

# LOCAL ROAD MAINTENANCE AND REHABILITATION PROGRAM, PHASE II

(DR-0131)

## EXECUTIVE SUMMARY

**BORROWER AND GUARANTOR:** Dominican Republic

**EXECUTING AGENCY:** Department of Public Works and Communications  
[Secretaría de Estado de Obras Públicas y Comunicaciones] (SEOPC)

**AMOUNT AND SOURCE:** IDB: US\$48 million (OC)  
Local counterpart funding: US\$12 million  
Total: US\$60 million

**FINANCIAL TERMS AND CONDITIONS:** Amortization period: 25 years  
Disbursement period: 4 years  
Interest rate: variable  
Inspection and supervision: 1%  
Credit fee: 0.75%  
Currency: U.S. dollars, Single Currency Facility

**OBJECTIVES:** The program's overall goal is to ensure the sustainability of local road maintenance. Its specific objectives are to: (i) consolidate modernization of the institution responsible for the local roads system; (ii) promote new implementation arrangements, including increased community participation; (iii) help devise new alternative ways to ensure steady, permanent funding of maintenance plans; and (iv) help fund a portion of the annual investment plans for rehabilitation and maintenance of local roads and bridges.

**DESCRIPTION:** The proposed program will last four years. Construction work will be carried out by stages, using the time-slice method. The program will finance annual investments in rehabilitation and maintenance of local roads and bridges in the system of main roads; periodic and routine maintenance of local roads in the system of main and secondary roads, employing novel forms of community participation such as local roadmenders and microenterprises; and technical assistance and institutional strengthening to support the rehabilitation and maintenance of local roads and bridges.

To ensure a permanent source of funding for maintenance of local roads, a plan of action has been worked out with the borrower and executing agency to institutionalize a system introduced with the loan now being executed whereby annual budgetary appropriations will be earmarked for local road maintenance, and to establish a sustainable financing mechanism for these activities. As part of this plan of action, the executing agency will commit to road-rehabilitation and maintenance targets that will be financed with the SEOPC's own resources for the program's duration, and take measures to ensure that by program's end, a mechanism will be in place to assure funding to maintain the local roads system.

**ENVIRONMENTAL AND  
SOCIAL REVIEW:**

The principal recommendations of the environmental and social impact report (ESIR) for the proposed program appear in chapter III, section H, and in chapter IV, section D. Among the special conditions for the program will be that, before disbursements may begin, the program coordination unit (PCU) must have been strengthened by adding two experts, one in environmental issues and the other in social issues, and appointing counterpart support staff for those officers. In addition, the consulting services required to strengthen management of the environmental and social elements of the component for the SEOPC's institutional strengthening are to begin in year 1 of the program.

**BENEFITS:**

The proposed program will help raise the standard of living in rural communities and lower the cost of agricultural production by making markets and basic social and economic infrastructure services accessible year-round.

**RISKS:**

The chief impediments to adequate and sustainable maintenance of the country's local road system have been the absence of an organization with the requisite operating capacity, and uncertainty as to the timely availability of funds. By way of the proposed action plan for maintenance sustainability, this operation will increase physical maintenance targets annually by contracting work out to the private sector, and bring in institutional changes such that, by the end of the program, an autonomous organization will be in place with assured sources of funding.

**THE PROJECT'S ROLE  
IN THE BANK'S  
COUNTRY AND SECTOR  
STRATEGY:**

This program is consistent with both the country's and the Bank's strategy. Stronger and more modern State road and highway agencies, greater private sector participation in the transportation sector, and development and reconditioning of production routes are parts of interrelated policies to boost economic activity in rural areas, reduce the fiscal burden, and make public spending in the sector more efficient.

**PROCUREMENT OF  
GOODS AND  
SERVICES:**

With the exception of the works specified in the following paragraph, standard Bank procedures will be followed for contracts for the program's construction work, procurement and consulting. International competitive bidding will be required for purchases of goods valued at the equivalent of US\$300,000 or more and construction contracts worth US\$3,000,000 equivalent or more. International calls for proposals will also be required for consulting contracts valued at over US\$200,000 equivalent. Construction contracts, purchases of goods, and services contracts involving lesser amounts will be arranged according to the procedures stipulated in paragraph 3.9 of this document.

**EXCEPTIONS TO  
BANK POLICY:**

In the case of works done by local roadmenders or microenterprises under contracts of US\$50,000 equivalent or less, financed with an aggregate of up to US\$5,000,000 from the proposed loan, an exception is recommended to exempt them from standard Bank-required bidding procedures. The procedure used for such works would be agreed upon by the borrower and the Bank, based on proposals from the consultants to be hired as part of the plan of action for maintenance sustainability (paragraphs 2.9 and 3.9 of this document).

To provide for flexibility in hiring staff for the PCU it is being recommended (paragraph 2.5 of the proposal) that, if necessary, such contracting be exempted from the Bank's standard procedures for consulting services.

**POVERTY TARGETING  
AND SOCIAL  
CRITERIA:**

By the criteria stipulated in the document of the Eighth Replenishment (AB-1704, paragraph 3.18), the proposed program does not qualify as a poverty-targeted investment.

**SPECIAL  
CONTRACTUAL  
CONDITIONS:**

**A. Conditions precedent to the first disbursement**

Prior to the first disbursement, two experts must have been added to the PCU to strengthen that

unit, one of them an environmental specialist and the other a specialist in social issues, and counterpart staff must have been appointed to support these officers' work.

**B. Other special contractual conditions**

- a. The selection criteria used for projects carried out in the program's first year and for similar projects carried out in the years that follow are explained in paragraphs 3.6 and 3.7.
- b. The program will include: a midterm review meeting (paragraphs 3.11 and 3.12); an annual supervision meeting; and annual maintenance reports (paragraph 3.14).
- c. Contracts for road design, construction and maintenance are to stipulate the environmental specifications agreed upon for this program.
- d. Before the contracts for program-related works are awarded, it must be shown that consulting services have been hired to supervise those works.
- e. The consulting services required to strengthen the SEOPC for implementation of the plan of action for maintenance sustainability and for the environmental and social management that are part of the General Maintenance Directorate institution-strengthening component are to begin in the program's first year (paragraphs 2.8 and 3.22).
- f. The borrower will pledge to take the necessary action to achieve the targets set out in the plan of action for maintenance sustainability.

In addition to the conditions precedent to the first disbursement that the Bank routinely requires, the contract will contain other standard Bank clauses for operations of this type and conditions on auditing, reports, periodic meetings, inspections, maintenance, procurement of goods, performance of works and contracting of consulting services.

## I. FRAME OF REFERENCE

### A. Introduction

- 1.1 As the government department in charge of designing, building and maintaining roads in the Dominican Republic, and with cooperation from multilateral agencies, in the last 20 years the Department of Public Works and Communications [Secretaría de Estado de Obras Públicas y Comunicaciones] (SEOPC) has carried out major investment projects to improve the infrastructure of highways and local roads and to strengthen those agencies and institutions directly involved in the management and control of the highway and road system. Particular attention has been devoted to building institutional capacity for maintaining highways and local roads.
- 1.2 This program is a continuation of the Bank's support for modernization of the SEOPC as the State institution that plans and administers local road maintenance. It will also help finance a portion of the investments required to rehabilitate and maintain that system in the period 1999/2002. The program would build upon the efforts made in the first phase (loan 894/SF-DR), which has helped re-establish and institutionally strengthen the organization in charge of maintaining local roads, and provided support to ensure that more and more resources would be spent to maintain local roads.
- 1.3 Using a time-slice approach, this program will help rehabilitate some 400 km and maintain some 4,000 km of local roads; it will also help preserve 1,000 meters of bridges in the local road system. The following measures will be taken to correct continuing problems in that subsector:
  - a. The process instituted with the operation already in progress and intended to give the maintenance of local roads the importance it deserves, will be consolidated by establishing plans of action to maintain increasingly larger portions of the local roads system and to get the private sector and communities more involved in carrying out these works. By program's end, a sustainable mechanism will have been instituted to finance these activities.
  - b. Support will be furnished for new arrangements for maintaining the system of secondary local roads. Those methods will increase community involvement in the form of microenterprises and local roadmenders; in other words, micro-businesses or individuals who live in the vicinity of the roadwork will be hired for activities that are labor intensive and can be done with inexpensive tools.
  - c. By means of consulting services, training and equipment the program will continue to build up the institution in local roads maintenance planning and management. Also, the inventory of maintainable local roads will be completed and the use of

the system will be consolidated with the equipment and training supplied.

B. The macroeconomic backdrop and the road system

1. The macroeconomic backdrop

- 1.4 Since 1990, the Dominican authorities have gone to great lengths to stabilize the economy, by strengthening public finances, keeping the expansion of credit and indiscriminate salary and wage increases in check, reducing exchange, financial and price distortions, opening up the economy and normalizing the country's financial relations with its external creditors. The present administration has kept up the stabilization effort through measures aimed at consolidating macroeconomic stability. Those measures include adoption of a balanced budget rule and better coordination of fiscal and monetary policies.
- 1.5 The general objectives of the government's economic and social strategies are to reduce poverty and promote sustained and broad-based economic growth. Accordingly, some of the government's priorities are development of the agricultural sector, access to tourism promotion centers and export promotion, to which end it plans to mitigate those factors that could impede these development activities. Because one such factor is the poor condition of the country's roads, the government has decided to make maintenance and improvement of highways and local roads one of its priorities, as those roadways are the country's principal domestic transport infrastructure.

2. The transportation sector

- 1.6 The Dominican Republic's transportation infrastructure is relatively dense for its 48,442 km<sup>2</sup> and its population of 7.5 million, and is, overall, satisfactory in terms of both scope and access. The infrastructure consists of some 18,900 km of highways and roads: of these 4,900 are highways; the remaining 14,000 km are local roads. The transportation infrastructure also has some 1,700 km of railroads (mainly to transport sugarcane); 15 ports (three of them major ports), and 44 airports and landing strips (seven international airports).
- 1.7 Highway and local road transit is the predominant mode of transporting goods and people within the country. Some 95% of highway transportation is run by the private sector and consists of approximately 500,000 units (trucks, buses, cars, etc.). Maritime and air transportation are the primary modes of international carriage of freight and passengers, respectively. Some 97% of international freight is shipped by sea, and the remaining 3% by air.

### 3. Policy for the highway and road sector

- 1.8 The government's strategies and policies for the road sector have been incorporated into the roads programs currently in progress with the Bank (894/SF-DR) and the World Bank (4127-DO) and have the following objectives: help increase private sector participation in investments, infrastructure maintenance and services; modernize and rehabilitate the infrastructure that has deteriorated and keep its service level high; make the agencies and institutions in the sector more efficient at using their financial and human resources; institutionally strengthen the SEOPC to make it better at directing and operating road services and at procurement; promote the involvement of the community and users and incorporate their input into the sector's planning, design and operation; and ensure environmental protection and mitigate negative environmental impacts.

### 4. The local roads problem

- 1.9 While there are 14,000 km of roadway in the entire local road system, the basic network consists of the 8,000 km that are serviceable year-round and therefore require continuous maintenance. This basic system is made up of 6,000 km of main roads, i.e., roads that connect directly to the highway system, and another 2,000 km of secondary roads that feed into the system of main local roads. The other 6,000 km of the local roads system are passable only in certain seasons, or are trails and dirt roads that have minimal drainage and earthfill and require occasional maintenance. Estimates are that the system's total length is sufficient to cover the overall passenger and shipping demand in the medium term. However, a certain percentage of the roads do require some maintenance and/or rehabilitation to raise their level of service. Table I-1 on the present status of the basic local roads system shows that 44% are presently in bad condition.

Table I-1 Condition of the local roads system (km)				
	Good	Fair	Poor	Total
Main roads in the system	1,500	2,000	2,500	6,000
Secondary roads	500	500	1,000	2,000
<b>Subtotal, basic system</b>	<b>2,000</b>	<b>2,500</b>	<b>3,500</b>	<b>8,000</b>
Roads passable seasonally and trails	400	600	5,000	6,000
<b>Total</b>	<b>2,400</b>	<b>3,100</b>	<b>8,500</b>	<b>14,000</b>

- 1.10 Although the operation now under way has helped to improve local road maintenance planning and management, two basic problems have

yet to be corrected: (i) achieving a full maintenance-planning capability, and (ii) assuring sufficient funds for maintenance. These problems have to be solved before roads that are now in good or fair condition are destroyed and to improve roads that are now in poor condition. From the technical standpoint, with no up-to-date inventory of the condition of the roads in the system and no maintenance planning, the only roads maintained are those that win the attention of officials with decision-making authority. From the financial standpoint, the scant resources appropriated for maintenance go mainly toward highways, with the result that local roads are inadequately maintained. Indeed, virtually no maintenance work is done on secondary local roads.

C. Institutional setting and funding situation

1. Road maintenance agency

- 1.11 Where the institutional structure is concerned, on paper the SEOPC administers the entire transportation sector, although in practice its activities are confined to the road and highway subsector (planning and execution of designs, construction, rehabilitation and maintenance, posting of traffic signals and signs, and issuance of driver's licenses). Development and maintenance of the national highway and road system, local roads included, is the job of SEOPC's General Maintenance Directorate (DGM). The Internal Audit Office (OAI), the External Resources Management Office (DARE) and the SEOPC's Budget Department also have a hand in planning, managing and carrying out local road rehabilitation and maintenance.
- 1.12 For the last three years the DGM has been on the receiving end of technical assistance services to enable it to better manage and control maintenance of local roads (Bank loan 894/SF-DR) and highways (World Bank loan 3350-DO). Proceeds from loan 894/SF-DR are being used for rehabilitation and maintenance of local roads and institution-strengthening technical assistance activities such as: (i) development and implementation of the local roads maintenance management system (SAMCV); (ii) strengthening of the financial areas involved in the local roads projects (DARE, OAI and the SEOPC Budget Department), and (iii) creation of the program coordination unit (PCU) and advisory services to it.
- 1.13 Although progress has been made in the first phase, a number of constraints are preventing the modernization process from solidifying. With the technical assistance provided under loan 894/SF-DR, an inventory was done of 6,000 km (of a total of 8,000 km) in the basic system of local roads in order to include them in the SAMCV. With the loan proposed herein, the inventory will be updated to add the remaining 2,000 km of local roads in the basic system. The institutional strengthening was for the OAI, DARE, and certain areas of the central offices of the Local Roads Section of the SEOPC's DGM; under the new operation, the Planning Unit will be strengthened and the SAMCV expanded nationwide to the

districts and sectional roadwork units. The abandoned state of many local roads in the secondary system points up the need to get communities more involved in maintaining these types of roads, which is why the proposed program will devise new methods for getting the maintenance work done.

- 1.14 Finally, the flow of budgetary resources has to be consolidated, to be sufficient and available when needed. A better system has to be instituted for reporting and analyzing data on disbursements by line item of expenditures on local road maintenance work.

## 2. Maintenance funding

- 1.15 In the last four years, the government has spent a considerable amount of public funds on building and improving highways; however, only a small portion has gone toward maintenance. Although relatively little has been spent on building new local roads, considerable effort has gone into rehabilitation and improvements. Still, the resources spent on routine and periodic maintenance of local roads have fallen well short of the amount needed to maintain a system of 14,000 km (seasonal roads included).
- 1.16 The strategy for building, rehabilitating and maintaining highways and local roads is evident from the spread of spending and funding shown in Table I-2. Local roads received only 21% of the resources available in the 1994-1998 period; on average, 10% of that amount went toward maintaining those roads.
- 1.17 An analysis of how outlays on the roads subsector are funded shows that the government relies almost entirely on its own resources, especially in the case of highway construction and improvements, and uses external financing primarily for rehabilitation and maintenance of both highways and local roads. The government funding for highway construction is not from appropriations in the SEOPC's budget, but from line item 1401 in the national budget. This item 1401 is a fund into which unspent funds in the budgets of public agencies are deposited and then, over the course of the budgetary year, are allocated toward whatever the Executive Branch considers to be the priority outlays. The SEOPC is not expecting to receive any 1401 Fund monies in 1998 and is operating on the basis of its assigned budget.

<b>Table I-2</b> <b>Spending and financing in the road subsector (1994-1998)</b> <b>(in millions of US\$)</b>					
	1994	1995	1996	1997	1998e
<b>Construction</b>	<b>56.0</b>	<b>139.9</b>	<b>60.2</b>	<b>68.6</b>	<b>57.5</b>
Highways	47.5	134.2	53.9	61.9	50.6
Local roads	8.5	5.7	6.3	6.7	6.9
<b>Rehabilitation and improvement</b>	<b>97.2</b>	<b>69.2</b>	<b>109.2</b>	<b>116.1</b>	<b>104.7</b>
Highways	71.9	49.2	80.9	86.9	70.3
Local roads	25.3	20.0	28.3	29.2	34.4
<b>Maintenance</b>	<b>9.0</b>	<b>8.7</b>	<b>10.5</b>	<b>11.1</b>	<b>12.0</b>
Highways	5.9	5.6	7.1	7.3	7.5
Local roads	3.1	3.1	3.4	3.8	4.5
<b>Total spending</b>	<b>162.2</b>	<b>217.8</b>	<b>179.9</b>	<b>195.8</b>	<b>174.2</b>
<b>External resources</b>	<b>19.7</b>	<b>25.1</b>	<b>20.6</b>	<b>18.2</b>	<b>31.3</b>
IDB	3.6	4.5	4.6	4.5	17.3
IBRD	16.1	20.6	16.0	13.7	14.0
<b>Internal resources</b>	<b>142.5</b>	<b>192.7</b>	<b>159.3</b>	<b>177.6</b>	<b>142.9</b>
SEOPC budget	29.2	32.7	32.5	34.3	127.9
1401 Fund monies	105.2	150.4	114.1	121.3	0.0
IDB/IBRD counterparts	8.1	9.6	12.7	22.0	15.0
<b>Total financing</b>	<b>162.2</b>	<b>217.8</b>	<b>179.9</b>	<b>195.8</b>	<b>174.2</b>

- 1.18 Table I-3 shows the projected funds that the road system's construction and maintenance programs for the period 1999-2002 will require. These figures take into account the scheduled disbursements from the present operation, from the World Bank loan for highways now being executed, the outlays still pending from the Duarte Highway - construction of which was completed in 1998, the start of construction and expansion of the Autopista Las Américas and other highways under study, and the local roads' maintenance timetable under the plan of action for maintenance sustainability (Annex II-2).

<b>Table I-3</b> <b>PROJECTED EXPENDITURES AND FINANCING OF THE ROAD SUBSECTOR (1999-2002)</b> <b>(in millions of US\$)</b>				
	1999	2000	2001	2002
<b>Construction</b>	<b>57.7</b>	<b>42.3</b>	<b>44.9</b>	<b>44.4</b>
Highways	46.9	30.9	32.8	31.9
Local roads	10.8	11.4	12.1	12.5
<b>Rehabilitation and improvement</b>	<b>88.3</b>	<b>100.9</b>	<b>108.7</b>	<b>101.7</b>
Highways	55.9	67.1	73.1	65.3
Local roads	32.4	33.8	35.6	36.4
<b>Maintenance</b>	<b>45.9</b>	<b>51.7</b>	<b>56.6</b>	<b>53.2</b>
Highways	19.7	21.8	24.0	18.5
Local roads	10.7	12.2	14.8	18.1
<b>Total spending</b>	<b>176.4</b>	<b>177.2</b>	<b>192.3</b>	<b>182.7</b>
<b>External resources</b>	<b>32.8</b>	<b>34.6</b>	<b>35.3</b>	<b>13.1</b>
IDB	10.2	12.0	12.7	13.1
IBRD/Nordic Fund	22.6	22.6	22.6	0.0
<b>Internal resources</b>	<b>143.6</b>	<b>142.6</b>	<b>157.0</b>	<b>169.6</b>
SEOPC budget	128.3	127.3	141.6	166.6
1401 Fund monies	0.0	0.0	0.0	0.0
IDB/IBRD counterparts	15.3	15.3	15.4	3.0
<b>Total financing</b>	<b>176.4</b>	<b>177.2</b>	<b>192.3</b>	<b>182.7</b>

- 1.19 The projected figures in Table I-3 indicate a major shift in the SEOPC's strategy for apportioning funding among road construction, rehabilitation and maintenance. With the 1998 completion of the Duarte Highway, construction of which began in 1994 and cost US\$400 million, spending on highway construction will go down, whereas appropriations for maintenance will increase. As of 1999, sufficient resources will be allocated for a maintenance program whose goal will be to service 75% of the basic local roads system by the year 2002. On average, US\$14 million will be allocated each year, 70% of which will be government funds; the remainder will come from the IDB loan.

D. Consistency with the country's strategy, the Bank's strategy and other programs under way

- 1.20 This program is in line with the country's strategy and the Bank's strategy (document GN-1958). Improving and modernizing the State's institutional strength in the road and highway sector, promoting

private sector participation in the transportation sector, and developing and rehabilitating production routes are mutually reinforcing facets of a policy to promote economic activity in rural areas, reduce the fiscal burden and make public spending in the sector more efficient.

- 1.21 Under loan 894/SF-DR, the Bank is helping the SEOPC to carry out a local roads rehabilitation and maintenance program for the period 1994-1998. Thanks to the program, a pilot plan has been developed and will be completed during the life of the program, whereby maintenance work, instead of being done directly by the SEOPC, will be contracted out to the private sector. The program has made satisfactory progress. After a considerable delay in the first two years, due mainly to a lack of funds that was eventually corrected in 1997, the SEOPC has speeded up the pace of the program. By May 1998, 54% of the loan had been disbursed; according to estimates, all loan proceeds will have been committed by October of this year.
- 1.22 At the present time, the World Bank is financing the Sixth Highway Rehabilitation and Maintenance Project, which involves rehabilitation of paved highways and contract maintenance work. Under this project, a study done to create a mechanism to assure funding for road maintenance included a draft of the legal instruments needed to introduce the necessary institutional changes and ensure that they are in force for highway maintenance work in the year 2001.

## II. THE PROGRAM

### A. Objectives

- 2.1 The program's overall goal is to ensure sustained maintenance of the local roads system, while its specific goals are to: (i) consolidate modernization of the institution in charge of the local roads system; (ii) cultivate new maintenance systems, including greater community involvement; (iii) help develop new ways to ensure steady, permanent funding of maintenance plans; and (iv) finance a portion of the annual investment plans for rehabilitation and maintenance of local roads and bridges.
- 2.2 The program's logical framework has been prepared as a tool for its evaluation and monitoring. It shows which indicators will be evaluated for the program's main purpose, goals, and activities and their means of verification, the assumptions used or concrete outputs the program expects to achieve. The logical framework appears in Annex II-1.

### B. Description of the components

- 2.3 The proposed program will last four years and will be carried out by the "time-slice" method. It will draw upon the lessons learned with the operation now being executed and is premised upon the sizeable investment that maintenance costs represent. The program's three basic components are described below:
1. Rehabilitation and maintenance of local roads
- 2.4 This first component represents the investments, direct costs, engineering and administration required for the following:
- a. Contract rehabilitation work on approximately 400 km of local roads in the main system, not located in environmentally protected areas.
  - b. Contract periodic and routine maintenance work on 500 km of local roads each year in the main and secondary systems, for a four-year period.
  - c. Routine maintenance of local roads by the local roadmender and microenterprise method: approximately 200 km the first year and 600 km every year for the next three years.
  - d. Contract maintenance work on approximately 1,000 meters of bridges in the main system of local roads in the program.
- 2.5 The engineering and administration costs directly associated with this component are listed under cost item 1 of the program and include the following:

- a. Advisory services for program management and preparation of the technical, economic and environmental studies required for the rehabilitation and maintenance of local roads and bridges under the operation. While the program was being put together, economic, environmental and engineering studies were done for the projects in the program's first year; the studies for the other roads and bridges covered under the program have yet to be completed.
- b. Construction supervision and financial auditing of the program. Construction supervision means seeing that the road and bridge rehabilitation and maintenance work done is technically, financially and environmentally correct. The financial auditing of the program is to be done annually by independent firms.
- c. Support to the program's PCU to make it as efficient and effective as possible at coordinating and tracking work under all components. This means it must be staffed with qualified personnel and its continuity assured. Once the new program begins, a decision will be made as to whether the PCU staff will be the people presently performing these services for loan 894/SF-DR, whereupon they would be hired directly by the executing agency using funds from the new operation, or whether the staff will be engaged following the Bank's procedures for consultant hiring.

2. Institutional strengthening of the DGM

- 2.6 This component will finance consulting and technical assistance services associated with the institutional strengthening of the DGM and of the other units involved in local road maintenance. The costs have been included under item 3 as program-related associated costs. The technical files contain the terms of reference prepared for the various consulting services.
- a. Advisory services to complete the inventory of the local roads system, including follow-up and monitoring of the revised SAMCV; the purpose here is to have a complete and up-to-date database on the local roads system. Under this component, new social and environmental criteria will be introduced and staff will be trained in how to use the SAMCV.
  - b. A staff training program that will also include equipment procurement in order to build up the Planning Unit in the DGM's local road section and the PCU; it will also be for the sectional roadwork units and districts, to make certain they have an organization equipped to conduct the activities involved in planning, programming, supervising and monitoring local road maintenance. Specialists in various areas will be helping to train the unit's staff. And as training alone will not suffice, staff will be given adequate equipment (vehicles, communications, computers, etc.).

- c. A program to improve the follow-up and monitoring of the program's environmental and social component. A new technical unit will be created within the PCU to coordinate this component. With this specialized technical assistance, the PCU will be better equipped to prepare environmental and social impact evaluations on the roads targeted in the subsequent years of the program, and to build the findings of these evaluations into the designs, specifications and bidding documents for the construction work. SEOPC contractors, supervisors and staff will be trained and an environmental handbook will be put together on how to design and implement local roads rehabilitation and maintenance projects. A campaign will be conducted to involve and train communities. This entity could grow should the government initiatives in environmental management so require.

3. Plan of action for maintenance sustainability

- 2.7 To ensure the financial sustainability of local roads maintenance, a plan of action (Annex II-2) has been agreed upon with the borrower and executing agency so as to institutionalize the practice introduced with the operation now in progress, i.e., including appropriations for local roads maintenance in the annual budget, and to create a sustainable means of financing these activities. The action plan has two core components, whereby SEOPC will undertake to: (i) increase physical maintenance targets each year (see Table II-1), under contractual arrangements with the private sector; and (ii) bring in the institutional changes needed so as to have in place, when the program ends, an organization with reliable sources of financing.

<b>TABLE II-1</b> <b>Plan of action for maintenance sustainability</b> <b>Physical maintenance targets for the local roads system</b> <b>(km)</b>				
	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
IDB, by contract	700	1,100	1,100	1,100
SEOPC, by contract	200	500	1,200	1,900
<b>Subtotal, by contract</b>	<b>900</b>	<b>1,600</b>	<b>2,300</b>	<b>3,000</b>
SEOPC, by force account	3,000	3,000	3,000	3,000
<b>Total</b>	<b>3,900</b>	<b>4,600</b>	<b>5,300</b>	<b>6,000</b>

- 2.8 The program will support the institutional activities summarized in Table II-2, which are part of the plan of action for maintenance sustainability. These activities are geared to ensuring that by program's end, a sustainable mechanism will have been established to maintain the local roads system and will involve effective community participation.

<b>TABLE II-2</b> <b>Plan of action for maintenance sustainability</b> <b>institutional measures</b>	
<b>Description of the action/activity</b>	<b>Targets</b>
Definition of a sustainable mechanism for maintaining local roads.	Contract a firm to study financing alternatives; conduct a diagnostic study of the present situation of contractors; analyze the organization that is to be in charge of maintenance; propose legal instruments; and provide advisory assistance with seminars and workshops <b>(April 1999)</b>
	Seminars and workshops with community groups, users, government representatives and others to win support for devising stable maintenance financing mechanisms <b>(July and November 1999)</b>
Definition and implementation of pilot programs that use local roadmenders and microenterprises.	Contracting of consulting firm <b>(April 1999)</b>
	Standards and regulations <b>(July 1999)</b>
	Pilot projects <b>(second half of 1999)</b>
	Advisory support for work on 2,000 km <b>(1999 to 2002)</b>
Approval and implementation of a new institutional arrangement and technical assistance for it.	Approval of a bill or other legal mechanism decided upon <b>(December 2000)</b>
	Operating manuals; training and logistical support; hiring of consulting firms <b>(2001 and 2002)</b>

2.9 The first phase will be in 1999 and include the following:

- a. Seminars/workshops and consulting services to help craft and introduce a sustainable financing mechanism that makes efficient conservation of the local roads system possible. Support will be provided for measures to build a consensus around the need for a permanent and sustainable maintenance funding mechanism and to help the country find the most suitable model (a highway fund like the one proposed in the bill drafted with World Bank support or some other institutional mechanism). Activities will be introduced to disseminate and discuss economic and financial issues, experiences in other countries and the role that communities and users can play in supervising these activities, as the support of these groups is crucial to securing more funding for maintenance work. Also, alternative ways of financing local road maintenance work will be studied and an analysis done of the organization that should oversee maintenance.
- b. Consulting services to find suitable mechanisms for routine maintenance of main and secondary local roads using roadmenders and microenterprises. One goal of the program is to get the community involved in road maintenance and enable people in the

community to earn the income that road maintenance work generates. To avoid any problems with the program, a phase has been planned during which, with the help of a firm or specialists in the subject, all the measures and activities that might satisfactorily achieve the proposed goals will be thought through. With the consulting services assisting, pilot areas will be selected to try out the recommended solutions.

- 2.10 The program's second phase will furnish support to the authorities to win approval of the needed legal instruments and craft the institutional arrangements (a bill or some other legal mechanism); support will also be provided to implement and assist the new organization. These activities would be carried out over the three remaining years of the program and would be closely coordinated, as applicable, with those taken under highways program 4127-D0, financed by the World Bank.

C. Cost and financing

- 2.11 The project's total cost is estimated at the equivalent of US\$60 million, which includes the engineering and administration costs, direct costs, associated costs, contingencies, escalation and financial costs. The total cost and financing appear in Table II-3. More cost-related details are available in the technical files for the program.
- 2.12 The total cost would be financed as follows: (i) US\$48 million from the Bank's ordinary capital resources, which would go toward a portion of the direct and associated costs, a portion of the contingencies and escalation, and all interest during construction; and (ii) US\$12 million from the borrower's own resources, to cover the balance of the cost of items being partially financed with Bank loan proceeds as well as all administration costs, overheads, rights-of-way and the credit fee charged by the Bank.

<b>TABLE II-3</b> <b>Cost estimate and financing plan</b> <b>(in US\$ million equivalent)</b>				
Cost Item	IDB	Local counterpart	Total	%
		SEOPC		
<b>1. Engineering and administration</b>	<b>6.2</b>	<b>1.8</b>	<b>8.0</b>	<b>4.7</b>
1.1 Advisory services, engineering and studies	2.9	1.0	3.9	2.3
1.2 Construction supervision and audits	2.8	0.8	3.6	2.1
1.3 Management support (PCU)	0.5	0.0	0.5	0.3
<b>2. Direct costs</b>	<b>28.2</b>	<b>7.7</b>	<b>35.9</b>	<b>21.0</b>
2.1 Road rehabilitation	13.2	4.4	17.6	10.3
2.2 Periodic and routine maintenance	9.4	3.1	12.5	7.3
2.3 Microenterprise and roadmenders program	5.0	0.0	5.0	2.9
2.4 Bridge maintenance	0.6	0.2	0.8	0.5
<b>3. Associated costs</b>	<b>3.8</b>	<b>0.0</b>	<b>3.8</b>	<b>6.3</b>
3.1 Institutional strengthening	1.8	0.0	1.8	3.0
3.2 Equipment	0.7	0.0	0.7	1.2
3.3 Support for maintenance sustainability plan	1.3	0.0	1.3	2.2
<b>4. Unallocated</b>	<b>3.9</b>	<b>1.8</b>	<b>5.7</b>	<b>9.5</b>
4.1 Contingencies	1.1	1.0	2.1	3.5
4.2 Cost escalation	2.8	0.8	3.6	6.0
<b>5. Financial costs</b>	<b>5.9</b>	<b>0.7</b>	<b>6.6</b>	<b>11.0</b>
5.1 Interest	5.4	0.0	5.4	9.0
5.2 Fees	0.0	0.7	7.0	1.2
5.3 Inspection and supervision	0.5	0.0	5.0	0.8
<b>Grand total</b>	<b>48.0</b>	<b>12.0</b>	<b>60.0</b>	<b>100.0</b>
Percentages	80.0	20.0	100.0	

### III. PROGRAM EXECUTION

#### A. Borrower and executing agency

- 3.1 The borrower will be the Dominican Republic and the executing agency the SEOPC, by way of the Program Coordination Unit (PCU). The PCU's role will be to coordinate the various SEOPC line offices that will play a role in the program.

#### B. Administration of the program

- 3.2 The proposed program will be coordinated by the PCU with the assistance of a consulting firm and using the organizational structure already in place, drawing on the lessons learned in running the program financed with proceeds from loan 894/SF-DR. Advisory services on specific elements would be made available as needed to solve problems that arise in the course of the program. The SEOPC will make certain that the PCU has the DARE's support with financial management and accounting-related matters; the support of the earthworks office on environmental matters; and the DGM's assistance with planning, regulating and monitoring maintenance of local roads using the SAMCV.

#### C. Works in the first year

- 3.3 The projects for the program's first year were prepared according to the criteria established and applied during the first phase. These criteria, which were used to select the projects for the program's first year and will be used to choose similar projects for the subsequent three years, are summarized below.
- 3.4 Of the 400 km of main local roads to be rehabilitated with program funds, 13 roads totaling 98 km have been selected for the program's first year. The feasibility studies, final designs and environmental studies on those 13 roads have been completed. Of the local roads whose routine and periodic maintenance will be contracted out to private firms, 508 km have been selected for the program's first year, as have 200 km to be maintained by the local roadmender and microenterprise method. This represents approximately 10% of the total length of roadway to be maintained by this method. Finally, of the 1,000 linear meters of bridges to be maintained under the program, 19 bridges have been selected for the program's first year and involve a total of 254 meters.
- 3.5 The documents containing the bidding conditions and technical specifications have been prepared for the tendering for the construction work involved in the first year's projects, as have the general terms of reference for selecting and contracting the consulting firms that will supervise the construction work, including environment-related matters, and the consulting firms that will provide the various technical assistance services determined for the program. As for road safety concerns, the

engineering documents and bidding documents for the construction contracting will include technical specifications for the installation of road signs and signals and pavement markings and for road safety measures during construction.

D. Project selection criteria

- 3.6 The first year's projects include stretches of main roads that need to be rehabilitated, stretches that will need periodic maintenance regularly, and a number of bridges that will be maintained on a regular basis.
- a. Using information from the SEOPC, the first step was to examine the system of main local roads, except for those stretches that have been or are being rehabilitated or maintained under programs already in progress. Next, an analysis was done of the remaining stretches taking into account the needed improvements reported by local authorities and user groups, and the maintenance needs identified by the SEOPC's departments.
  - b. Then the stretches were ranked in order of priority, using the SAMVC prioritization manual prepared for the Dominican Republic. Used successfully to rank the construction work done under loan 894/SF-DR in order of priority, the selection criteria this method employs assign a point value to the engineering, social and economic features. The engineering factors include: the condition of the road, surface, drainage, masonry or concrete structures, topography, climate, design level available. The economic considerations include the traffic volume and mix, the productive capacity of the land and agricultural production. The social considerations concern population density, settlements, urban development, and the needs of residents, authorities and institutions in the impact area. Environmental considerations were added because of the erosion factor, associated with work along the respective stretch of road.
  - c. A cost/benefit analysis was done of the stretches to be rehabilitated and the economic internal rate of return (EIRR) and net present values (NPV) of the benefits were figured at a 12% discount rate. The initial selection of 14 road segments dropped to 13 when one failed to meet the minimum EIRR.
  - d. Other criteria were added for sections of road that will be maintained by the local roadmender and microenterprise method, namely that they must be located in poverty areas and there must be a community or neighborhood organization in the impact area. Where this method is being used, the stretches must be in good condition; priority is given to those that were rehabilitated recently.
  - e. The bridges were selected because they serve roads that were recently or are now being rehabilitated or improved. A further

e. The bridges were selected because they serve roads that were recently or are now being rehabilitated or improved. A further consideration was whether the bridge had gone some time without maintenance or had no funds earmarked for its maintenance.

3.7 Projects for years 2, 3 and 4 of the program will be selected following a process similar to the arrangement described for year 1 projects. The PCU will put together the information that the Bank's administration mission will be examining, which should be more thorough and reliable given the technical cooperation that the SEOPC will receive to update and monitor operation of the improved SAMVC.

E. Implementation plan and procurement

3.8 Private firms will be responsible for: (i) consulting services for construction supervision and for the various technical assistance services included in the program; (ii) rehabilitation and maintenance work on local roads and bridges, and (iii) equipment. For the maintenance work done by the roadmender and microenterprise method, organized crews from the communities that use the roads will participate. Consulting services to be contracted to study these maintenance methods will determine what the best administrative structure for these crews would be. Through the DGM, the SEOPC will perform the local road maintenance to be done by force account. The resources the borrower uses to pay for these jobs will not be figured as part of the local counterpart funding for this program.

3.9 Tendering will be required for construction contracts, consulting contracts and equipment purchased with Bank loan proceeds and will conform to Bank rules and procedures on this matter: (i) construction contracting involving US\$3,000,000 and more will be by international competitive bidding (ICB); construction contracts for over US\$300,000 but less than US\$3,000,000 will be let through local competitive bidding (LCB); and construction contracts for US\$300,000 or less will be arranged through shopping, from a list of three quotations submitted by qualified contractors. The construction contract will go to the firm that tenders the lowest evaluated bid that is technically acceptable; (ii) consulting contracts over US\$200,000 will be awarded through ICB, and those for lesser amounts through LCB; (iii) purchases of equipment costing US\$300,000 and over will be made by ICB, while those over US\$100,000 but less than US\$300,000 will be by LCB; purchases worth US\$100,000 or less will be made by shopping, with quotations solicited from three suppliers. Annex III-1 contains the tendering and procurement plan. The contracts for the maintenance work to be done by roadmenders and microenterprises will involve new methods: persons or micro-businesses based in the vicinity of the roadwork will be hired for jobs that are labor intensive and can be done with inexpensive tools; the maximum for any one contract would be US\$50,000. An exception to Bank policy would be needed for contracting of this type.

F. Period of execution, timetable of investments and disbursements

- 3.10 The program will be carried out over a four-year period, starting as of the date on which the loan contract takes effect. This four-year period includes the time needed to comply with the conditions precedent to the first disbursement, and the time required for prequalification, tendering, contracting and execution of the works, supervision and other consulting services. Table III-1 contains the tentative disbursement timetable.

TABLE III-1 Disbursement timetable (US\$ millions)						
	1999	2000	2001	2002	TOTAL	%
IDB	9.4	12.6	13.1	12.9	48.0	80.0
SEOPC	2.3	3.1	3.3	3.3	12.0	20.0
Total	11.7	15.7	16.4	16.2	60.0	100.0
%	19.5	26.2	27.3	27.0	100.0	

G. Monitoring, reporting and supervision

1. Midterm review meeting and evaluation of loan 894/SF-DR

- 3.11 To have reliable information on the program's impact and on compliance with the parameters of the program's logical framework and attainment of the proposed targets, at the end of the program's second year the borrower and the Bank will do a joint evaluation to determine whether the program is being carried out properly and whether the commitments made by the borrower are being fulfilled, which includes those in the environmental and social areas. The evaluation will examine the maintenance level on the main and secondary local roads to determine whether it is up to the standard envisaged in the program and whether the required resources have been put up. The project completion report (PCR) on loan 894/SF-DR will be examined, as will the extent to which the outputs match the goals set for that program.

- 3.12 The borrower and the Bank will meet to review the evaluation report and examine the measures that the executing agency must adopt to fulfill the program's objectives. The Bank must do an adequate follow-up to see that the measures are in fact taken.

2. Annual supervision meeting

- 3.13 For effective, continuous monitoring of the various actions planned, the SEOPC and the Bank will hold annual meetings by no later than May 31 of each year, for the duration of the program. Among the topics the meeting might examine are fulfillment of the parameters set forth in the program's logical framework, execution and outputs obtained during the previous period, and the annual

investment plan proposed for the next period of the program and of the road subsector overall.

### 3. Annual maintenance report

- 3.14 The SEOPC will continue to present to the Bank an annual report on maintenance of local roads, including the environmental and social component, all in accordance with the terms agreed upon for the operation now being executed. This report, filed within the first quarter of each year, will cover the previous year and will be presented every year for the life of the program and for the five years following the date of the final disbursement. Intended as a means of constantly and adequately evaluating the maintenance activities, the report will contain at least the following: (i) general information on the structure and responsibility of the institution in charge of maintenance of local roads, the number and type of staff assigned, the available equipment and the nature and number of maintenance contracts awarded; (ii) an up-to-date survey of the condition of local roads; (iii) an evaluation of how the previous year's maintenance plan performed; and (iv) a local roads maintenance plan for the following fiscal year, explaining the priorities, the types of activities, the schedule of execution and the financial and physical resources.

### 4. Bank supervision

- 3.15 Through its Country Office in the Dominican Republic, the Bank will supervise the program's various components, including maintenance of local roads during the program and for the five years following the final disbursement.

### 5. External auditing

- 3.16 A firm of outside auditors will be hired to do annual audits of the use of funds and check that the executing agency is adopting and following the financial management practices agreed upon with the Bank. The financial statements will be presented within 120 days following the close of each financial year of the executing agency, beginning with the year during which the project gets under way and continuing for the duration of the program. These auditing services will be retained with proceeds from the Bank loan.

### 6. Ex post evaluation

- 3.17 In keeping with Bank policy, in consultation with the executing agency a decision was made not to include an ex post evaluation among the program's activities. Since the midterm meeting will evaluate the by-then completed operation financed under loan 894/SF-DR based on the PCR, and also examine the progress made under this program, the information and the opportunity will be there to learn lessons from the program.

H. Environmental and social considerations

- 3.18 The program will benefit an estimated 750,000 rural residents, or approximately 150,000 families, most of whom are farmers. The program will considerably enhance their access to health and education services and to markets and employment hubs. And although the program does not qualify as a poverty-targeted investment *per se* because its purpose is to maintain and rehabilitate the system of local roads nationwide, overall it will improve the conditions necessary for the beneficiaries to earn a living. The program will also help correct existing environmental problems caused by roads and, eventually, may lead to investments to improve the sanitation infrastructure, for which road improvements would be a prerequisite.
- 3.19 The environmental report prepared for the program identifies its potential negative effects in general, both direct and indirect, and those specific to the roads to be rehabilitated the first year. It also sets out the measures needed to mitigate those negative effects. On the whole, the adverse effects are mild and can be corrected with sound engineering and by following certain simple practices. The costs associated with the measures to mitigate the direct effects were figured using an average value per kilometer of road and included in the corresponding budgets. Environmental specifications have been devised and will be included in the contracts for road design, construction and maintenance.
- 3.20 To monitor for and oversee application of the proposed mitigation measures, the program will strengthen the environmental institutional capacity of the SEOPC, which in the operation now in progress has done an acceptable job of monitoring the environmental problem. Prior to the first disbursement from the proposed loan, a technical unit will be set up within the PCU to coordinate the program's environmental and social component and serve as liaison with other agencies and institutions involved in natural resource management and environmental protection in the country. Creation of a liaison committee will be promoted to facilitate intra- and inter-agency coordination.
- 3.21 On the environmental and social front, the program will conduct a campaign of involvement/training for communities in the impact areas of the roads that will be rehabilitated and/or maintained. This campaign will be designed with the technical assistance services contracted for the program and will be coordinated by the environmental section to be created within the PCU. Before the work commences, announcements will be circulated and the program will be discussed with the communities. A special effort will be made to avoid any disruption of the communities' normal activities (economic, social and cultural), make people more aware of the program's benefits, and encourage good habits and practices in resource conservation and works preservation. With this community participation, construction and maintenance work are more likely to last. The proposed campaign will be particularly helpful in

developing the system that relies on roadmenders and microenterprises for road maintenance.

- 3.22 To strengthen the SEOPC's institutional capacity to manage the program's environmental and social component, expert technical assistance will begin in the program's first year. Procedures will be developed for preparing environmental and social impact evaluations on the roads that will be rehabilitated or maintained in the remaining years of the program, and for building the findings of these evaluations into the designs, specifications and bidding documents for the construction work. In year 1 of the program, SEOPC staff will be trained through intensive modules, an environmental manual on how to design and implement projects to recondition and maintain local roads will be developed, and supervisors and contractors will be given guidance as to compliance with the program's environmental requirements, set out in the aforementioned documents, all of this in conformity with the recommendations of the environmental report. The manual will set forth environmental criteria to use to select which roads will be rehabilitated and/or maintained, based on ecological mapping of environmentally sensitive areas. It will also provide guidelines for dealing with environmental damage and liabilities, and standards by which to evaluate the handling of the indirect environmental impacts induced by roadwork.

#### IV. VIABILITY AND RISKS

- 4.1 The technical, institutional, financial, economic and environmental viability of this time-slice operation was established based on the implementing capacity that the SEOPC and the PCU have demonstrated during the program currently under way and the additional measures the proposed operation would introduce. These measures include technical strengthening of the SEOPC by continuing and expanding the advisory services for the PCU, implementation of a plan of action for road maintenance sustainability, and community participation in the maintenance work. These components of the operation are intended to give the SEOPC the operating and financial means to accomplish the program's objectives as scheduled.
- 4.2 The following were the evaluation criteria used to select the projects for the program's first year; similar criteria will be used to select projects for the other three years. The annual administration missions will go over the documentation prepared by the PCU and decisions will be made about which projects to carry out the following year.
- A. Technical justification
- 4.3 The SEOPC used the criteria described in section III.D of this document to select the roads to be rehabilitated and maintained. From the technical standpoint, the rehabilitation and maintenance work on the local roads and bridges selected for the program should pose no problem, since both the SEOPC and private firms have the capacity and experience to do an adequate job. Specialized consulting firms will assist the SEOPC with supervision of the construction work and with the engineering designs.
- 4.4 The designs of the first year's works projects and their technical and environmental specifications contain the information that contractors will need so that by the time they submit their bids, they are fully cognizant of the responsibilities and obligations they will assume under the respective contracts. Quantity and cost estimates for each road and bridge are as exact as they can be, especially given the nature of the work and the changes that might occur between the date on which the studies are prepared and the date on which work actually commences. To make allowance for these variations, supervisors will be required to check and adjust work quantities before a contractor starts work on an activity covered under the contract.
- B. Institutional and financial viability and maintenance sustainability
- 4.5 The SEOPC has carried out the programs and projects of a number of multilateral development agencies and has been strengthened with technical assistance from the Bank and the World Bank, all of which

suggests that it should be able to operate the new program soundly. The operation now in progress (loan 894/SF-DR) financed establishment of the maintenance management system, but that system has not become fully functional nationwide. To strengthen and support modernization of the Local Road Maintenance Planning and Control Section, the new program will help, from the start, to institutionalize the system and expand it nationwide.

- 4.6 Preparation of the budgets of government institutions in the Dominican Republic, and of the SEOPC in particular, was at one time a largely ineffectual exercise, owing to the operation of the off-budget "Fund 1401"; that fund, for example, was the source of 80% of the road sector's resources from 1994 to 1997. At the present time, with support from the IDB (loan 1093/OC-DR), the government is conducting a program designed to modernize the State's integrated financial management, which will mean less discretionary use of budgeted funds. To ensure that the maintenance program is carried out, the Bank will continuously monitor the budgetary appropriations for the SEOPC, particularly those earmarked for local road maintenance.
- 4.7 Given the resources required to fund programs in highway and road construction, improvement, rehabilitation and maintenance – whether they be those that the SEOPC executes under IDB and World Bank programs or the SEOPC's own resources – the SEOPC budget will have to be increased by another US\$10 million each year for the period from 1999 to 2002, building upon a 1998 approved budget of US\$143 million (see Table I-2). This amount is within the government's means, since an even larger amount was appropriated to the SEOPC for the period 1994-1998. The distribution of those funds will shift, as the SEOPC programs will be earmarking more funds for maintenance activities and less for construction work. The conclusion, then, is that this operation should pose no particular financial risks.
- 4.8 The actions and targets described in the plan of action for maintenance sustainability are intended to achieve a sustainable system for maintaining local roads, which is one of the program's specific objectives. Given the expectations and support of the SEOPC authorities, it is very likely that additional financial resources and more administrative and institutional efforts will be poured into better maintenance of an increasing number of local roads. The feasibility of approving and drawing from the road fund to maintain local roads is a key consideration for sustainable maintenance plans.

C. Economic justification

- 4.9 The investments in construction work were figured by extrapolating from the costs of the projects included in the samples studied for each type of work. The parameters used to design the samples were typical averages of the features and conditions one might expect to find in the works when they commence; any variations could be

relatively easily covered with the "Unallocated" line in the program's budget.

- 4.10 A socioeconomic evaluation was done for each of the 13 rehabilitation projects selected for the program's sample. At the least, the projects will make it possible to maintain agricultural production in the impact area at current levels and reduce the losses that farmers are currently sustaining due to problems getting their products out of production areas. These benefits have been evaluated by the Bank's standard method, using farm surveys in the projects' impact areas and traffic counts. The benefits in the form of vehicle operating cost savings for regular non-farm traffic were also quantified.
- 4.11 The principal indicators used in the economic evaluation of the 13 stretches of road to be rehabilitated the first year are shown in Table IV-1. These roads will serve an estimated 29,000 people over an impact area of some 19,000 hectares, and carry anywhere from 35 to 213 vehicles per day on average. The average economic internal rate of return for all stretches was 32%. The sensitivity analysis of these results showed that they held steady, with the average rate dropping to 20% and with all stretches, even with costs 20% higher and benefits 20% lower than the estimate, the average economic rate of return was still over 12%.
- 4.12 To determine what percentage of the economic benefits derived from rehabilitating these stretches would accrue to low-income groups, the information examined concerned the types of vehicles that use these roads, the value added to farm production in the impact area and the income levels of users and farmers. The estimates on the percentage of benefits that would accrue to low-income families appear in Table IV-1 and range from 18% to 44%, the average being 32%. The distributive impact findings are comparable to those obtained in other countries for local road maintenance works and reflect the fact that a large percentage of those living in the impact areas of the road sections to be rehabilitated are low-income families.

<p align="center"><b>TABLE IV-1</b> <b>Main indicators for the local roads to be rehabilitated</b></p>								
Name of road	Length km	Av.D.T.	Popula- tion (000)	NPV (US\$000)	Distrib. impact (%)	EIRR (%)	Sensitivity	
							Cost +20%	Benef. -20%
El Corbano-Asiento de Luisa- El Hatico	20.1	104	2.8	515.3	36.7	20.9	17.5	16.4
Cruce San Juan-Las Matas-Punta Caña	5.1	73	1.5	608.9	38.7	48.6	42.7	40.0
Punta Caña-La Garita-Sabana de Santomé	10.4	101	1.8	844.9	25.0	33.3	28.9	26.4
Doña Ana-Ingenio Nuevo-Niza	6.2	213	4.1	537.0	35.2	39.6	34.1	31.7
Doña Ana-La Gallarda-La Sierra	5.6	122	4.5	691.3	41.6	47.5	41.2	39.0
Hoya de Barro-Los Leones	2.3	98	1.1	333.2	43.9	45.9	40.2	36.6
Niza-Navajo al Medio-Cruce Yaguata-Sainagua	6.0	109	2.9	385.0	42.4	31.7	27.3	24.8
Sainagua-Ing. Nuevo-Yaguata	10.3	192	4.9	787.7	34.8	37.4	32.2	30.0
El Castillo-Las Paredes	6.2	35	0.3	89.7	17.9	17.4	14.1	13.6
El Higo-Quebrada Honda-Nava	7.9	62	0.8	602.4	26.5	34.7	30.1	28.9
Escalera-El Café	3.6	55	0.8	256.1	20.9	33.7	29.1	28.0
Sabana de Loperón-Las Cruces-Martín Alonso	6.4	37	0.6	168.9	20.1	21.6	18.1	17.5
La Plazuela-La Laguna-La Guazuma	4.5	64	0.9	131.8	29.1	22.4	18.7	17.8

#### D. Environmental viability

- 4.13 As the program was being developed, an environmental and social impact report was prepared which examines the program as a whole and the projects planned for the first year. This report incorporated the recommendations of the Bank's Committee on Environment and Social Impact, identified possible environmental problems and the measures needed to mitigate them. One basic finding of this report has been introduced into the program, which is a campaign to involve the communities.
- 4.14 The program will have positive environmental effects within the biophysical and socioeconomic realms, associated with the socioeconomic benefits that will accrue to the surrounding communities with the improved access to social and services infrastructure, markets, job opportunities, new business activities and, in general, their increased participation in the regional economies. The program is also expected to have a number of direct positive effects with correction of existing environmental problems caused

by the roads and, sometime in the future, possible investments in improved sanitation infrastructure for which the improvement of the roads would be a prerequisite.

- 4.15 The potential direct negative environmental impacts, identified in the environmental and social impact report, are small and can be reduced or prevented altogether. In general terms, the following kinds of impact are possible: disputes over land use, erosion, negative effects on the groundwater supply or water quality, and on the landscape or unique habitats. Many of these will be localized and temporary and can be mitigated with sound engineering practices and the preventive, compensatory or corrective mitigation measures mentioned in the environmental report. These measures, and the institutional strengthening required to ensure that they are implemented, have been developed as an integral part of the program. The recommendations in the environmental report have been fully incorporated into the bidding documents. The SEOPC will also receive assistance with coordinating, monitoring and supervising the program's environmental and social component.

E. Risks of the program

- 4.16 The chief impediments to adequate and sustainable maintenance of the country's local road system have been the absence of an organization with the requisite operating capacity, and uncertainty as to the timely availability of funds. By way of the proposed action plan for maintenance sustainability, this operation will increase physical maintenance targets annually by contracting work out to the private sector, and bring in institutional changes such that, by the end of the program, an autonomous organization will be in place with assured sources of funding.
- 4.17 The plan to maintain local roads by contracting with microenterprises and roadmenders may come up against obstacles or resistance that make it difficult for the communities and the authorities to reach a consensus, thereby impeding implementation. To minimize this risk, a preliminary study is being proposed to determine what the best ways to organize institutions of this type would be and, in pilot programs, decide if they should be adopted. As roadmenders have already been used successfully in the country to maintain local roads, this operation would merely be reviving a proven method.

**LOGICAL FRAMEWORK**  
**LOCAL ROAD MAINTENANCE AND REHABILITATION PROGRAM, PHASE II (DR-0131)**

OBJECTIVE	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<b>GOAL</b> Help raise the standard of living of rural communities and lower the cost of agricultural production by providing adequate, year-round access to markets and basic social and economic infrastructure services.	In the program area: changes in per capita income and indexes for employment in agro-industry, coverage of basic health services, access to schools  Vehicle operating costs on the road sections slated for rehabilitation drop by 20%.  Percentage of the basic local roads system in good condition and permanently accessible increases from 25% (2,000 km) in 1998 to 75% (6,000 km) in year 4 of the program.	National statistics from the National Planning Office (ONAPLAN)  Survey of the local road maintenance management system (SAMCV)  Review of the economic appraisal of the representative sample of road sections rehabilitated	<b>(Goal to overall goal)</b>
<b>PURPOSE</b> Consolidate the process of rehabilitation and maintenance of the basic system of local roads, and help establish a sustainable maintenance system.	The total of main and secondary local roads that receive periodic and routine maintenance increases from 3,500 km in 1998 to 6,000 km by the program's fourth year.  By the end of the program, a sustainable financing mechanism allowing efficient conservation of the network of local roads has been devised and is in place.	Annual maintenance report  Program progress report	<b>(Purpose to goal)</b>  Government policy continues to support maintenance as a key element in the development of the country's social and productive infrastructure.  Suitable and sustainable sources of funding are available for the local roads system.
<b>COMPONENTS</b> Rehabilitation and maintenance of local roads	100 km of main and secondary local roads rehabilitated each year for the four years of the program.  2,000 km of main and secondary roads periodically maintained by private companies for the program's four years.  2,000 km of secondary local roads routinely maintained by local roadmenders and microenterprises by the end of the program's fourth year.  1,000 meters of bridges in the local roads system maintained by the end of the program's fourth year.	Program progress reports. Supervision reports.	<b>(Component to goal)</b>  The SEOPC strengthens the regional Local Road Offices both technically and financially, by means of effective decentralization programs.  Natural conditions are favorable in the program areas.  The communities are willing to participate in the routine maintenance, through local roadmenders and microenterprises.

OBJECTIVE	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Institutional strengthening of the General Maintenance Directorate [Dirección General de Mantenimiento] (DGM)	<p>Survey of the local roads system completed by the end of the program's first year.</p> <p>SAMCV Monitoring Unit up and operating by the start of the program's second year.</p> <p>Planning Unit in the DGM's Local Roads Section strengthened and its staff trained and equipped by the end of the program's first year.</p> <p>Technical unit for environmental and social monitoring under the program established and operating by the end of the program's first year.</p>	Program progress reports. Consultant reports.	The SEOPC supports the creation and workings of the Planning Unit and the Monitoring Unit.
Plan of action for maintenance sustainability	<p>Periodic and routine road maintenance targets in accordance with the plan of action for maintenance sustainability (Annex III-2).</p> <p>A sustainable system for maintaining local roads, designed and in place by the end of the program's fourth year.</p>	<p>Program progress reports. Consultant reports.</p> <p>Reports on SEOPC budget performance. DGM reports on contracts signed.</p>	The borrower allocates the funds committed for the plan of action.
<b>ACTIVITIES</b> Bidding, contracting and performance of works and consulting services for the program's various components.	Targets in accordance with the procurement and bidding plan (Annex A-III-1) and the timetable for bidding and execution (in program technical files).	Program progress report. Audit report. Reports of the supervisory firm.	
Seminars/workshops and other activities to introduce the sustainable maintenance mechanism.	Targets in accordance with the plan of action for maintenance sustainability (Annex III-2)	Program progress report. Annual maintenance report.	

LOCAL ROAD MAINTENANCE AND REHABILITATION PROGRAM, PHASE II  
(DR-0131)

Plan of Action for Maintenance Sustainability

Under the second local road maintenance and rehabilitation program, whose general goal is sustained maintenance of the local roads system, the following is the agreed plan of action:

I. THE ROAD SECTOR'S POLICY FRAMEWORK

- 1.1 Authorities have given the Bank assurances that the government's strategies and policies for the road sector that were incorporated into the road programs now in progress with the Bank (894/SF-DR) and the World Bank (4127-DO) will remain in effect. Their objectives are to: promote private sector participation in investments, infrastructure maintenance and operating services; modernize and rehabilitate the deteriorated infrastructure and maintain it at a high level of service; make the institutional agencies more efficient at using their financial and human resources; enhance the SEOPC's capacity for direction and management of road services and related procurement; encourage communities and users to get involved and have input into the sector's planning, designs, and operations; and ensure environmental protection and mitigation of any effects harmful to the environment.
- 1.2 The activities in the plan of action to make the local road maintenance services sustainable and permanent are in line with the government's policies for the road sector and are of two main types: (i) the SEOPC's commitment to targets that will eventually enable it to maintain a substantial portion of the basic local roads system and to aim for even higher targets by contracting with the private sector; and (ii) institutional activities to design and introduce a mechanism that, with reliable sources of funding, can sustain itself in the long term; an autonomous organization in which the community participates through methods such as local roadmenders and microenterprises.

II. TARGETS FOR MAINTENANCE AND CONTRACTING WITH THE PRIVATE SECTOR

- 2.1 The government has set itself targets to raise periodic and routine maintenance from its present level of 3,500 km to 6,000 km by the year 2002. In order to achieve these goals, the additional

- maintenance work will be done by contract. Table A-II-2-A shows the targets for contract maintenance and maintenance done by force account.
- 2.2 The plan's baseline maintenance level is some 3,500 km in 1998, which gradually increases to a total of 6,000 km by the year 2002. However, the 3,000 km of road maintained each year on force account remains unchanged.
- 2.3 The preliminary estimate of the plan's costs, which appears in Table A-II-2-B, uses the per-kilometer baseline costs figured by the PCU; the cost of routine maintenance by force account has been figured as 10% less than the cost of the same work done on contract. The plan's total cost is approximately US\$7.1 million in 1999, very similar to the estimated amount being spent on local road maintenance in 1998 and paid for with funds from the SEOPC's budget; by the year 2002, that figure climbs to US\$13.5 million.

### **III. INSTITUTIONAL MEASURES TO DEVISE AND INTRODUCE A SUSTAINABLE MAINTENANCE MECHANISM**

- 3.1 The program will support the institutional activities listed in Table A-II-2-C, which are geared toward guaranteeing that by program's end, a sustainable mechanism will have been introduced for maintaining the network of local roads and will involve real community participation.

#### **1. Definition of the sustainable mechanism**

- 3.2 The beneficiaries of the local roads are not just the direct users, but also farmers and the population in the roads' service area. Given that fact, other sources of funding to supplement the appropriations related to the direct use of the roads should be examined. To that end, the SEOPC will engage a consultant to prepare a proposal giving a rationale for, identifying and quantifying such alternatives as access to social development funds, fuel and vehicle charges, and a stake in the highway fund. The proposal should consider the mechanism for allocating and administering resources intended for local road maintenance.
- 3.3 A mechanism for allocating funds and possible changes in the administration of maintenance contracts will necessitate operational changes in the decision-making structure that will affect various groups: SEOPC staff; drivers and truckers; staff of other state agencies, and so on.
- 3.4 To publicize the features of the new mechanisms for allocating funds and managing maintenance, the SEOPC will contract consulting

services to organize seminars, meetings and talks with the affected sectors.

- 3.5 The activities here focus on the services provided by the contractors, supervisors and suppliers of materials and equipment used in maintenance work. The SEOPC needs to know the economic, financial, organizational and other conditions under which these businesses operate in the country, as this has a direct bearing on maintenance costs. The SEOPC also needs to be in a position to offer them technical support or help them solve problems with other state institutions.
- 3.6 The SEOPC will hire a consulting firm to examine the finances and corporate structure of contractors, supervisors and suppliers, and their stake in the markets for domestic and imported inputs. This study will point up any potential problems that might make these businesses less competitive or less efficient and will suggest ways to correct those problems.
- 3.7 The SEOPC will do a study on financing alternatives within the first year of the DR-0131 program and will present the findings to the Bank during the second administration mission.
- 3.8 The consultant's activities will be closely coordinated, where necessary, with those of the national highways project where, with support from the World Bank (4127-DO), the SEOPC is studying possible ways of funding highway maintenance, matching user fees to resource needs. It is also looking at the institutional reforms that would be needed to administer the highway maintenance contracts.

## 2. Program with microenterprises and local roadmenders

- 3.9 Under this component, two programs will be designed and developed, one for routine maintenance on the basis of contracts with local labor, and a second for maintenance done by contracts with microbusinesses that specialize in work of this type. Both programs would initially be introduced as pilot programs; once the pilot programs are evaluated they would be made permanent arrangements.

### **a. Roadmenders program**

- 3.10 With the support of the PCU, the DGM will prepare the standards and regulations for planning, contracting for, carrying out and overseeing the routine maintenance of local roads done on the basis of contracts with local labor. To this end, a consulting firm will be hired whose tasks will include: examining past experiences; identifying the community organizations that might participate in the program; suggesting procedures for selecting, contracting,

supervising and remunerating the workers, substantiated in law, and mechanisms for promotion and dissemination within the communities; helping to plan, carry out and evaluate a pilot project, and advising on program execution. The initial tasks are to be completed within a nine-month period, the last six of which will be devoted to carrying out the pilot project. The firm will assist the SEOPC for the duration of the program.

**b. Microenterprise program**

- 3.11 With the support of the PCU, the DGM will put together a proposal for creating an arrangement, carrying out and overseeing routine maintenance of local roads through contracts with microbusinesses that specialize in work of this type. To that end, a consulting firm will be hired whose tasks will include the following: identifying the legal framework for forming micro-partnerships specializing in road maintenance; preparing the terms of the contracts between the micro-partnerships and the SEOPC; recommending the routine maintenance work that should be done by this method, and specifying the methods of selection, payment, supervision and/or inspection of the work done and work programs to be carried out; recommending a system for monitoring and evaluating the performance of the road maintenance micro-partnerships program, which provides for: (a) periodic progress reviews; (b) assessment of the impact the program is having on employment, skills, and the standard of living of the partners in the microbusiness; and (c) evaluation of how effective the micro-partnerships are at maintaining the roads.

**3. Implementation of the sustainable maintenance mechanism**

- 3.12 In the second phase, the program will help the authorities in the process of gaining approval of the necessary legal instruments and making the institutional arrangements (a bill or any other legal mechanism defined); it will also help set up and assist the new organization. These activities would be carried out in the program's three remaining years and, where pertinent, would be closely coordinated with measures taken under highways program 4127-DO, financed by the World Bank.

TABLE A-II-2-A PLAN OF ACTION FOR MAINTENANCE SUSTAINABILITY Local roads maintenance targets					
	Source	1999	2000	2001	2002
<b>Main system (km)</b>					
Periodic and routine	IDB	250	250	250	250
Routine, microenterprises	IDB	75	200	200	200
Routine, local roadmenders	IDB	75	200	200	200
Total IDB on contract		400	650	650	650
Periodic and routine	SEOPC	200	200	300	500
Routine, microenterprises	SEOPC	0	100	350	450
Routine, local roadmenders	SEOPC	0	50	250	400
Total, SEOPC on contract		200	350	900	1,350
Total on contract		600	1,000	1,550	2,000
Maintenance by force account	SEOPC	2,800	2,600	2,350	2,000
Total local road maintenance		3,400	3,600	3,900	4,000
<b>Secondary system (km)</b>					
Periodic and routine	IDB	250	250	250	250
Routine, microenterprises	IDB	25	100	100	100
Routine, local roadmenders	IDB	25	100	100	100
Total IDB on contract		300	450	450	450
Periodic and routine	SEOPC	0	50	100	200
Routine, microenterprises	SEOPC	0	50	100	200
Routine, local roadmenders	SEOPC	0	50	100	150
Total, SEOPC on contract		0	150	300	550
Total on contract		300	600	750	1,000
Maintenance by force account	SEOPC	200	400	650	1,000
Total local road maintenance		500	1,000	1,400	2,000
<b>Total for local roads system (km)</b>					
Periodic and routine	IDB	500	500	500	500
Routine, microenterprises	IDB	100	300	300	300
Routine, local roadmenders	IDB	100	300	300	300
Total IDB on contract		700	1,100	1,100	1,100
Periodic and routine	SEOPC	200	250	400	700
Routine, microenterprises	SEOPC	0	150	450	650
Routine, local roadmenders	SEOPC	0	100	350	550
Total, SEOPC on contract		200	500	1,200	1,900
Total on contract		900	1,600	2,300	3,000
Maintenance by force account	SEOPC	3,000	3,000	3,000	3,000
Total local road maintenance		3,900	4,600	5,300	6,000

TABLE A-II-2-B ESTIMATE, IN US\$ MILLIONS, OF COSTS OF LOCAL ROAD MAINTENANCE TARGETS UNDER THE PLAN OF ACTION FOR MAINTENANCE SUSTAINABILITY									
Type of maintenance	Cost US\$/km	1999		2000		2001		2002	
		km	Cost	km	Cost	km	Cost	km	Cost
<b>ON CONTRACT:</b>									
IDB resources		900	6.2	1,600	7.7	2,300	10.3	3,000	13.6
Periodic/routine		700	3.6	1,100	4.6	1,100	4.6	1,100	4.6
Routine (local roadmenders/microenterprises)	6,250	500	3.1	500	3.1	500	3.1	500	3.1
SEOPC resources	2,500	200	0.5	600	1.5	600	1.5	600	1.5
Periodic/routine		200	2.6	500	3.1	1,200	5.5	1,900	9.0
Periodic/routine	13,208	200	2.6	200	2.6	300	4.0	500	6.6
Periodic/routine	2,003	0	0.0	50	0.1	100	0.2	200	0.4
Routine (local roadmenders/microenterprises)	1,650	0	0.0	250	0.4	800	1.3	1,200	2.0
<b>BY FORCE ACCOUNT, SEOPC</b>									
Routine, main system	1,500	3,000	4.5	3,000	4.5	3,000	4.5	3,000	4.5
Routine, secondary system	1,500	2,800	4.2	2,600	3.9	2,350	3.5	2,000	3.0
<b>Totals</b>		<b>3,900</b>	<b>10.7</b>	<b>4,600</b>	<b>12.2</b>	<b>5,300</b>	<b>14.8</b>	<b>6,000</b>	<b>18.1</b>
<b>By source</b>									
IDB loan		700	3.6	1,100	4.6	1,100	4.6	1,100	4.6
SEOPC's own resources		3,200	7.1	3,500	7.6	4,200	10.0	4,900	13.5

<b>TABLE A-II-2-C</b> <b>PLAN OF ACTION FOR MAINTENANCE SUSTAINABILITY</b> <b>Institutional measures</b>	
<b>Description of measure/activity</b>	<b>Goals</b>
Devising a sustainable mechanism for conserving the local roads system	Contract a firm to study financing alternatives; conduct a diagnostic study of the present standing of contractors; analyze the organization that should be in charge of maintenance; propose legal instruments, and advise on seminars and workshops <b>(April 1999)</b>
	Seminars and workshops with community groups, users, government representatives and others to win support for devising stable maintenance financing mechanisms <b>(July and November 1999)</b>
Devising and implementing pilot programs using local roadmenders and microenterprises.	Contract consulting firm <b>(April 1999)</b>
	Standards and regulations <b>(July 1999)</b>
	Pilot projects <b>(second half of 1999)</b>
	Advisory assistance on execution, 2,000 km <b>(1999 to 2002)</b>
Approval and implementation of a new institutional arrangement, and technical assistance for the new organization.	Approval of the bill or any other legal mechanism determined <b>(December 2000)</b>
	Operating manuals; training and logistical support; contracting of consulting firms <b>(2001 and 2002)</b>

**LOCAL ROAD REHABILITATION AND MAINTENANCE PROGRAM, PHASE II  
(DR-0131)**

**PROCUREMENT PLAN**

	AMOUNT US\$000	FINANCING		Method	Prequali- fication	SPN publication
		IDB	LOCAL			
PROCUREMENT OF GOODS						
Computer hardware/peripherals (15)	45	100%	0%	RB	NO	N/A
Pick-up trucks (20)	600	100%	0%	ICB	NO	N/A
Materials and computer programs	55	100%	0%	RB	NO	N/A
CONSTRUCTION WORK:						
Road rehabilitation, 1st tender 2 groups (100 km)	4,400	75%	25%	ICB	YES	2nd half 1998
Road rehabilitation, 2nd tender 3 groups (150 km)	6,600	75%	25%	ICB	#	2nd half 1999
Road rehabilitation, 3rd tender 3 groups (150 km)	6,600	75%	25%	ICB	#	1st half 2001
Contract maintenance, 1st tender 5 groups (500 km)	3,100	75%	25%	LCB	YES	1st half 1999
Contract maintenance, 2nd tender 7 groups (750 km)	4,700	75%	25%	LCB	#	2nd half 1999
Contract maintenance, 3rd tender 7 groups (750 km)	4,700	75%	25%	LCB	#	1st half 2001
Maintenance by local roadmenders/microenterprises (2,000 km)	5,000	100%	0%	CPC	NO	N/A
Bridge maintenance (1,000 m)	800	75%	25%	RB	NO	N/A
CONSULTING SERVICES						
External auditing	400	100%	0%	ICB	YES	2nd half 1999
Advisory assistance, engineering and studies	3,900	75%	25%	ICB	YES	2nd half 1998
Supervisory firms, 1st tender	800	75%	25%	ICB	YES	2nd half 1998
Supervisory firms, 2nd tender	1,200	75%	25%	ICB	#	2nd half 1999
Supervisory firms, 3rd tender	1,200	75%	25%	ICB	#	2nd half 2000
SAMCV monitoring	700	100%	0%	ICB	YES	2nd half 1998
Maintenance, local roadmenders/microenterprises (study and advisory support)	700	100%	0%	ICB	YES	2nd half 1998
Strengthening, Planning Unit	500	100%	0%	ICB	YES	2nd half 1998
Environmental strengthening	600	100%	0%	ICB	YES	2nd half 1998
Support to sustainability plan (seminars and various consultants)	800	100%	0%			

ICB = International competitive bidding

LCB = Local competitive bidding

RB = Restricted bidding

CPC = Community-participation contracts

# = Prequalification update at time of bidding

PROPOSED RESOLUTION

REPUBLICA DOMINICANA. LOAN \_\_\_/OC-DR TO THE REPUBLICA DOMINICANA  
(Program for Maintenance and Restoration of Feeder Roads II)

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 Dominicana as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Program for Maintenance and Restoration of Feeder Roads II. Such financing will be for the amount of up to forty-eight million dollars of the United States (US\$48,000,000), from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the "Terms and Financial Conditions" and to the "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.