 3.30 One requirement in the project selection criteria is that prior to each call for tenders, legal possession, easements or other rights to the property upon which the program's works are to be carried out must be demonstrated to the Bank's satisfaction. Title to property is not expected to pose a problem since the program calls for the rehabilitation of existing roads. In the case of projects to improve collector roads and main highways, where easements along short stretches may have to be established to accommodate minor realignments, the works will go up for bids and be executed provided it is demonstrated, sufficiently in advance, that the corresponding property has been acquired.

3. Advance of funds

- 3.31 Since advances will have to be made when the contracts with the private firms are signed, it is recommended that once the loan is declared eligible for disbursement up to 10% of the loan proceeds be advanced should the government so request.

F. Natural disasters

- 3.32 While Nicaragua is located in an area of considerable seismic activity and is prone to torrential rains and flooding, one can never predict where phenomena of this kind will occur. The program does not include measures to mitigate the effects of such eventualities. However, should natural disasters occur that necessitate works, the borrower, in consultation with the Bank, will take the appropriate steps, and the Bank will proceed with support in accordance with its policies on the matter.

G. External oversight and auditing

- 3.33 In accordance with the Ministry of Communications and Transportation Act, the MCT is subject to inspection by the Office of the Comptroller General of the Republic, which includes an audit of operations and of finances. However, audits are conducted only when the human and financial resources are available. Because of that, no audit was conducted in either 1991 or 1992 and audits done thereafter were well behind schedule. As in the case of the

REMECAR program, the financial statements of the program under consideration are to be presented annually, after being certified by an independent firm of auditors in keeping with the Bank's established procedures in this matter.

H. Investments timetable

- 3.34 The life of the program will be four years. A tentative timetable of disbursements premised on a four-year time frame is in the program technical files.

IV. JUSTIFICATION OF THE PROGRAM

A. Overall justification

- 4.1 The program will have a positive effect as it will advance economic and social development by improving the country's road infrastructure. By the time it is completed, the program is expected to have reduced vehicle operating costs by 25% and to have increased the volume of passengers travelling among regions, user satisfaction and agricultural production. Suitable institution-strengthening measures will also be taken, as will measures to decentralize road maintenance management.
- 4.2 The time-slice nature of the proposed operation will enable the Bank to participate in the program's development using selection criteria that ensure efficient, balanced and rational use of the subsector's resources and policies. With the annual monitoring meetings, prompt corrective measures can be taken and the investments can be planned using appropriate methods to establish priorities based on technical, economic, financial and environmental feasibility.

B. Technical viability

- 4.3 The conclusion drawn from examining the program is that it is an appropriate technical and operational solution for the following reasons: (i) the standards and targets used when designing the program were adequate and consistent with acceptable engineering practices and with the current and projected traffic volumes; (ii) the engineering works will be carried out through contracts awarded through the eliciting of offers and using procedures consistent with the Bank's own procedures and requirements on works contracting; and (iii) since no complex methods need be used in the rehabilitation and construction works, no technical problems that could hold up execution of the program are anticipated.

C. Institutional viability

- 4.4 The MCT's experience with execution of the REMECAR program, currently under way, has been satisfactory. The new program's design, which includes reinforcement of the DGV's operational capacity, takes into account the identified weaknesses, and the corresponding corrective measures will be taken soon (paragraph 1.22(b)). The program will use the same method of execution and, for the first two years, will be assisted by the same international consulting firm hired for technical and financial management of the REMECAR program. It will capitalize upon the DGV/PCU staff's training and experience.
- 4.5 In the medium term, the MCT will benefit from the IBRD's technical assistance under the Public Sector Reform Program. This program

plans a general buildup of the MCT, which will have more efficient technical tools and systems for planning and managing the subsector and will transfer the functions of direct administration to the private sector. The proposed program also includes an extensive personnel training component.

- 4.6 The technical assistance components included in the program under consideration involve studies and measures to be carried out in the short term, strengthening the MCT offices that are instrumental in the program's execution (paragraphs 2.7-2.9). The method of execution planned is such that the administrative and financial conditions will be right for the program to evolve smoothly.

D. Financial viability

- 4.7 Considering the MCT's recent operational and financial history, and the additional resources planned with the program, including the introduction of a maintenance cost recovery mechanism and the local contribution to the Program of US\$12 million each year for maintenance, a modest yet constant incremental income is anticipated that will help reduce the road maintenance gap (see projections of highway spending in Annex IV-1).
- 4.8 The increase planned under the new program (another US\$5 million each year over the REMECAR program 10/) is feasible when one considers that: (i) the government has raised the priority of road maintenance as a public expenditure; (ii) the amount spent on maintaining paved roads, not included in other programs since they dealt exclusively with unpaved rural roads, is counted as part of the local contribution; and (iii) the government anticipates additional grants in future that could be used to cover highway maintenance costs. These considerations were factored into the design of this program. Alternative maintenance financing mechanisms also are to be devised and implemented.
- 4.9 Based on the financial projections of the MCT's road costs, plans are that by the end of 1999 approximately US\$7 million from the road fund and US\$12 million from the local contribution would be invested in maintenance, for a total of US\$19 million as compared to the US\$20 million to US\$25 million needed to maintain the national system properly. While these resources fall short of what is needed to fill the existing gap, the longstanding maintenance deficit would still be dramatically reduced. Moreover, if more cost recovery mechanisms are adopted and a highway concession system is successfully introduced, the problem of road maintenance could be solved in the medium term.

10/ In the MCT's current budget the government has earmarked US\$7 million for maintenance of unpaved roads and US\$2 million for paved roads.

E. Socioeconomic viability

- 4.10 To demonstrate the program's socioeconomic viability, a cost/benefit analysis was done for the rural roads and one collector road to be targeted in the first year of the program. In the case of the collector road, most of the benefits come from the savings in vehicle operating costs, whereas for the rural roads the greatest saving is in the producer surplus generated because the reconditioned roads are passable year-round. The studies for later years will be done while the program is in progress and will be reviewed at the annual monitoring meetings.
- 4.11 For the economic evaluations of the proposed projects, the benefits and costs of each project were established and quantified, by category. In the case of the intercity highway, the calculations were done with the HDM model, while the calculations for the rural road projects were done with the Bank's RRM model. The calculations were done at efficiency prices, applying conversion factors to market prices. The special features and results of these calculations are shown below.
- 4.12 One of the collector roads that would be financed with the Bank's resources - the Santa Emilia-El Tuma-La Dalia road (31.5 km) - was examined closely. The savings in vehicle operating costs represent the bulk of the project's benefits and are sufficient to justify it from the economic standpoint, given the relatively high volume of existing traffic. The traffic count yielded a daily average of 600 vehicles, 50.4% of which are heavy freight vehicles.

| ROAD PROJECT | INVESTMENT ^{a/} | BENEFITS ^{a/} | INTERNAL RATE OF RETURN | COST/ BENEFIT |
|-------------------------------|--------------------------|------------------------|-------------------------|---------------|
| Santa Emilia-El Tuma-La Dalia | 8,375 | 19,583 | 36.8 | 3.06 |

^{a/} In thousands of US\$

- 4.13 Apart from the calculation of basic feasibility, a sensitivity test was done. The ratios showed that the cost/benefit projections are viable even in circumstances less favorable than those assumed for the base case.
- 4.14 While the rural roads can generate some savings in vehicle operating costs, the gains are generally small since traffic is lighter. Therefore, the main benefits are in the form of the "producer surplus" generated by rehabilitated roads that are passable year-round, that help introduce improved production techniques, reduce produce losses, increase the area being farmed

and bring about a shift to better cropping patterns. The feasibility studies on the rural roads, which were done satisfactorily by a consultant hired by the MCT, produced the following findings:

| STRETCH OF ROAD | LENGTH (km) | NET PRESENT VALUE <u>a/</u> | IRR (%) | C/B |
|---------------------------------------|----------------|--------------------------------|------------|------|
| Cuyalí - El Tuma | 34 | 1,495 | 15.5 | 1.14 |
| La Dalia - La Mora - Waslala | 66 | 1,689 | 15.7 | 1.14 |
| La Colonia - Cerro Verde - Santa Rosa | 18 | 875 | 16.5 | 1.17 |
| Telpaneca - Wiwilí | 83 | 1,274 | 25.4 | 1.44 |
| Ciudad Sandino - Murra | 36 | 1,911 | 20.6 | 1.29 |
| La Palma - La Plazuela | 35 | 1,967 | 23.9 | 1.45 |
| Santa Rosa - Comalapa - Camoapa | 36 | 522 | 19.3 | 1.44 |
| El Jobo - Brasilia | 23 | 675 | 16.7 | 1.16 |
| San José de los Remates - Esquipulas | 12 | 759 | 21.4 | 1.40 |

a/ In thousands of US\$

- 4.15 The assessment of the economic benefits might be considered conservative since there are indirect benefits that cannot be quantified, such as incentives to nonfarm activities and better access to social services.

F. Environmental viability

- 4.16 An environmental study will be done for each stretch of road that the program will improve and rehabilitate, in order to determine and evaluate any potential direct and indirect effects that the works could have on the environment. The environmental assessments done for the first year's works found that the improvement and rehabilitation works posed few risks to the environment.
- 4.17 The program plans to institute an environmental protection strategy that will: (i) strengthen the MCT's institutional capacity to handle the environmental dimension of road works from the time the works are designed and planned up through the supervision and environmental monitoring; (ii) include general and specific environmental specifications in the bidding conditions and in the contract, in order to build preventive measures and measures to reduce the environmental impact into the works' design and cost; (iii) prepare studies and carry out related environmental protection activities to address special environmental problems whose solution calls for institutional and financial measures that parallel the execution of the works; and (iv) implement a program to teach the technical staff at all levels in the MCT's and contractors the various aspects of environmental management in the case of road works.
- 4.18 Given the technical and institutional measures planned to prevent and mitigate possible negative environmental effects, this program is considered viable from the environmental standpoint.

G. Impact on poverty

- 4.19 The program qualifies as poverty-targeted for purposes of the Eighth Replenishment mandates as to projects designed to reduce poverty. In 1993, according to the Bank's definition of the poverty line for Nicaragua, 75% of the country's total population was poor. It is likely, based on other studies, that an even higher percentage of the project beneficiaries will be among the ranks of the poor.
- 4.20 A recent sample survey in three major cities found that some 43% of those surveyed were living in absolute poverty and close to 50% of them lived in extreme poverty or were indigent. Other studies paint an even grimmer picture. Poverty is worse in rural areas, which are home to 60% of the poor and 78% of the indigent. Consequently, small farmers in the impact areas of the rural roads can be classified in low-income groups. Most of the program's beneficiaries in these areas fall into that category (small farmers, local carriers), though some benefits would accrue to higher-income groups as well. These latter benefits cannot be quantified.

ROAD MAINTENANCE COSTS AND FINANCING

A. Maintenance costs

- As shown in Table 1 below, maintenance appropriations have been on the decline and have dropped 27% within a three-year period, from US\$11.9 million in 1992 to US\$8.8 million in 1994. Conversely, the outlays for rehabilitation and improvements increased by 60% during the same period. In fiscal years 1993 and 1994, the MCT completed maintenance works totaling US\$7 million, with funds from DANIDA and the Plan Café [Coffee Plan].

| <p>TABLE 1 MAINTENANCE AND REHABILITATION COSTS (in thousands of US\$ equivalent and in km maintained)</p> | | | | |
|--|-------------------|------------------------------|-------------------|-------------------|
| ACTIVITY | 1992 | 1993 | 1994 | 1995 estimate |
| Routine maintenance CERC Companies | 2,112 2,934 km | 977 1,007 km | 490 693 km | 367 582 km |
| Routine maintenance Private Companies | 1,310 674 km | 461 345 km | 143 63 km | |
| Subtotal - Routine maintenance | 3,422 3,608 km | 1,438 1,359 km | 634 755 km | 367 582 km |
| Periodic maintenance CERC Companies | 4,599 2,052 km | 2,079 784 km | 4,828 2,509 km | 4,300 1,198 km |
| Periodic maintenance Private Companies | 3,133 1,380 km | 962 515 km | 3,085 1,535 km | 1,889 529 km |
| Subtotal - Periodic maintenance | 7,732 3,433 km | 3,041 1,299 km | 7,914 4,044 km | 6,190 1,728 km |
| Maintenance - other funds | 816 | 377 | 255 | 689 |
| Total US\$ | 11,970 | 4,856 2,114 ^{1/} | 8,803 | 7,246 |
| Total km | 7,274 km | 2,749 km | 4,872 km | 2,481 km |
| Rehabilitation and improvement US\$ | 15,802 | 16,200 | 25,200 | 23,000 |

^{1/} DANIDA and Plan Café.

B. Current financing of highway maintenance

- Table 2 is a breakdown of the various fiscal revenues associated with the highway subsector and collected by the PARED. There is no explicit policy for direct recovery of investments or spending on highway maintenance. Nationwide users of the road infrastructure pay a number of charges and taxes that go directly into the National Treasury and are then distributed to cover public

spending, including spending on the highway subsector. The main source of revenue is the gasoline and diesel tax, which accounts for more than 90%. While the total revenues will cover the costs at the current maintenance level, they are not sufficient to finance the level of maintenance actually needed.

| <p align="center">TABLE 2 REVENUES FROM HIGHWAY INFRASTRUCTURE USER FEES (in thousands of US\$ equivalent)</p> | | | |
|--|--------|-------|--------|
| CONCEPT | 1992 | 1993 | 1994 |
| Gasoline tax | 4,113 | 3,928 | 3,993 |
| Diesel tax | 1,302 | 864 | 1,092 |
| Vehicle licensing | 23 | 281 | 64 |
| Driver licenses | 55 | 62 | 128 |
| Traffic violations | 34 | 23 | 26 |
| Total revenues | 5,527 | 5,158 | 5,303 |
| Total spent on periodic and routine maintenance | 11,970 | 4,856 | 8,802 |
| Deficit/surplus | -6,443 | 302 | -3,499 |

3. The amounts currently budgeted for maintenance cover approximately 20% of the national system's minimum needs. According to a June 1995 IBRD study on the transportation sector's recovery strategy, between US\$20 million and US\$25 million are needed for adequate routine and periodic maintenance. At the present time, the gasoline and diesel levies bring in about US\$80 million, which generally go toward general uses. Any relationship between those revenues and highway expenditures is coincidental. Given the present budgetary constraints and the need for more maintenance work, an alternative financing mechanism is needed to guarantee that the funds will be there to finance maintenance expenses; the IBRD study suggests that one practical mechanism would be a road maintenance fund, as discussed below.
4. The program under consideration will conduct studies that will be used as the basis for developing effective alternative finance mechanisms. Based on these studies, plans are to implement a Bank-approved plan of action at the start of the program's second year.

C. Alternative funding mechanisms

1. Basic principles

5. Much experience has been acquired internationally in designing appropriate programs that would provide a reliable source of finance, in such institutions as the World Bank (Road Maintenance Initiative), CEPAL and International Road Federation. Clearly, the earmarking of general tax revenues for road expenditures is not the answer; it reduces general government revenues for other purposes, can lead to a serious misallocation of resources, and is not necessarily related to road usage. A viable mechanism which has eventually emerged is: (i) the introduction of explicit road tariffs; and (ii) the deposit of proceeds into a special account or Road Fund, to prevent their being commingled with general tax revenues.
6. A Road Fund is basically a financing mechanism, in which the tariff level is crafted to provide an adequate and stable flow of finance to meet the demand for maintenance. The Fund is typically placed under a Road Board, with representatives of road users and private sector organizations as well as of national and local governments. The effectiveness and sustainability of the Fund much depends on the specific legal and institutional framework under which it operates. It can work successfully if it has: (i) clear objectives; (ii) an independent source of resources mobilized through road tariffs; (iii) effective management of the Road Fund; and (iv) commercial accounting systems and independent audit arrangements.

2. Road tariffs

7. Since the objective is to charge road users explicitly for road operation and maintenance, road tariffs should be clearly recognizable and distinguishable from the indirect taxes that road users also have to pay. The tariff usually comprises primarily: (i) a fuel levy (a user charge) added to pre-existing fuel taxes; (ii) vehicle license fees (a charge for access to the road network); and (iii) to a minor extent, the National Budget. Other sources could include bridge and ferry tolls, weighbridge fees and international transit fees. More than partial reliance on general budget financing typically creates problems. In some countries, fines from overloaded vehicles are transferred into the Road Fund, on the ground that such vehicles have damaged the road pavement. Other taxes – such as value added tax, registration fees, vehicle inspection fees, and driving licenses fees – would not be paid into the Road Fund.
8. The most important charge is the fuel levy, which is a discrete road tariff added to the price of fuel. In Nicaragua's case, for

example, an additional charge of US\$0.10 per gallon on gasoline and diesel would generate another US\$12 million at the 1994 consumption level, and more by the end of the life of the program.

9. The Road Fund would concentrate on routine and periodic maintenance. The Board would review annually a three-year rolling maintenance plan, decide how much is affordable, and determine a tariff level that would reflect the willingness of road users to pay. In putting roads on to a fee-for-service basis, the tariff structure would ensure that each class of vehicle cover its marginal costs, and that all vehicles collectively cover the total cost of operating and maintaining the network. The tariff level would be adjusted periodically to compensate for inflation, currency devaluation, and changes in road maintenance requirements.
10. Revenues assigned to the Road Fund must be collected efficiently, without evasion by users or diversion by government to other public spending programs. It is desirable to assess the fuel levy on the point of final sale to the road user, and it would be the oil companies that collect the fuel levy and deposit the revenues directly into the Road Fund. A less satisfactory system would be its collection by Customs or Finance, deposit into the bank account and subsequent deposit into the Road Fund. In some countries, it has proved best to have all licenses fees, tolls, and international transit fees collected by private contractors and deposited directly into the Road Fund.

3. Institutional considerations

11. It is essential that the Road Fund be managed effectively by an independent Board that includes representatives of the road users. The Board should have clear terms of reference and be insulated from the political process. It can play an important part in winning public support for more spending on road maintenance. It is preferable that: (i) user representative members be nominated by the organization which they represent; (ii) government be represented on the Board, as both a contributor to the Fund and as a representative of non-user beneficiaries of road maintenance activities; (iii) the Board have an independent chairman of stature, elected by the Board; and (iv) the Fund's manager be selected by the Board. It will depend on the particular circumstances of the country whether government representatives form a majority of the Board. It is preferable to separate management of the Road Fund from the agency that manages the road network.
12. When the Fund is used to finance municipal as well as national roads, the allocation of resources can be pre-determined by the Fund's enabling legislation or be determined by the Board. In any event, this needs to be done in a fair and transparent manner in accordance with clear and objective criteria.

4. Financial management systems

13. The Fund's financial management system should be based on commercial principles with double-entry accounting. The system should be computerized to ensure that the accounts are kept up to date. It should also have procedures that ensure commitments do not exceed revenues, and produce regular reports that show income, expenditures and the cost of administering the Fund.
14. Withdrawal procedures must be clear, widely accepted and enforceable. The most satisfactory procedure is where funds are disbursed against tendered contracts adjudicated through the government tender process, after certification that the work has been completed according to specification. When work is done by force account, the Fund should only pay against invoices for completed work after certification that the materials were actually delivered and used to carry out approved road works. Certification should be done by someone who can act in a fiduciary capacity such as a local consultant. It would be undesirable that the Fund: (i) advance money to the road agency and subsequently accept invoices showing how the money was spent; or (ii) pay after submission of invoices related to completed work.
15. The audit of accounts and other financial statements of the Fund should ensure that: (i) all monies attributable to the Fund were received; and (ii) monies disbursed from the Fund were spent on the programs for which they were allocated. The accounts should be audited annually by independent auditors appointed by the Board, with approval of the Auditor General.

TENTATIVE PROCUREMENT PLAN

| PRINCIPAL ACQUISITIONS UNDER THE PROJECT | FINANCING | METHOD | PRE-QUALIFICATION | ESTIMATED PUBLICATION DATE OF SPN |
|--|------------|--------|-------------------|-----------------------------------|
| A. CONSULTING SERVICES | | | | |
| * Study of alternative cost recovery and road maintenance finance mechanisms: US\$200,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Study, legal assistance and training to transfer maintenance services to municipalities: US\$200,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Studies and technical assistance to improve the system for planning maintenance works and their order of priority: US\$200,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Studies for management and implementation of a system to enforce vehicle load and size: US\$200,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Unallocated: US\$200,000 | IDB (100%) | ICB | YES | 96/97 |
| * Technical assistance, Environment Unit: US\$120,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Training, Environment Unit: US\$90,000 | IDB (100%) | LB | YES | 1/II/96 |
| * Environmental impact mitigation and protection plans: US\$260,000 | IDB (100%) | ICB | YES | 1/II/96 |
| * Environmental audit and monitoring: US\$130,000 | IDB (100%) | LB | YES | 1/II/96 |
| B. EQUIPMENT | | | | |
| B.1 Environment Unit | | | | |
| * 2 4x4 jeeps + spare parts. Total: US\$60,000 | IDB (100%) | LB | NO | 5/II/96 |
| * Computer equipment, modem, facsimile, software: US\$15,000 | IDB (100%) | LB | NO | 5/II/96 |
| * Radio communication equipment for vehicles, telephone switchboard: US\$8,000 | IDB (100%) | LB | NO | 5/II/96 |
| * Field work equipment and office accessories: US\$12,000 | IDB (100%) | LB | NO | 5/II/96 |

| PRINCIPAL ACQUISITIONS UNDER THE PROJECT | FINANCING | METHOD | PRE-QUALIFICATION | ESTIMATED PUBLICATION DATE OF SPN |
|---|------------|--------|-------------------|-----------------------------------|
| B.2 Executing unit | | | | |
| 3 double-cab, dual-traction, 4-cylinder 4-wheel-drive diesel vehicles: US\$61,500 | IDB (100%) | LB | NO | I/96 |
| 1 photocopying machine, model 5028: US\$8,625 | IDB (100%) | PC | NO | I/96 |
| 1 500 W electric generator: US\$9,964 | IDB (100%) | PC | NO | I/96 |
| 1 XL microcomputer: US\$3,490 | IDB (100%) | PC | NO | I/96 |
| 1 UPS with built-in stabilizer: US\$299 | IDB (100%) | PC | NO | I/96 |
| 2 software (Spanish): US\$450 and US\$95 | IDB (100%) | PC | NO | I/96 |
| B.3 Support areas (monitoring and control) | | | | |
| 1 facsimile: US\$584 | IDB (100%) | PC | NO | I/II/96 |
| 1 surge protector for fax: US\$30 | IDB (100%) | LB | NO | I/II/96 |
| 5 beepers: US\$1,370 | IDB (100%) | LB | NO | I/II/96 |
| 2 double-cab, 4-wheel-drive, 4-cylinder diesel vehicles: US\$41,000 | IDB (100%) | LB | NO | I/II/96 |
| 6 12-digit calculators, tape and display: US\$930 | IDB (100%) | LB | NO | I/II/96 |
| 5 XL microcomputers: US\$17,450 | IDB (100%) | LB | NO | I/II/96 |
| 5 UPS with built-in stabilizer: US\$1,499.50 | IDB (100%) | LB | NO | I/II/96 |
| B.4 Scales and auxiliary equipment | | | | |
| 14 radio-equipped vehicles (US\$21,000 each) US\$294,000 | IDB (100%) | ICB | YES | I/II/96 |
| 9 mobile weigh scales (US\$27,600 each) and spare parts. Total: US\$322,000 | IDB (100%) | ICB | YES | I/II/96 |
| 4 stationary scales (US\$35,000 each) and spare parts. Total: US\$182,000. | IDB (100%) | ICB | YES | I/II/96 |

| PRINCIPAL ACQUISITIONS UNDER THE PROJECT | FINANCING | METHOD | PRE-QUALIFICATION | ESTIMATED PUBLICATION DATE OF SPN |
|---|------------|--------|-------------------|-----------------------------------|
| C. Works. To begin in the first year: | | | | |
| C.1 Asphalt roads | | | | 1/96 |
| * Santa Emilia - La Dalia (26 km): US\$4.5 million | IDB (100%) | ICB | YES | |
| * La Gateada - Nueva Guinea (65 km): US\$10 million | IDB (100%) | ICB | YES | |
| C.2 Rural roads | | | | 1/96 |
| Lot: 1. Cuyali - El Tuma (34 km) | IDB (100%) | | | |
| 2. La Dalia - Lamora Waslala (66 km) | IDB (100%) | | | |
| 3. La Colonia - Cerro Verde - Santa Rosa (19 km) | IDB (100%) | | | |
| Total: 3 lots (package = 119 km) US\$6 million (*) | IDB (100%) | ICB | YES | |
| Lot: 1. Telpaneca - Quilali - Wiwilí (83 km) | | | | |
| 2. Ciudad Sandino - Murra (36 km) | IDB (100%) | | | |
| Total: 2 lots (package = 119 km): US\$6 million (*) | IDB (100%) | | | |
| La Palma - La Plazuela (35 km): US\$1.7 million | IDB (100%) | ICB | YES | |
| Santa Rosa - Comolapa - Camoapa (24 km): US\$1.2 million | IDB (100%) | ICB | YES | |
| El Jobo - Brasilia (23 km): US\$1.2 million | IDB (100%) | ICB | YES | |
| San José de los Remates - Esquipulas (12 km): US\$0.6 million | IDB (100%) | LB | YES | |
| | IDB (100%) | LB | YES | |
| C.3 Supervision of works: US\$2,000,000 | IDB (100%) | ICB | YES | 1/96 |
| C.4 Construction of weighhouses and installation of scales | | | | |
| 4 packages of US\$50,500 each: US\$202,000 | IDB (100%) | LB | NO | 1/96 |

ICB = International competitive bidding

LB = Local bidding with unrestricted participation of suppliers from other member countries

PC = Price comparison (shopping)

* = Bids can be submitted either for individual lots or for the package.

**PROJECTS FROM THE SAMPLE THAT WILL BE UNDERTAKEN IN THE
PROGRAM'S FIRST YEAR
By bid package**

| PAVED AND RURAL ROADS | LENGTH (km) | COST (US\$ millions) |
|--|----------------|-------------------------|
| Paved roads: | | |
| Santa Emilia - La Dalia | 26 | 4.5 |
| La Gateada - Nueva Guinea | 65 | 10.0 |
| Subtotal: paved roads | 91 | 14.5 |
| Studies to be completed in February 1996 | | |
| Rural roads: | | |
| Cuyalí - El Tuma | 34 | |
| La Dalia - La Mora - Waslala | 66 | |
| La Colonia - Cerro Verde - Santa Rosa | 19 | |
| Package total | 119 | 6.0 |
| Telpaneca - Quilali - Wiwilí | 83 | |
| Ciudad Sandino - Murra | 36 | |
| Package total | 119 | 6.0 |
| La Palma - La Plazuela | 35 | 1.7 |
| Santa Rosa - Comolapa - Camoapa | 24 | 1.2 |
| El Jobo - Brasilia | 23 | 1.2 |
| San José de los Remates - Esquipulas | 12 | 0.6 |
| Subtotal: rural roads | 332 | 16.7 |
| Sample total | 423 | 31.2 |

| PROCUREMENT OF SCALES AND AUXILIARY EQUIPMENT | US\$ |
|--|-----------|
| 14 radio-equipped vehicles (US\$21,000 each) | 294,000 |
| 9 mobile scale units (US\$27,600 each) <u>1/</u> | 248,000 |
| 4 stationary scales (US\$35,000 each) <u>2/</u> | 140,000 |
| Weighhouses | 133,000 |
| Sheds, signs, etc. | 45,000 |
| Mounting and installation | 24,000 |
| Repairs and contingencies | 116,000 |
| Total | 1,000,000 |

1/ This includes six mobile (flatbed) scales for each of the units that will travel the national road system, in particular: Puerto Cabezas, Los Lirios, Siuna, Santa Clara, Esteli, León, Chinandega, Managua-Masaya, Mejapa-Izapa, San Rafael del Sur, Nandaime, Diriamba, Boaco, La Gateada, Matagalpa, La Dalia, Jinotega and San Carlos.

2/ To be installed at Guasaule, Las Manos, Peñas Blancas, Chilamatillo, which will make nine weigh stations with stationary scales.

INSTITUTIONAL ANALYSIS

A. Functions of the Ministry of Construction and Transportation

1. The MCT's functions appear in Decree Law 1-90, which led to the Ministry's creation in April 1990 for the purpose of organizing the State apparatus and making rational use of its resources, in keeping with the government's policies at that time. As for the overland transportation subsector, the MCT is responsible for: (i) planning the development and conservation of the transportation infrastructure, which includes construction and maintenance of highways, rural roads, bridges and terminals; (ii) regulating and controlling transportation activities and operations, and (iii) managing the subsector's public services.
2. Since 1990, the MCT's structure has been changed several times to downsize the State apparatus, give the private sector a larger role and reactivate investments in the transportation sector. It will be reorganized anew as part of the Public Sector Reform Program. Its present organization chart is in the technical files for the project. According to the 1995 General Organizational Handbook currently in effect, the MCT has the following main levels:

| | |
|------------------|--|
| Executive: | Minister, two deputy ministers and one general secretary. |
| Central support: | Legal counsel, internal auditing and public relations, Environment Unit. |
| Direct support: | General divisions of: human resources, administration and finance planning, monitoring and control. |
| Operations: | Departments of: overland transportation, civil aeronautics, waterborne transportation, highways, urban development and public buildings. |
3. At the operations level, the MCT has seven regional representatives nationwide, their basic objectives being to ensure proper enforcement of the standards, regulations, policies, tariffs and other legal provisions relating to the transportation sector and to that part of the construction sector that is under the MCT's jurisdiction.
4. The MCT also has a business and management level consisting of: (i) the Regional Construction Companies Corporation (CERC) attached to the MCT, with legal status, its own assets, and full authority to acquire rights and incur obligations, with the minister serving

as chairman of the board of directors, and (ii) the Instituto Nicaragüense de Estudios Territoriales [Nicaraguan Land Studies Institute] (INETER), a decentralized institution attached to the MCT but having functional autonomy.

B. Dirección General de Vialidad [Highway Department] (DGV)

5. The DGV manages the national road system and consists of the Highways Division, the Road Maintenance Division (DMV), the Administrative and Financial Division and the Program Coordination Unit (PCU). The technical caliber of the staff in these areas is satisfactory.
6. The DMV covers the following areas: maintenance management; highway survey and safety; pavement assessment; enforcement of vehicle load and size; and the roads maintenance executing unit. It has a permanent staff of 42: three executives, 14 professionals, 20 technicians, three clerical and two service staff members. Its job is to plan, let and manage maintenance contracts, but it does not perform the work by force account. The DMV does not use models and standards to plan and carry out highway conservation works and then evaluate their results, nor does it have a current database on the road system to use the available resources to best advantage. These shortcomings will be corrected by the training programs that will teach staff how to plan and use models to prioritize works, a proviso of the institutional restructuring agreement (ARI) financed under this program.

C. Program Coordination Unit

7. The functions of the PCU are to coordinate, with the line offices of the DGV and the MCT in general, all activities needed to ensure that the program's targets and objectives are accomplished and that the requirements and procedures stipulated in the Bank's loan contracts are observed. The PCU is assisted by the MCT's administrative and technical departments and has the following specific functions:
 - a. coordinate everything related to program execution;
 - b. prepare the periodic evaluation and planning reports that the Bank and the cofinancing entities require;
 - c. ensure that the established objectives and targets are achieved and that the requirements and procedures agreed upon with the international organizations are observed;
 - d. keep up-to-date information on the physical and financial status of the program;
 - e. prepare the documents for the program's disbursements;

- f. coordinate preparation of the bidding documents;
 - g. coordinate its activities with the MCT's Environment Unit and with the Ministry of the Environment and Natural Resources (MARENA);
 - h. maintain contacts with other government agencies on matters of concern to the program's execution, and
 - i. ensure that the terms and conditions of the financing are honored.
8. The PCU is staffed as follows: a chief, who is a civil engineer; an assistant engineer; four engineers; two contract managers; one accountant; one systems analyst; one lawyer; one specialist in soil mechanics, and clerical and support personnel.
- D. The MCT's human resources
9. Management of the MCT's staff is the job of the Human Resources Division and is governed by the Labor Code, since the MCT has no internal staff rules. In the last four years, the staffing has evolved as follows:

| MCT STAFFING HISTORY | | | | | | | |
|----------------------|-------|-------|----------|---------|-------|-------|--------|
| YEAR | PROF. | TECH. | CLERICAL | SERVICE | OTHER | TOTAL | CHANGE |
| 1991 | 325 | 75 | 56 | 113 | 59 | 628 | |
| 1992 | 289 | 84 | 76 | 158 | 36 | 643 | 15 |
| 1993 | 292 | 49 | 75 | 188 | 53 | 657 | 14 |
| 1994 | 165 | 209 | 83 | 98 | 72 | 627 | -30 |
| 1995* | 216 | 89 | 85 | 146 | 30 | 566 | -61 |

* As of June 1995

10. In 1994, the Nicaraguan government implemented a job mobility program (PML) using financial incentives to encourage voluntary retirement of government workers. While the program did reduce the number of civil servants, a considerable number of qualified employees was lost. Since the start of the PML, the MCT has 91 fewer staff members. It will continue to reduce staff, this time on a selective basis so as to avoid losing its specialized personnel. The problem of inflated staffing in the public sector is not now typical of the MCT, since with the cuts it has made it is nearing the desired staffing levels.

E. The port and air subsectors

11. Nicaragua's ports have institutional problems because they are not competitive, private sector participation is negligible, and Empresa Nacional de Puertos [National Ports Enterprise] (ENAP) that runs this subsector exercises centralized and heavy-handed control. One of the solutions being considered is to convert the main ports into autonomous agencies or concessions. The financing for the medium-term investments that the ports at Corinto and Rama need will be raised by selling concessions or negotiating multilateral or bilateral resources.
12. The domestic airports need some minor medium-term improvements. The international airport at Managua needs to have a cold storage area installed. The plan is to finance these improvements using domestic revenues or commercial loans. Empresa Administradora de Aeropuertos Internacionales [International Airports Management Enterprise] is considering expansion of the Managua airport, possibly with private sector financing.

F. The planned institutional reorganization of the MCT

13. Under its ARI, the MCT agreed to the following in connection with the road sector: (i) to redefine its short-term mission, including objectives, functions and organization that focus on planning, standardization, regulation and control by subsector and area of competence; (ii) to continue to divest itself of operations and services that can be contracted out to the private sector; and (iii) to balance appropriations more evenly between road and highway construction and maintenance.
14. It was also decided to rationalize human and material resources and the MCT's present structure, as follows: (i) restructure the MCT to better perform its new role as the sector's planning and regulatory agency, with monitoring and supervision functions, eliminating the activities of an action ministry; (ii) strengthen the DGV so that it becomes more efficient in its functions, especially in prioritizing investments; (iii) strengthen the Environment Unit so that it can effectively monitor the environmental impact of works projects; (iv) train the staff of the MCT's various units; (v) strengthen and simplify bidding, contracting, review and payment procedures as part of the sector's modernization; (vi) study and implement maintenance cost recovery mechanisms, and (vii) strengthen the planning department by creating a database with statistics on the transportation sector.

LOGICAL FRAMEWORK OF THE ROAD REHABILITATION AND IMPROVEMENT PROGRAM

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS | IMMEDIATE OBJECTIVE | GOAL |
|--|---|---|--|---|------|
| Advance economic and social development by improving the road infrastructure and strengthening the sector institutionally. | To have achieved a demonstrated increase in: per capita income; resurgence of exports; employment in agroindustry in the areas of the program; basic health coverage for the target population; coverage and access to rural schools. | Review during annual monitoring meetings and the overall midterm review; employment surveys (MEDE); census figures (Banco Central); schools (INEC) and health (MINSA); records of the Cámara de Exportadores (Banco Central). | Continued political and economic stability; continued political support for the highway infrastructure conservation policy; limited migration of families from the rural sector to cities; stable volumes of exports and prices. | Expedite the transport of goods and operations and promote foreign and domestic trade. This will be achieved thanks to the expected reduction in transport costs and efficient maintenance. | |
| | By the end of the program: to have cut operating costs by 25%, demonstrated through the use of analytical tools like the HDM, and to have increased the volume of freight and number of passengers carried among the regions, user satisfaction and national agricultural production. | Review during the annual monitoring meetings and at the overall midterm review. | The government's political commitment to keep up the pace of planned works and set up an ongoing maintenance system. Accessible marketing systems and sufficient credit or other agricultural inputs for farmers. | | |

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS |
|--|--|--|---|
| COMPONENTS Rehabilitation and improvement of the national road system. | By the end of the fourth year, to have rehabilitated approximately 650 km of rural roads, 150 km of collector roads and 150 km of main highways under the program. To have done annual routine and periodic maintenance on 4,500 km of rural roads and 1,400 km of main highways. | Annual monitoring meetings, overall midterm review, PCU reports, semiannual reports from the DGV, and on-site inspections. Progress in the schedule for execution of works. | The cofinancing contributions are made on time and in sufficient amounts and the PCU is left intact in the reorganization of the MCT. |
| Actions and policies to upgrade maintenance of the national network. | By the end of the first year of the program, to have established, with a plan of action, guidelines for the works planning system, the cost recovery mechanism and administrative decentralization, based on consulting studies. By the end of the second year, to have started implementing the Plan of Action; to have the Plan of Action fully underway in the third and fourth years. | Bank approval of the plan of action. Monitoring implementation of the Plan during the annual meetings and at the overall midterm review. | The government supports the plan of action. |
| Specific technical strengthening measures and measures to build up the MCT. | To have implemented the strengthening measures. | Annual monitoring meetings, overall midterm review, and PCU reports. | The MCT plans, operates and maintains the road network efficiently and effectively. |

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS |
|--|--|--|---|
| <p>ACTIVITIES</p> <p>Rehabilitation and improvement of the national road system</p> <p>Financing investments in roads and highways.</p> <p>Designs, tendering and contracting for collector and rural roads.</p> <p>Execution of rehabilitation works and improvement of roads and highways.</p> | <p>To have developed annual investment plans based on general selection criteria.</p> <p>To have completed the designs, the bidding and the contracting.</p> <p>By the end of the first year and in years thereafter, to have completed 60% (km) of the rehabilitation work on rural roads and 50% (km) of the collector road works agreed upon at the start of the year under review.</p> | <p>Approval by the Bank at annual monitoring meetings.</p> <p>Annual monitoring meetings, PCU reports and auditors' reports.</p> <p>Annual monitoring meetings, PCU reports and auditors' reports.</p> | <p>Sufficient supply of goods, equipment, construction firms and contractors for the program's tendering and execution; the bidding and contracting is unchallenged, and the contracting process keeps in step with the timetable of execution.</p> <p>The PCU remains intact and functioning during the MCT's reorganization under the Public Sector Reform Program.</p> |

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|--|--|
| <p>Improved road maintenance</p> <p>mark and spend US\$12 million each on periodic and routine road maintenance.</p> <p>Analysis and implementation of the maintenance works planning system.</p> <p>Analysis and implementation of a maintenance cost recovery system</p> <p>Analysis and implementation of an active vehicle load and size enforcement system.</p> | <p>To have budgeted and disbursed 100% of the estimate.</p> <p>At the end of the first year of the program, to have determined what the planning system will be.</p> <p>By the end of the second year, to have implemented the planning system; in the third and fourth years, to have the system in place and operating.</p> <p>By the end of the first year, to have provided the Bank with the legal framework for a highway maintenance cost recovery system, including provisions to ensure that revenues collected thereby are used exclusively for road maintenance.</p> <p>By the end of the second year, to have demonstrated to the Bank that the system has been instituted and special accounts needed to manage it have been opened.</p> <p>By the end of the third and fourth years, to have demonstrated that the maintenance cost recovery system is operating in satisfactory fashion and that there has been a satisfactory, quantifiable alleviation of road maintenance needs.</p> <p>By the end of the first year, to have defined the system contained in the plan of action.</p> <p>By the end of the second year, to have implemented the system; in the third and fourth years, to have the improved control system in place and operating at the 13 weigh stations planned.</p> | <p>Annual maintenance reports for the life of the program and every year for five years thereafter.</p> <p>Bank approval of the planning system in the plan of action (based on study).</p> <p>Monitoring implementation of the system at the annual meetings and during the overall midterm review.</p> <p>Bank approval of the cost recovery system outlined in the action plan (based on study).</p> <p>Monitoring of the system's implementation during annual meetings and the overall midterm review.</p> <p>Monitoring of the system's implementation during annual meetings and the overall midterm review.</p> <p>Bank approval of the system contained in the plan of action.</p> <p>Monitoring of the system's implementation (see MCT figures) during the annual meetings and at the overall midterm review.</p> | <p>The local financial contribution is made on time and in sufficient amount.</p> <p>Consultants are hired to perform the study.</p> <p>Consultants are hired to perform the study.</p> <p>The legal framework is duly approved.</p> <p>Consultants are retained and work in accordance with the terms of reference.</p> |

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|--|--|---|
| <p>ulation, approval and implemen- n of policies to decentralize road- tenance management. The policies ublished might include:</p> <p>Transfer of rural maintenance to the municipalities.</p> <p>Concessions to operate the most heavily traveled roads.</p> <p>Privatization of CERC businesses.</p> | <p>By the end of the first year of the program, to have decided, based on consulting studies, what the decentralization policy and scheme will be.</p> <p>By the end of the second year, to have initiated the transfer to the municipalities; to have completed 50% by the end of the third year and 100% by the end of the fourth year. By the end of the program, 16 micro enterprises (four each year up to and including the fourth year) should be maintaining an average of 240 km of rural roads.</p> <p>At the end of the first year, based on studies prepared by consultants, to have decided upon a policy and scheme for selling concessions to maintain and operate stretches of road that have traffic potential.</p> <p>At the end of the first year, based on the consulting study, to have decided on a strategy to transfer CERC businesses to the private sector in the near term. By the end of the program, to have reduced the CERC maintenance fleet by 75%.</p> | <p>Based on the studies, Bank approval of the plan of action for decentralizing maintenance management.</p> <p>Monitoring implementation of the plan of action during the annual meetings and at the overall midterm review.</p> <p>Idem</p> <p>Idem</p> | <p>Consultants are retained and work in accordance with the terms of reference.</p> <p>The municipalities are institutionally capable and financially self-sufficient, and the maintenance microentrepreneurs are efficient.</p> <p>Such a system is feasible.</p> <p>Such an approach is feasible.</p> |

| OBJECTIVES | BENCHMARKS | MEANS OF VERIFICATION | ASSUMPTIONS |
|---|---|--|--|
| <p>administrative</p> <p>contracts manager and a prioritize works.</p> <p>services to supervise works.</p> <p>strengthening.</p> | <p>That these technical officers are working.</p> <p>Before bids are invited on Bank-financed works, those services will be retained.</p> <p>Application of measures to reduce harmful environmental effects. Environmental monitoring and auditing. Preparation and implementation of an environmental quality control system and an environmental impact assessment handbook. Institutional strengthening: technical assistance, training, equipment. Consultations with local communities.</p> | <p>PCU reports.</p> <p>Monitoring by the Bank's Country Office in Nicaragua.</p> <p>Review of environmental progress reports at monitoring meetings.</p> | <p>The need for activities to coordinate with other cofinance agencies and the budgetary increase in works that the program will involve are understood and appreciated.</p> |

FINANCIAL ANALYSIS OF THE ROAD SUBSECTOR

A. Financial management

1. The Administration and Finance Division of the MCT is in charge of managing finances. In addition to managing the resources of the central bureau, this division carries the books, prepares the consolidated financial statements and controls finances, which includes preparation and execution of the budget. Through its Financial Office, the Highway Department manages its budget of investments and expenditures directly, which is consolidated with the rest of the divisions in the Administration and Finance Department.
2. Under the institutional restructuring agreement (ARI), one of the horizontal reforms at the central government level included in the Civil Service Reform is to act swiftly to develop an Integrated Financial, Administrative and Auditing Management System (SIGFA) under the direction of MIFIN. This system will involve a uniform code and input for financial transaction data systems, and create an integrated system for the ministries that signed ARIs. It will be an interconnected system for budget control and execution that will give MIFIN daily updates on the status of those ministries' budgets. Once the SIGFA is designed, the MCT will enter the records of the programs financed with external resources, in accordance with the provisions established in their respective contracts. The ARI includes a training and advisory assistance program during implementation of the SIGFA. The program being proposed will help by providing computer equipment that is compatible with that system.

B. Internal auditing

3. The MCT has an internal auditing division that is functionally and administratively under Executive Management. The division has a staff of nine, six of whom are professionals. It operates on the basis of: an adequate manual of auditing procedures; the provisions of the Office of the Comptroller General Act, and special requests made by Management. Because its staff is small its work is behind schedule. It is recommended that at the program's annual monitoring meetings, the internal auditing system be one of the institutional aspects evaluated.

C. Road subsector expenditures and their financing

4. The pattern and structure of the MCT's expenditures for the road subsector are shown below for the period 1991-1994 and May 1995. The major expenditure during that period was maintenance and rehabilitation of highways, roads and bridges (51% of the total)

followed by ports (17%). The MCT is by far the ministry that accounts for the largest share of national public spending, as its investments represent 54.6% of the government's direct investment.

| MCT SPENDING ON THE ROAD SUBSECTOR (in millions of US\$ equivalent) | | | | | |
|--|-------|------|----------------|----------------|-------|
| | 1991 | 1992 | 1993 | 1994 | 1995* |
| Total executed | 42.9 | 40.0 | 52.0 | 41.0 | 8.8 |
| Total current expenses | 18.6 | 9.4 | 10.6 | 3.7 | 0.8 |
| Routine maintenance | 15.0 | 4.8 | 4.2 | 3.7 | 0.8 |
| Other current expenses | 3.6 | 4.6 | 6.4 | - | - |
| Capital outlays | 24.3 | 30.6 | 41.4 <u>1/</u> | 37.3 <u>2/</u> | 8.0 |
| Roads and bridges (rehabilitation, improvement and periodic maintenance) | 17.3 | 21.6 | 17.8 | 32.8 | 7.7 |
| Ports | 12.5 | 3.1 | 11.3 | 3.2 | 0.2 |
| Urban development and buildings | 1.5 | 4.1 | 4.4 | 1.3 | 0.1 |
| Others | 3.0 | 1.5 | 1.6 | - | - |
| Capital transfers | - | 0.3 | 6.0 | - | - |
| MCT investment as a % of the government's direct total investment | 66.4% | 49.3 | 54.6% | n/a | |

* As of May 1995.

1/ Includes 3.6 million for periodic maintenance in grants from DANIDA and FONCAFE.

2/ Includes US\$5.1 million for periodic maintenance in grants from DANIDA and FONCAFE.

D. The program's financial projections

5. To prepare the projections, actual figures for 1994 and the 1995 budgetary appropriation for the road subsector were used. The program amount used was US\$223 million, which represents the global investments in the subsector planned for the 1996-1999 period. That amount was divided into US\$48 million for maintenance (US\$12 million each year), which represents the local counterpart contribution to the program, and US\$175 million in capital outlays for multiple subcategories. Also factored in was a cost recovery mechanism (road fund) that would be implemented starting at the end of the second year and would raise US\$14 million in the 1997-1999 period, all of which will go toward maintenance.

| PROGRAM FINANCIAL PROJECTIONS (in millions of US\$ equivalent) | | | | | | | |
|---|------|------|------|------|------|------|-------|
| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | TOTAL |
| TOTAL EXECUTED | 41.0 | 43.1 | 44.2 | 63.5 | 72.8 | 56.5 | 237.0 |
| Maintenance from road fund | - | - | - | 2.0 | 5.0 | 7.0 | 14.0 |
| Maintenance from MCT budget | 3.7 | 5.2 | 12.0 | 12.0 | 12.0 | 12.0 | 48.0 |
| Capital outlays and engineering, administration, technical assistance and other investment categories | 37.3 | 37.9 | 32.2 | 49.5 | 55.8 | 37.5 | 175.0 |
| Roads and bridges | 32.8 | 33.0 | 32.2 | 49.5 | 55.8 | 37.5 | 175.0 |
| Ports | 3.2 | 3.4 | - | - | - | - | - |
| Urban development and buildings | 1.3 | 1.5 | - | - | - | - | - |

RGII-NI053P-1
NI-0068
Original: Spanish
Appendix I

PROPOSED RESOLUTION

NICARAGUA. LOAN_____/SF-NI. TO THE REPUBLICA DE NICARAGUA
(Road Rehabilitation and Improvement Project)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Nicaragua, for the purpose of granting it a financing to cooperate in the execution of a road rehabilitation and improvement project. Such financing will be for the amount of up to US\$75,000.000, or its equivalent in other currencies, except that of Nicaragua, which are part of the Fund for Special Operations and will be subject to the "Terms and Financial Conditions" and the "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.