**ROAD REHABILITATION AND MODERNIZATION PROGRAM**

**(GU-0017)**

**EXECUTIVE SUMMARY**

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| **BORROWER:** | The Republic of Guatemala |
| **EXECUTING AGENCY:** | The Ministry of Communications, Transportation, and Public Works (MCTOP)/General Directorate for Roads (DGC) |

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| **AMOUNT AND SOURCE:** | IDB (OC): | US$100.0 million |
| | IDB (OC/IFF): | US$ 50.0 million |
| | Cofinancing (OPEC): | US$ 5.0 million |
| | Local contribution: | US$215.0 million |
| | Program total: | US$370.0 million |
| | Other investments: | US$110.0 million |
| | Total investment in sector: | US$480.0 million |
| **FINANCIAL TERMS AND CONDITIONS:** | Amortization period: | 25 years |
| | Disbursement period: | 4 years |
| | Interest rate: | variable |
| | Inspection and supervision: | 1% |
| | Credit fee: | 0.75% |

The financing under the Intermediate Financing Facility will be granted a maximum discount of five percentage points below the ordinary capital interest rate.

Throughout the disbursement period, resources from that financing may be used to pay the interest charges, at the request of the borrower.

The IFF resources shall be used to pay part of the interest on the US$50 million loan, part of which will target low-income groups, especially in the districts affected by armed conflict, mainly in the departments of El Quiché and Huehuetenango.

**COFINANCING:** US$5 million from OPEC.

**OBJECTIVES:** The program has been designed to meet two main objectives: (i) sponsor an in-depth reform of the road subsector aimed at establishing sustainable financing mechanisms, optimizing use of resources, boosting private sector participation, and radically modernizing the DGC; and (ii) pursue the network rehabilitation

efforts, in particular in the departments of El Quiché and Huehuetenango.

**DESCRIPTION:**

The program will take the form of a time slice. Its core consists of an in-depth reform of the road subsector, while a financially important subprogram encourages the government in its reform efforts.

**Institutional strengthening and the reform subprogram.** The reform will be structured and implemented through a plan of action to be prepared by the government and approved by the Bank. This plan of action will cover the following areas: (i) the development of sustainable financing mechanisms based on cost recovery; (ii) the participation of the private sector, both in terms of infrastructure operation (concessions) and maintenance works; (iii) a comprehensive redefinition of the DGC's role and mandates; and (iv) the subsequent streamlining and reorganization of the DGC, the establishment of innovative human resources policies and the strengthening of the DGC's capacity in a number of fields, including environmental assessment.

**Investment Subprogram.** This subprogram consists of two components:

a. a first component will provide for the rehabilitation and improvement of approximately 250 km of paved roads (including signalization), the Bank's participation in the contract maintenance program (designed to maintain 70% of paved and 50% of the unpaved roads), as well as various weight control and safety related works;

b. the second component will provide for the improvement of 830 km of rural (unpaved) roads in the departments of El Quiché and Huehuetenango.

**Selection and execution of works scheduled for the first year of the program.** The total cost of the construction slated for the program's first year will be US$54 million equivalent. The civil works were jointly selected and sized by the MCTOP and the Bank, based on established prioritization and selection criteria, execution capability, and the funds available. The degree of compliance with target goals will be evaluated at the annual monitoring meetings.

**ENVIRONMENTAL CLASSIFICATION:** The Environment Committee, at its meeting of December 7, 1993, classified this project as a Category III operation. The environmental summary was approved at the August 1, 1995 meeting.

**IMPACT ON POVERTY:** Since the program comprises a project to reform and rehabilitate the national road system, it does not qualify as an investment specifically designed to alleviate poverty, since most of the direct beneficiaries are not from low-income groups. As a result, the program does not comply with the criteria established in the Report on the Eighth Replenishment with regard to projects designed to reduce poverty (4.16).

The rural road rehabilitation component in the amount of US$50 million will have an important impact in the departments of El Quiché and Huehuetenango, inhabited largely by poor campesino families, which were cut off from service during the years of armed conflict. The component will help to foster the process of peace in Guatemala while contributing to the economic development of these depressed areas (4.19).

**BENEFITS:** Modernization of the MCTOP's institutional capability for managing the road system and controlling or avoiding any damage that construction work is apt to inflict on the environment, buttressed by private sector participation in maintenance of the system, will help to improve the efficiency of resources in the road subsector and to spur the establishment of microenterprises for the execution of maintenance.

Execution of the proposed program will reduce the percentage of roads in poor condition from 72% to 58%. Rehabilitation and upgrading of the system will cut the operating costs of vehicles which use these roads by 25%, producing economic benefits for the country estimated at an average of 40%. The rehabilitation and maintenance work plus the highway safety devices will help to avoid premature and costly reconstruction of the existing rundown system and will reduce the frequency of accidents.

**RISKS:** The design and formulation of the proposed program embody technical and administrative measures to minimize the potential risks entailed by the executing agency's institutional and financial status. The MCTOP's institutional capacity will be strengthened by: (a) the provision of adequate and timely technical assistance and training; and (b) the application of annual execution and planning control mechanisms that permit prompt attention to diffi-

culties or problems in the execution and proper planning of works for the ensuing period, thus avoiding delays in implementing the proposed reforms. There is also a risk in connection with availability of the local counterpart funding for the proposed program. The budget resources required for maintenance (US$150 million, including US$15 million for supervision, preinvestment, and administration) will result in an annual increase of US$7.5 million over MCTOP outlays for maintenance in 1994 and 1995. But if the priority assigned to maintenance expenditures in recent years is maintained, there should be less risk of any delay in the provision of the local counterpart funds.

An important risk in the component for rural road rehabilitation in the departments of El Quiché and Huehuetenango is the possibility that the ongoing peace talks might fail and the conflict might escalate, jeopardizing the safety of the contractors who would be working in the area. This risk will be reassessed each year to ensure the attainment of objectives and adequate use of the resources for this component, which was designed to help further the peace process, focusing its activities on the poorest areas of these departments.

**THE BANK'S COUNTRY STRATEGY:**

The goals of the IDB strategy in Guatemala are: (a) to support the reform and structural adjustment process needed to make the economy more efficient, including heightened private sector participation and restructuring of the principal public sector enterprises; (b) to help rehabilitate and maintain the priority economic and social sector infrastructure which has suffered marked deterioration in the last several years; and (c) to assist in the reduction of poverty and unemployment and to improve living conditions for the low-income population. The strategy for the medium term is to foster new private investment.

In the transportation sector, the Bank's strategy seeks to: (a) improve the administration and efficiency and rationalize the use of the sector's financial resources; and (b) rehabilitate and improve the physical condition of the road system.

**SPECIAL CONTRACTUAL CONDITIONS:**

In addition to the standard conditions included in the Bank's loan contracts for this type of operation, the loan contract will contain the following:

(a) Conditions precedent to the first disbursement: The borrower must submit: (i) evidence that the

executing agency has engaged the consulting firm which will administer the program (3.5); (ii) the plan of action for modernizing the MCTOP, including the plan for streamlining of the DGC staff (3.6); (iii) the detailed program for improving rural roads in the departments of El Quiché and Huehuetenango (3.18); and (iv) the plan that will be used for the contracting of road maintenance work in the first year of the program execution period, accompanied by evidence that the requisite financial resources are available for that purpose (3.14).

(b) Other special conditions:

1. The following deadlines will be imposed for the contracting of consultants or specialized firms: (a) the consulting firm that will be responsible for supervising construction (3.11) must be engaged before the invitation to bid on program works is issued; and (b) within six months after the effective date of the loan contract, the studies on: (i) road maintenance financing alternatives; (ii) support for the system used to plan and contract for road maintenance and the system for vehicle weight and dimension controls; and, within 18 months after the effective date of the loan contract, the consultants needed for strengthening the DGC's technical and administrative structure and conducting the studies; (iii) review and updating of the general specifications for road and bridge construction; and (iv) the development of new road construction technologies (3.7).

2. Within the first six months after the effective date of the loan contract, evidence must be submitted that the DGC Environmental Unit has been provided with suitable professional staff and the necessary equipment and funds for efficient performance of its duties (3.20).

3. During the first year of the execution period, the MCTOP must implement a training plan for the DGC Environmental Unit staff (3.19).

4. Changes in the organizational structure of the General Program Coordination Office must be cleared with the IDB (3.4).

5. The following thresholds will apply to procurement contracts awarded for this project through international public bidding: US$250,000 for goods and US$1.5 million for civil works; and

prequalification will be required for firms bidding on contracts in amounts estimated to be in excess of US$5 million (3.27).

6. The projects slated for financing in this program must comply with the selection procedures agreed upon with the Bank (3.9). An additional requirement will apply in the specific case of the section from Los Encuentros to Cuatro Caminos, for which bidding procedures were initiated with World Bank financing and subsequently cancelled, eligibility will not be approved until a legal document is presented, accompanied by a quitclaim, as to the MCTOP's responsibilities in connection with the previous award (2.12).

7. The borrower must take the necessary measures to: (i) ensure that the environmental quality control procedures have been applied, during the various works planning and execution stages, to all of the projects included under the program; (ii) preserve, by means of the specific protective measures approved by the National Environment Commission (CONAMA), any archeological remains, wildlife preserves, and fragile ecosystems; (iii) see that staff of the CGP advisory firm includes an environmental specialist to monitor the project preparation, supervision, and execution process; and (iv) present at each successive monitoring meeting a progress report specifically devoted to environmental protection under the program, containing a summary of the environmental impact assessments, any remedial measures taken, environmental monitoring and followup on the works, and the MCTOP's institutional strengthening activities (3.20)

8. To ensure efficient upkeep of the rehabilitated roads, the borrower agrees to spend the equivalent of US$150 million on maintenance contracts during the four-year execution period (3.15).

9. The special conditions pertaining to program monitoring and the presentation of public bidding documents are discussed in detail in paragraphs 3.7, 3.12, and 3.23 through 3.25.

# I. FRAME OF REFERENCE

## A. The country and its transport sector

1.1 Guatemala, with 10.3 million inhabitants and a GDP of US$13 billion, has the largest economy of Central America. The country experienced economic instability in the 1980s and a fiscal and balance of payments crisis in 1990. However, in January 1991, the government began to implement a comprehensive stabilization and structural adjustment program. Stabilization efforts have been successful in increasing net international reserves, in raising the average real GDP growth over the last five years to almost 4%, and in bringing inflation down from 60% in 1990 to 7% in early May 1995. The country, although currently attempting to implement a shadow program, has had difficulty completing its two most recent standby arrangements with the International Monetary Fund (IMF), particularly on the fiscal revenue side. As a result, the overall fiscal deficit was 2.2% of GDP in 1994, compared with a target of 1.1%. This delicate fiscal situation makes allocating resources from the national budget to the numerous needs of the country a difficult exercise for the government. The government's payroll takes up an important part of the national budget and investment projects are the first ones to suffer when funding shortages occur.

1.2 Guatemala's first free elections were held in 1985 and again in 1990. As a result of a failed "auto-coup" by the President against the legislature in mid-1993, the country is being managed by an interim, caretaker government. However, this government is seriously attempting to promote a new peace proposal to bring to an end three decades of warfare between the government and guerilla movements based in the indigenous highland regions of the country. Mediated by the United Nations (UN), the peace talks already achieved agreements on five issues, approximately half of the agenda, and are scheduled to be completed before the new administration is in place, beginning of 1996.

1.3 Among the regions most affected by the war is a zone located about three hours north of the capital city that includes the departments of El Quiché and Huehuetenango. This area is characterized by a strong deficit in infrastructure, which has been a major impediment to development.

1.4 In the framework of this delicate political situation, transport sector projects play an important part in efforts undertaken by the nation to redress past shortcomings. The sector presently accounts for about 5.8% of the GNP (1993 data) and its development is expected to boost many related sectors of the economy such as the agriculture or the construction industry.

1.5 In physical terms, transport in Guatemala is almost unimodal. Due to the geographical concentration of most developed areas at less

than a day's trip from the capital city, 95% of the freight and almost all passenger traffic moves by road.

1.6 In institutional terms, the Ministry of Communications, Transport and Public Works (MCTOP) controls the sector through its central directorates and various public entities with little autonomy. The General Transport Directorate (DGT) coordinates all passenger and freight transport services; the General Civil Aeronautics Directorate (DGAC) manages and controls the airports and the air traffic; and the General Directorate for Roads (DGC) has the overall responsibility for the road subsector, which encompasses direct administration of the whole national network and more than 50% of neighborhood and rural roads, the rest being attended by the municipalities and various public institutions such as the Ministry of Agriculture. In addition, the MCTOP supervises the National Air Company (AVIATECA), the national railway company (FEGUA), and operates the new portuary facilities at Puerto Quetzal.

1.7 Under its project IBRD 3002-GU, the World Bank is presently financing a transport master plan for the country. Due in November, 1995, this master plan will enable the country to develop a global sector strategy. The strategy for the road subsector has been developed as part of the preparation of the present project, and is outlined in this document.

## B. The road subsector: overview of the problems

### 1. Physical description of the road subsector

1.8 Guatemala's road network is 14,020 km long and can be divided into four categories: (a) the Central American network, with 1,875 km of asphalted roads; (b) the national network, with 2,130 km of roads, asphalted at 57%; (c) the departmental roads, with 7,218 km of mostly gravel surface, that link capitals of departments and important cities; and (d) the rural roads, with 2,797 km that permit access to rural communities.

1.9 The road network is dense along the Pacific coast, which is an important corridor for the traffic between Central America and Mexico, and where the export-oriented agriculture is well developed. In the northern departments, rural roads are predominant: the northeastern part of the country, known as the Petén Region, is a new frontier for national development and is home to an important part of the country's biosphere and cultural resources; in the northwest region, the departments of El Quiché and Huehuetenango have been heavily affected by the guerrilla war that has plagued the country for decades and remain among the less developed areas, especially in terms of road infrastructure. The two major transit axes are the east/west axis, known as the CA9, that links the main port on the Atlantic coast, Puerto Barrios, to the main port on the Pacific coast, Puerto Quetzal, and the Pan-American Highway, known

as the CA1, that connects Mexico to the southwestern part of Central America. Both roads transit through Guatemala City.

2. Institutional organization of DGC

1.10 The General Directorate for Roads (DGC) is by far the most important directorate of the MCTOP, both in terms of personnel (it accounts for 11,284 of the 20,987, 54% of MCTOP staff as for December 1994 figures) and budget (its assigned budget for 1995 is US$143.4 million). The DGC is made up of six technical divisions, three support divisions, a central planning unit, and an auditing unit.

1.11 The tasks performed by the DGC are shared in the following manner: global planning, regulatory design and control are carried out through the central planning unit and the Division of Vehicle Load and Size Control. Administration of works is the basic responsibility of the technical divisions: with respect to construction and rehabilitation of roads, the DGC, through the Technical Division, carries out technical studies and final designs, while works and supervision are contracted out to the private sector. The DGC also plans, designs, and builds all new rural roads, through its Rural Roads Coordination Division. Finally, with respect to maintenance, the DGC carries out planning, design, works, and supervision with its own staff, through the Maintenance Division, which has 7,564 employees and represents 36% of the MCTOP staff.

3. The problems faced and their consequences

1.12 The problems currently confronting the road subsector are many but can be grouped into two main areas:

a. Due to a recurrent lack of maintenance, the overall condition of the network is alarming. In 1993, an estimated 9% of the whole network was in good condition, while 20% was in fair condition and 71% in poor condition. This compares to 1988 figures of 10%, 49%, and 41%, respectively. 1/ In particular, more than 88% of the 6,875 km of unpaved roads are in poor condition. 2/ As a matter of fact, it is estimated that, with regard to routine maintenance, the ministry does not attend more than 15% of the network through its maintenance on force account program. Among the most affected areas are the departments of El Quiché and Huehuetenango, where maintenance

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1/ The condition of the road system, broken down by state of repair, can be found in the technical files of the program.

2/ For the sake of this report, "poor condition" means that a four-wheel-drive vehicle in good condition cannot afford a speed over 25 km/h, as experienced by the project team during the analysis mission.

and investment efforts have been entirely neglected over the past 15 years, leaving the area bereft of the necessary infrastructure to promote its development. In general, the road maintenance problem badly affects the quality and cost of transport services throughout the country.

b. Secondly, the road subsector suffers from the poor institutional capacity of the DGC. Procedures lack efficiency, particularly those related to payments. Global planning is nonexistent and the quality of regulatory design and control is low; network interventions are often planned on a one-off basis and with little follow-through. This second problem affects not only the quality and cost, but also the range of transport services provided nationally.

4. The causes

1.13 On the basis of recent discussions and the results of various recent working groups and of a study financed by the Bank under technical-cooperation program ATN/SF-4693-GU, the following explanations can be put forward for the above problems:

a. The poor condition of the network is due to the lack of financing made available for maintenance works. In constant terms, the budget allocated to maintenance dropped from US$16.12 million to US$14.8 million between 1991 and 1993, whereas the estimated amount needed to conserve the existing infrastructure is around US$70 million per year. 3/ In turn, this lack of resources has three sources: (i) there is no cost-recovery mechanism and all maintenance costs are supported by the national budget instead of by users; taxes on gasoline feed the "caja única" of the national budget; (ii) the DGC strategy for resource allocation has been misguided, often giving priority to new roads over the conservation of existing infrastructure; and (iii) the Maintenance Division of the DGC is greatly overstaffed and maintenance works were carried out with little efficiency. As described in the next paragraph, a pilot program designed to subcontract maintenance works to the private sector has proven that these obstacles can be overcome.

b. The poor institutional capacity of the MCTOP in general and the DGC in particular has two causes: (i) the MCTOP mandates are weakly defined and certainly too broad; the DGC concentrates on execution rather than planning, regulatory design, and control; private sector participation is very limited; (ii) the absence

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3/ However, the maintenance budget reached US$30 million in 1994, as the government initiated a contract maintenance program (see paragraphs 1.18 to 1.21). This new trend illustrates the recent acknowledgment by the government that road maintenance is crucial for the country's economic development.

of an adequate career skilled personnel has left the DGC with an important deficit of skilled personnel, while retaining staff with fewer skills and/or no qualifications; salaries for engineers and other professionals are as much as five times lower than those of the private sector, while salaries for unskilled labor are as much as twice as high.

C. The Bank's involvement

1. The Bank's experience and the lessons learned

1.14 The Bank's participation in Guatemala's road sector includes six loans, and six technical-cooperation projects, and represents a total investment of over US$150 million. All of this work has been executed by the DGC of the MCTOP. The latest two projects were approved in December 1985 (loans 168/IC-GU and 492/OP-GU) and November 1986 (loans 216/IC-GU and 797/SF-GU). Generally speaking, the physical objectives of these projects were met, but with important delays, partly due to political unrest:

(i) The first of these two projects consisted of the rehabilitation of a 161-km-long section of the CA9 Norte from Río Hondo to Puerto Barrios, a two-lane asphalted road with heavy traffic. The last disbursement took place in October 1994, four years late, and the Project Completion Report was submitted by the Country Office in January 1995.

(ii) The second project financed the development of about 400 km of rural and neighborhood roads in various rural regions of the country. To date, 95% of resources have been disbursed and physical works have been completed.

(iii) Finally, it is important to note that, so far, none of the Bank's projects involving roads have contemplated an institutional reinforcement of the sector.

1.15 Although most of the physical objectives of the previous operations have been achieved, their execution reveals a number of deficiencies, both in the projects themselves and in the DGC, and provides lessons for future programs including the present operation.

a. The overall institutional deficiency of the DGC and the MCTOP has often paralysed operations, generating important delays.

b. Counterpart funds have been difficult to secure. If the government is unable to provide such funds to finance the executing unit, there is a major risk that the whole project will be interrupted.

c. Maintenance has always been deficient, including for roads financed through the Bank's projects; this has resulted in the rapid deterioration of expensive investments.

d. The executing unit has rarely been as strong and as efficient as expected; also, its relations with the DGC have been an important determining factor in the success or failure of a project.

1.16 As a result, the following orientations have been adopted in the development of the present program:

a. The program must concentrate on the institutional strengthening of the DGC; also, it must have realistic targets and take into account the weak capacity of the institutions involved.

b. Counterpart funds have to be secured in a formal manner before the program begins; in any case, project management should not be financed in this way; the time-slice modality of the program will permit a timely review of the availability of counterpart funds.

c. Maintenance has to be given priority so as to optimize investment rate of return; a sustainable maintenance effort must be incorporated into the program.

d. The executing unit must be strong and stable, and its relations with the DGC clearly defined.

2. <u>Other valuable experiences: the pilot contract maintenance program</u>

1.17 Since 1955, in addition to the Bank, four institutions have financed projects aiming at improving Guatemala's road sector: the World Bank, the Central American Bank for Economic Integration (CABEI), the United States Agency for International Development (USAID) and Kreditanstalt für Wiederaufbau (KfW) have been involved in over 10 operations encompassing road rehabilitation, periodic maintenance, construction of rural roads, and improvement of bridges. Their experiences have often been similar to those described above.

1.18 The Ministry of Communications, Transport, and Public Works has also financed with its own resources a series of operations, one of which is of special interest to the present program: in parallel with its cumbersome maintenance on force account program, the MCTOP initiated in July 1994 a pilot contract maintenance program. Under this program, private companies are contracted to carry out routine maintenance on the paved network and routine and periodic maintenance on the unpaved network. The experience gained in the first year of the program makes it worth presenting it briefly.

1.19 The main features of the pilot program are as follows:

a. it was established thanks to firm political will at the level of the Minister and Vice-Minister, and in spite of significant internal resistance from labor unions;

b. it is coordinated by the Contract Maintenance Unit (UMC), a unit of small size but high capability: out of its 25 staff, eight are engineers, six are professionals dedicated to auditing, legal assessment, or procurement, while the rest are support staff, involved with computers, secretarial tasks or payments;

c. it relies on the private sector for both works and supervision, leaving the coordination unit with programming, management of contracts, and overall control;

d. it has in place streamlined procedures, especially with regard to payments, and a revolving fund has been established to bypass the bureaucracy at the Ministry of Finance;

e. it encourages the creation of private companies of small size, in particular through the hiring of companies formed by former DGC staff so as to reduce the payroll of the Maintenance Division; in this respect, a voluntary retirement program has been set up to promote migration of DGC staff to the private sector.

1.20 In physical terms, the achievements of the program are positive: while the Maintenance Division, with 7,564 employees, attended about 15% of the network (1,500 km) with a budget of about the equivalent of US$17.3 million (year 1994), the coordination unit, with 25 staff and a budget of about US$12.8 million, managed 13% of the network (1,322 km) in the last six months of 1994. In 1995, it is expected to attend about 25% of the network (2,420 km), with an overall budget of about US$30 million. The unit managed 80 works and supervision contracts in 1994 and is managing about 130 contracts this year. Although there has been no strict commitment from the government as of today, plans for the contract maintenance program provide for a 1996 budget of similar size as the 1995 budget in constant terms.

1.21 However, all aspects of the pilot program are not positive. The areas that will have to improve include: (a) the voluntary retirement program, whose loose targeting led the most qualified staff of the DGC to leave for the private sector while the unskilled labor force largely ignored the program; (b) the high costs of the contracts awarded to the private sector, in particular, those for supervision, due to: (i) the innovative aspect of the program, which led private companies to invest significantly and recoup these costs though high prices; (ii) the fact that, for the first two years, contracts have not been awarded

through bidding, but via direct negotiation of unit prices between the Ministry and the Chamber of Construction, due to a temporary waiver granted by the Government of Guatemala in order to promote the creation of new private companies; and (iii) the relatively small size and small duration of the contracts, that prevented economies of scale. However, these issues are temporary, and the pilot program should soon yield greater benefits.

### 3. <u>The problems chosen to be addressed by the present program and the expected results</u>

1.22 The present program will focus on a few key issues so as to attack the root of the problems listed in paragraph 1.12. To this end, the following actions are proposed:

a. To ensure the availability of resources for road maintenance, a sustainable cost-recovery mechanism will be put in place; this might take the form of a road fund and/or concessions. Resources obtained through these tools will be allocated exclusively to maintenance.

b. In order to optimize use of resources and to reduce the DGC payroll (thus making more resources available for investments), all maintenance activities would be privatized. The sustainable character of the contract maintenance program should make it attractive for the private sector.

c. In the meantime, the DGC mandates would be redefined to concentrate on planning, regulatory design and enforcement. The DGC involvement in direct administration of works would be reduced to a minimal level i.e., emergency works.

d. To enable the development of this new role for the DGC, a comprehensive policy of human resource management would be developed, aiming at retaining more skilled professionals.

1.23 The development of comprehensive human resource policies cannot be managed exclusively at the level of the MCTOP, since it involves a reform of the entire civil service. The present program will only initiate necessary changes in as much as they concern the MCTOP. A more comprehensive public sector reform operation, currently being initiated by the Bank, will help Guatemala modernize its civil service and its state apparatus. As the present program and the future operations have similar underlying strategies, a member of the team in charge of the public sector reform operation will take part in the monitoring of the institutional aspects of the present program.

1.24 The series of actions proposed will help eliminate the causes of the problems mentioned. In particular, they will prevent further deterioration of the road network. In the meantime, to directly address the poor condition of the network, an investment subprogram

will help in its rehabilitation. Within this subprogram, a component will be more specifically dedicated to the rural roads in the departments of El Quiché y Huehuetenango.

1.25 Needless to say, the solutions proposed will require a high level of political commitment. The core of the program consists of an in-depth reform of the sector, while a financially important investment subprogram encourages the government in its reform efforts. The content of the two subprograms is described in chapter II. Keeping in mind the recommendations drawn from the Bank's previous experience, the modalities of implementation will be of crucial importance. In particular, program coordination and management have been given careful consideration. Implementation will be monitored constantly through a comprehensive set of benchmarks described in chapter III.

# II. PROGRAM OBJECTIVES AND GOALS

## A. Program objectives

2.1 Given the diagnosis of the problems facing the road subsector presented in chapter I, the program has been designed to meet two main objectives: (i) sponsor an in-depth reform of the road subsector aimed at establishing sustainable financing mechanisms, optimizing use of resources, boosting private sector participation and radically modernizing the DGC; and (ii) pursue the network rehabilitation efforts, in particular in the departments of El Quiché and Huehuetenango.

2.2 In 1992, as part of World Bank program GU-3002, a general survey of the roads was conducted and priorities were set for the investments to be made to rehabilitate the system. These activities led to the preparation of a multiannual investment plan for the road sector, part of which would be financed under the proposed program. The proposed selection criteria (see Annex III-3 in the regional department technical files) are similar to those followed for preparation of the plan. The program has been designed as a four-year operation consisting of four annual execution plans. This modality makes it possible to review the progress made from one year to the next and to incorporate any necessary adjustments in scheduled activities for the following year.

## B. The Bank financing

### 1. Institutional strengthening and reform subprogram (US$3.8 million)

2.3 The core of the program will consist of an in-depth reform of the road subsector. Initiated in the framework of World Bank project 3002-GU, this reform will be structured and implemented through a plan of action to be prepared by the government and approved by the Bank. This plan of action, described in Annex II-1, will be shaped after the orientations established in paragraph 1.22 and will cover the following areas: (i) the development of sustainable financing mechanisms based on cost recovery; (ii) the participation of the private sector, both in terms of infrastructure operation (concessions) and maintenance works; (iii) a comprehensive redefinition of the DGC's role and mandates; and (iv) the subsequent streamlining and reorganization of the DGC, the establishment of innovative human resource policies, and the strengthening of the DGC's capacity in a number of fields including environmental assessment.

2.4 As for cost recovery, a study will be carried out to design and put in place a road fund. Under this mechanism, roads will be put on a fee-for-service basis and financing of maintenance will be provided by road users as opposed to taxpayers. The study will look into

the potential fiscal impact of the road fund and the mechanism will be designed so as not to distract national budget resources from priority sectors such as education or health. (See details in Annex IV-2 in the regional department technical files). Depending on the recommendations made in the plan of action, the Bank may finance any additional technical assistance projects that are justified in the annual investment plans.

2. Road investment subprogram (US$128.7 million) 4/

a. Investment component for the national road system (US$81.3 million)

2.5 This component will consist of:

a. rehabilitation and improvement (US$70.8 million), including traffic signs, on approximately 250 km of paved and unpaved intercity highways and the appurtenant bridges;

b. support for the execution of contract-based maintenance of the national road system (US$7 million) which will, when combined with the local counterpart resources (US$150 million), allow 56% of the maintenance needs on the national system to be met over a four-year period;

c. construction, supervision, and maintenance of civil works, the purchase of scales, and startup of 13 new truck weight-control stations to complete the freight load inspection grid (US$2 million); and

d. procurement of approximately 250 meters of quick-assembly bridges (US$1.5 million) to cope with emergency situations in the performance of maintenance work or for the replacement of permanent bridges. The bridges may not be used for military purposes.

2.6 For performance of the above component, the following elements will be contracted out: (a) the technical, economic, and environmental studies on projects not included in the first year's program; and (b) execution of construction works and their supervision.

b. Component for rehabilitation of rural roads in the departments of El Quiché and Huehuetenango (US$47.4 million)

2.7 This component will consist of the rehabilitation of roughly 730 km of rural roads, mainly in the El Quiché and Huehuetenango departments, as well as 100 km of unpaved roads in the same region,

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4/ The amounts indicated in the investment components represent outlays financed by the program, including the cost of designs, civil works, and supervision, net of finance charges.

which is the country's most devastated area, having suffered the ravages of war for the past 20 years.

C. Sizing of the program

2.8 The cost of the program has been estimated at approximately US$370 million, with the two IDB loans accounting for US$150 million of that amount. Four factors were taken into account in the sizing of the program:

(i) Serious deterioration of the road system. Guatemala has the second largest highway system in Central America. But it is also one of the countries with the greatest percentage of the grid in poor repair; hence the imperative need to rehabilitate these roads. The program is designed to do just that, starting off with marked physical improvement of the system and ensuring the sustainability of such improvement.

(ii) Limited availability of government financial resources. As noted in paragraph 1.1, Guatemala's fiscal situation is very serious, thus placing considerable restraints on the amounts of counterpart funding available.

(iii) Existing MCTOP capacity. As mentioned in paragraph 1.16, the institutional capability of the MCTOP was taken into account in setting realistic dimensions for the program and in preparing the program execution schedule.

(iv) Private sector capacity. The private sector will play a paramount role in execution and supervision of the civil works and the maintenance activities, which are crucial to the program's success. The present capabilities as well as the progressive strengthening of that sector were taken into account in sizing the maintenance activities to be performed under the program.

D. The program's first year

2.9 The activities to be performed in the first year were selected in accordance with the criteria agreed upon (see Annex III-3 in the regional department technical files) and with the anticipated DGC budget for 1996. Since most of the institutional strengthening measures contemplated in the program will start in the first year, the DGC will reap the benefits thereof in the short term. The cost of the physical rehabilitation works and upgrading scheduled for the first year is estimated at US$54.9 million. Additional details of this program are presented in Annex II-2.

2.10 Studies will also be conducted in the first year on ways to strengthen the execution units, in addition to the institutional

reviews in connection with the plan of action mentioned in paragraph 2.3.

## E. Status of program preparation

### 1. Institutional strengthening and reform subprogram

2.11 To date, the most significant achievement regarding the institutional subprogram rests in the firm political will expressed by the present government to lay the ground for the reform, so that the next administration can proceed with its full-scale implementation. Initiated in the framework of World Bank project 3002-GU, the following steps have been taken in each of the four fields to be dealt with by the reform:

(i) As for cost recovery, the government, assisted by an international consulting firm specialized in road concessions, has been seriously looking into contracting private concessionaires for the operation and maintenance of two of the country's main roads, totalling 416 km. Also, terms of reference for the preliminary study concerning the establishment of a possible road fund have been prepared.

(ii) Concerning private sector involvement in maintenance works, the contract maintenance program is up and running, as described in paragraphs 1.17 to 1.21. Terms of reference for the strengthening of the unit in charge of this program in the area of economic and financial evaluation of bids have been prepared.

(iii) The definition of the DGC's new role and mandates has been initiated through a comprehensive study cofinanced by the IDB and the World Bank. The Transport Master Plan prepared as part of World Bank project 3002-GU, to be finalized by November 1995, will conclude this effort.

(iv) The streamlining of the overstaffed DGC has been initiated through the voluntary retirement program, whose shortcomings were mentioned in paragraph 1.21. This program will be rectified to better target lower-level employments. The plan of action will then prescribe the modalities of the DGC staff reduction and overall reorganization.

### 2. Road investment subprogram

#### a. National system

2.12 Insofar as the rehabilitation works on the main roads in the national system are concerned, complete feasibility studies, environmental impact assessments, final designs, and all of the necessary data for public bidding are ready for two road paving

projects to be initiated. The first consists of 97 km of highway CA-10, in the segment between Río Hondo and Agua Caliente; the second covers 62 km of highway CA-1 between Los Encuentros and Cuatro Caminos. 5/ The other two projects comprising the first year's investment plan are: a 48-km section of highway CA-9 South and 42 km on CA-2 West. The technical and basic economic studies and a prioritization analysis on these projects have been completed by the DGC. Resources from World Bank loan 3002-GU are being used to contract out the engineering designs, which will be ready during the first quarter of 1996. A summary of the projects appears in Annex II-2. Studies at various stages are also in progress on other projects which could be considered for the following years, provided that they meet the criteria set forth in Annex III-3, which can be found in the regional department technical files.

b. Departments of El Quiché and Huehuetenango

2.13 A list has been compiled of the works assigned a priority rating by the DGC, which is also compiling a representative sample of individual projects, including feasibility studies, basic designs, lists of the volumes of construction, an economic evaluation of the impact of benefits resulting from increased farm production and transfers to the low-income groups, thanks to the generation of employment and other benefits generated by the execution of works.

2.14 A technical-cooperation project using resources from the Portuguese Fund is being processed to finance the design of the rehabilitation work to be carried out during the second year of the program.

## F. Program cost and financing

2.15 The breakdown of costs by type of expenditure and by source of financing is shown below (see Table II-1). Not included in the table are the figures for value added tax (VAT) on works and services or DGC operating expenses. The principal investment categories are explained in the following paragraphs.

1. Preinvestment, supervision, and administration

2.16 The cost of preinvestment and program supervision comes to US$40.1 million (10.8%), which will be used to contract consulting services for: (a) technical and financial administration of the program, i.e., project management; (b) technical studies and engineering designs for the construction, rehabilitation, and

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5/ Subject to presentation of a quitclaim concerning the responsibility of the firm to which the contract had been previously awarded. This segment was part of World Bank program GU-3002, under which a call for bids was issued last year and then cancelled due to problems in the bidding procedures. The World Bank has since canceled the respective financing.

improvement of rural roads other than those covered in the first year; and (c) supervision of the execution of civil works and the costs of management performed with the help of consultants.

2. Direct costs

2.17 This category amounts to US$305.4 million (82.5%), and includes the direct outlays for investments projected over the four years of program execution: construction of highways and additional rural roads, US$20.8 million (5.6%); rehabilitation of roads in the national system, US$105.4 million (28.5%); maintenance of the principal highway system, paved and unpaved, US$141 million (38.1%); and improvement and extension of rural roads in the departments of El Quiché and Huehuetenango, US$34.7 million (9.4%). In addition, equipment will be purchased and the civil works will be built for 13 new vehicle load and size control stations for freight vehicles, to be built at strategic points of the highway system at a cost of US$2 million (0.5%). To conclude, US$1.5 million (0.4%) will be used to purchase approximately 250 linear meters of quick-assembly metal bridges to meet emergencies or for temporary use until the permanent structures are in place.

**Table II-1**
**1996-1999 PROGRAM: TOTAL COST AND FINANCING**
**(in US$ millions equivalent)**

| | | IDB/OC | IDB/IFF | COFIN/ OPEC | LOCAL | PROGRAM TOTAL | % | OTHER a/ | SECTOR TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| **1.** | **ENGINEERING AND ADMINISTRATION** | 9.4 | 4.8 | 0.0 | 25.9 | 40.1 | 10.8 | 8.0 | 48.1 |
| 1.1 | Preinvestment (engineering studies) | 2.0 | 1.3 | 0.0 | 2.2 | 5.5 | 1.5 | 2.0 | 7.5 |
| 1.2 | Supervision | 5.8 | 2.7 | 0.0 | 18.7 | 27.2 | 7.3 | 6.0 | 33.2 |
| 1.3 | Administration | 1.6 | 0.8 | 0.0 | 5.0 | 7.4 | 2.0 | 0.0 | 7.4 |
| **2.** | **DIRECT COSTS** | 71.9 | 42.6 | 4.7 | 186.2 | 305.4 | 82.5 | 84.4 | 389.8 |
| 2.1 | Road improvement and widening | 0.0 | 0.0 | 0.0 | 20.8 | 20.8 | 5.6 | 60.0 | 80.8 |
| 2.2 | Highway rehabilitation b/ | 62.4 | 12.6 | 0.0 | 30.4 | 105.4 | 28.5 | 24.4 | 129.8 |
| 2.3 | System maintenance c/ | 6.0 | 0.0 | 0.0 | 135.0 | 141.0 | 38.1 | 0.0 | 141.0 |
| 2.4 | Rural roads (El Quiché and Huehuetenango) | 0.0 | 30.0 | 4.7 | 0.0 | 34.7 | 9.4 | 0.0 | 34.7 |
| 2.5 | Control stations | 2.0 | 0.0 | 0.0 | 0.0 | 2.0 | 0.5 | 0.0 | 2.0 |
| 2.6 | Purchase of temporary bridges (quick-assembly) | 1.5 | 0.0 | 0.0 | 0.0 | 1.5 | 0.4 | 0.0 | 1.5 |
| **3.** | **ASSOCIATED COSTS** | 3.8 | 0.0 | 0.0 | 0.8 | 4.6 | 1.2 | 6.0 | 10.6 |
| 3.1 | Institutional strengthening d/ | 3.0 | 0.0 | 0.0 | 0.8 | 3.8 | 1.0 | 6.0 | 9.8 |
| 3.2 | Equipment e/ | 0.8 | 0.0 | 0.0 | 0.0 | 0.8 | 0.2 | 0.0 | 0.8 |
| **4.** | **FINANCE CHARGES** | 14.9 | 2.6 | 0.3 | 2.1 | 19.9 | 5.4 | 11.6 | 31.5 |
| 4.1 | Interest | 13.9 | 2.1 | 0.3 | 0.0 | 16.3 | 4.4 | 11.6 | 27.9 |
| 4.2 | Credit fee | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 0.6 | 0.0 | 2.1 |
| 4.3 | Inspection and supervision | 1.0 | 0.5 | 0.0 | 0.0 | 1.5 | 0.4 | 0.0 | 1.5 |
| **PROGRAM COST** | | 100.0 | 50.0 | 5.0 | 215.0 | 370.0 | 100.0 | 110.0 | 480.0 |
| **PERCENTAGE** | | 27.0% | 13.5% | 1.4% | 58.1% | 100.0% | | | |

a/ World Bank loan 3002-GU, US$31 million; misc. CABEI loans, US$72 million; KfW rural roads, US$7 million.
b/ The US$12.6 million in IFF resources will be used mainly in the departments of El Quiché and Huehuetenango.
c/ As noted in paragraph 2.25, only US$84 million of the US$135 million indicated correspond to an increase in the allocations for maintenance.
d/ Training, technical assistance, and the master plan.
e/ Vehicles, supervision equipment, and computers for the Program Coordination Unit, the Contract Maintenance Unit, and the Environment Unit.

3. Associated costs

2.18 The amount budgeted for this category is US$4.6 million (1.2%). Earmarked for institutional strengthening of the regulatory framework and subsector policies, these funds cover: (a) sector studies and the Transportation Master Plan; (b) technical assistance; (c) the training plan for the staff of the MCTOP, the DGC, and the Environment Unit; and (d) the purchase of vehicles, supervisory equipment, and computers for the CGP and the UMC.

4. Finance charges

2.19 This category, which amounts to US$19.9 million (5.4%), consists of: (a) interest payments on the loans from the IDB and the cofinancing agencies during the program execution period; (b) the credit fee; and (c) the one percent charge on the IDB loans to defray the cost of inspection and supervision.

G. Program financing

1. IDB

2.20 Two sources of IDB financing are proposed for the program. The first would be the ordinary capital, in the total amount of US$100 million equivalent for partial financing of the rehabilitation works and maintenance of paved highways and secondary roads. The second would consist of US$50 million in OC/IFF resources to improve rural roads and unpaved highways. Altogether, the Bank's financing would cover 40.5% of the program's total cost. The works and services included in the portion financed by the Bank are discussed in section B of this chapter.

2.21 The terms and conditions of the ordinary capital loan resources will be the following:

| | |
|---|---|
| Amortization period: | 25 years |
| Interest rate: | variable |
| Disbursement period: | 4 years |
| Grace period: | 4 years |
| Credit fee: | 0.75 on the undisbursed balance |
| Inspection and supervision: | 1% of the loan |

2.22 The financing chargeable to the OC/IFF capital would be granted a maximum discount of five percentage points less than the ordinary capital interest rate.

2. Cofinancing

2.23 Cofinancing for the program would be provided by the OPEC Special Fund (in the form of a parallel loan of US$5 million to be administered by the Bank).

### 3. Other investments in the highway sector

2.24 Other investments are being made in the sector with financing from the World Bank (US$31 million); CABEI (US$72 million); and the KfW (US$7 million). The World Bank is currently considering the possibility of providing an additional contribution of US$25 million. These expenditures, however, are not part of the program.

### 4. Local contribution

2.25 The country's contribution to the proposed program will consist of US$215 million equivalent (58.1%), most of which (US$150 million) will be used for maintenance work performed under contract, including US$15 million for supervision and preinvestment. However, only US$84 million of the US$150 million constitutes a real increase in budget allocations for road maintenance, which never exceeded US$16.5 million (in constant terms) prior to 1994. That year marked the start of an assessment of the economic impact of road maintenance, in the context of the World Bank 3002-GU project, and the government decided to increase the budget to US$30 million. Under the proposed program, the government will agree to provide an annual allocation of US$37.5 million for road maintenance. Accordingly, it is proposed that only the increase from US$16.5 to US$37.5, which totals US$84 million for the four years of the program, be considered part of the local contribution.

2.26 The remainder of the local contribution to the program consists of local funds for various projects partially financed by other external sources during the program's four-year execution period, plus nationally funded outlays for road works. These inputs will be provided by the government in the form of annual budget allocations.

# III. PROGRAM EXECUTION

## A. Implementation arrangements

### 1. The borrower, the executing agency, and implementation arrangements

3.1 The borrower will be the Republic of Guatemala, with the MCTOP — through its General Directorate for Roads (DGC) — as the executing agency. As noted in paragraphs 1.15 and 1.16, the experience acquired during the execution of earlier projects was taken into account and measures were incorporated in the design of the program to avoid flaws in execution.

3.2 Given the program's importance to the sector and in order to prevent any adverse impact that DGC shortcomings and its restructuring process might have on program execution, it was agreed to concentrate coordination thereof in the General Program Coordination Office (CGP). This unit is a part of its organizational structure, but it has the necessary operating autonomy, a small staff consisting of seven high-level professionals and satisfactory experience in coordinating the execution of World Bank loan 3002-GU. See the institutional and financial analysis in Annex III-1.

3.3 Inasmuch as the DGC has neither the technical capability nor the trained human resources to manage the program, it was decided that a consulting firm — which will report to the CGP — would take charge of the technical and financial administration of the program. The firm will set up two offices: the first will be responsible for managing the rural roads component in the departments of El Quiché and Huehuetenango and will be located in the city of Santa Cruz del Quiché. The second, to be located in Guatemala City, will handle the rest of the program.

### 2. Functions of the General Program Coordination Office (CGP)

3.4 The CGP will have overall responsibility for the program. Its main duties will be: (a) to serve as coordinator between the Bank, the cofinancing agencies, the DGC, and the consulting firm; (b) to see to compliance with the terms of the loan contracts, the goals and targets of the plan of action, and annual investment plans; (c) to issue periodic reports, accounting records, and disbursements; and (d) to draw up preliminary budget estimates and annual investment plans. The CGP will operate throughout the program execution period; in the event that its structure or duties are affected by reorganization of the MCTOP, to the extent that changes are needed, the MCTOP will present the corresponding proposal to the Bank for approval prior to instituting the change. As the DGC reorganization progresses, plans call for its staff to work with the CGP and receive training in program coordination as well.

### 3. Duties of the consulting firm that will handle technical and financial administration of the program

3.5 The consulting firm will be responsible for technical and financial administration of the program, adhering to the rules and procedures set forth in the loan contracts. Contracting of these services will be a condition precedent to the first disbursement. The firm will train the DGC and CGP staff to perform their duties competently. See Annex III-2 in the regional department technical files for further details.

## B. Execution of the institutional strengthening and sector reform subprogram

### 1. Plan of action

3.6 As stated in paragraphs 2.3 and 2.4 and in Annex II-1, the strengthening and reform component will be implemented on the basis of a plan of action. It is recommended that approval of that plan by the Bank be a condition precedent to the first disbursement.

### 2. Consulting services

3.7 Within six months after the effective date of the loan contract, the studies on: (a) road maintenance financing alternatives; (b) support for the system of road maintenance planning and contracting and vehicle load and size control systems; and within 18 months after that same date, the consultants needed to strengthen the technical and administrative organization of the DGC and the studies; (c) review and updating of general road and bridge construction specifications; and (d) study on the development of new highway construction technologies. To ensure that these studies and policy reforms, and any other studies decided upon in the course of execution of the program, will be implemented satisfactorily, the executing agency is to present an implementation plan to that end at the first annual meeting following the completion of each study. Verifiable quantitative targets also will be set at that meeting.

## C. Execution of the road investment subprogram

### 1. Execution of the investment component for the national road system

#### a. Programming of expenditures

3.8 The annual investment plans will be drawn up taking into account the results of prioritizing current models such as *Highway Design and Maintenance* (HDM-III) or similar approaches; research on and assessment of the present condition of roads and highways; the availability of financial resources; and the experience acquired from execution of the program in previous years.

3.9 The projects to be financed by this program must satisfy the general criteria for the rehabilitation and maintenance works listed in Annex III-3 in the regional department technical files. The basic conditions are the following: they must be existing roads, selected on the basis of their proven returns and positive impact on the region's development; there must exist no legal problems in regard to rights-of-way; and there must be no adverse effects on the environment.

b. Designs, civil works, and supervision

3.10 All of the designs and the maintenance and rehabilitation works will be executed by firms of contractors in the private sector.

3.11 Technical supervision, quality control of the construction, and environmental attenuation measures will be carried out by specialized firms which must be contracted no later than one month prior to public bidding on the construction, to enable those firms to review the bidding documents.

3.12 Before issuing a public call for bids – or, if there is to be no bidding, prior to the start of construction – the executing agency must present to the Bank the plans and specifications for the civil works, which must include the necessary measures to ease any harmful impact on the environment that may be triggered by construction of the respective work.

c. Maintenance

3.13 Road maintenance financed under the program will be administered by the Contract Maintenance Unit (UMC), which will in turn be supported by equipment and technical assistance in its project evaluation systems. Works contracts will be awarded pursuant to the Bank's requirements in this respect and provisions of Guatemalan law.

3.14 Prior to the first disbursement, the borrower is to present a plan for contracting road maintenance during the first year of program execution, at the same time providing evidence that it has the corresponding financial resources.

3.15 To ensure that the rehabilitated roads are kept in satisfactory condition, the borrower undertakes to spend US$150 million equivalent – including US$15 million for supervision and pre-investment – on contract-based maintenance over the four-year execution period. Considering that the privatization of maintenance work will be gradual and parallel to streamlining of personnel and the increase in private-sector capability, it is believed that the borrower will be able to increase the proportion of maintenance performed under contract and reduce force-account work to the following figures: in the first year, 60% under contract and 40% on force-account; second year, 70% and 30%; third year, 80% and

20%; and fourth year, 85% and 15%, respectively. The MCTOP will present annual road maintenance reports throughout the execution period and for a further five years thereafter.

2. Execution of the rural roads rehabilitation component in the departments of El Quiché and Huehuetenango

3.16 Except for programming of the construction works, execution of this component will be similar to that of the investment in the national highway system. The designs, construction, and supervision will be performed under contract, and labor-intensive methods will be used wherever possible. Measures to ease the impact on the environment will be included in the construction contracts.

3.17 The MCTOP, assisted by the consulting firm and the local authorities, will present the programming for the work to be carried out each year, taking into account the specific criteria applicable to rural roads in the departments of El Quiché and Huehuetenango. (See Annex III-3 in the regional department technical files.) Resources for this component of the program will be used to finance works in the poorest areas in these departments, including the most neglected roads that are in the worst state of repair, in order to give small producers better access to agricultural marketing centers and foster other economic activities and social-service delivery. The works projects selected will satisfy the Bank's minimum 12% economic-return requirement. At least 80% of the direct benefits must accrue to low-income beneficiaries.

3.18 As a condition precedent to the first disbursement, the borrower will present a program for the improvement of local roads in the departments of El Quiché and Huehuetenango for the first year.

3. Implementation of measures to offset adverse effects on the environment during construction

3.19 The program was classified in Category III by the Bank's Environment Committee (CMA) on December 7, 1993. The environmental summary covering the environmental impact studies was approved by the CMA on August 1, 1995. The program's emphasis on rehabilitation works and maintenance of existing roads — instead of building new ones — minimizes the harmful environmental impact. Plans call for the construction contracts to include a requirement that measures be implemented to offset negative effects on the environment and that trees be planted in borrow pits. In addition, the firms supervising the works should have staff with special training in environmental matters, the management of water courses and both surface and underground drainage, and techniques to prevent erosion. During the first year, the MCTOP is to carry out

a training plan for the DGC Environmental Unit, as noted in the project environmental summary. 6/

3.20 The borrower will take measures to: (i) ensure that environmental quality control procedures have been applied to all of the projects in the program during the various stages of works planning and execution; (ii) use the specific protection measures approved by the National Environment Commission (CONAMA) to preserve possible archaeological remains and reserve areas or fragile ecosystems; (iii) see that the firm advising the CGP has an environmental specialist to monitor the process of project preparation, supervision, and execution; (iv) present at each monitoring meeting a progress report specifically devoted to the program's environmental aspects, containing a summary of the environmental impact studies; application of mitigating measures; followup and environmental monitoring of civil works; and activities for the institutional strengthening of MCTOP. During the first six months following the effective date of the loan contract, the MCTOP must demonstrate that the DGC Environmental Unit has the requisite professional staff, equipment, and financial resources to carry out its functions properly, in accordance with the environmental summary.

## D. Benchmarks

3.21 Compliance with the following benchmarks will be reviewed annually during the monitoring meetings:

### 1. Benchmarks for the end of the first year of execution

a. Definition of DGC functions and the corresponding structure.

b. Devising of the DGC personnel downsizing plan and the schedule of annual reduction in force. Observance of that schedule will constitute an indicator to be examined at the end of each year of the execution period.

c. Completed design of the DGC information system.

d. Progressive increases in the percentage spent on contract maintenance as opposed to that performed on force account, with the following minimums: 60% on contract-based maintenance and 40% on force account in the first year; 70% and 30% in the second year; 80% and 20% in the third year; and 85% and 15%, in the fourth year, respectively. This indicator will be examined over the four years of the execution period.

e. Definition of the mechanism to be used to recover maintenance costs, and the modality for its implementation.

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6/ Available for consultation in the regional department technical files.

f. Establishment of the project planning and prioritization system.

2. Benchmarks for the end of the second year of execution

a. Completion of steps for implementation of the new DGC structure, with all areas fully operative.

b. Attainment of the second-year targets for cutbacks in staff.

c. Implementation of the project planning and prioritization system.

d. Implementation of the DGC information system.

e. Definition of a training plan to strengthen the new structure of the DGC.

f. Definition of policies for human resource management.

g. Definition and implementation of overall quality control procedures for works and services.

h. The start of implementation of a cost-recovery system.

i. Attainment of the goal of increased contract maintenance and progressively lower percentages of maintenance on force account.

j. Reduction of the percentage of paved roads in poor condition in the highway system from the present 72% to 65% by the end of the second year.

3. Benchmarks for ensuing years

a. Attainment of the targets cited in points 1(b) and 1(d).

b. Reduction of the percentage of the paved system in poor condition from its present 72% to 51% by the end of the fourth year.

c. For the road system targeted for maintenance: the current percentage of unpaved road for which the DGC is responsible will be increased from the present 35% to 48% by the end of the fourth year.

d. The percentage of maintenance of the paved network will rise from the present level of 45% to 95% by the end of the fourth year.

## E. Monitoring of the program by the Bank

### 1. Inspection and supervision by the Bank

3.22 Responsibility for overall administration of the program will lie with the Finance and Basic Infrastructure Division (RE2/FI2). The Bank's Country Office in Guatemala will conduct the ongoing supervision of the program. In addition, annual administration and monitoring meetings have been scheduled, along with a comprehensive review of the program halfway through the execution period.

### 2. Annual monitoring meetings

3.23 Starting in the first year and throughout the rest of the execution period, the executing agency will meet annually with the Bank no later than September 30 to examine the progress made in carrying out the plan of action and the annual investment plan for the preceding year. At that time, the attainment of targets, objectives, and efficiency indicators will be reviewed. The parties will agree on the investment plan for the following year, set targets, and decide on any corrective measures that may be needed, as well as the additional consultancies which will be required to carry through the established plan of action.

3.24 To that end, it is recommended that the MCTOP undertake to present an annual report to the Bank, no later than 15 working days before each meeting. The report will cover the topics indicated in Annex III-4 in the regional department technical files, and the extent of compliance with the indicators cited in paragraph 3.15 and in the Logical Framework shown in Annex II-3.

### 3. Midterm review

3.25 A comprehensive review of the program is to be conducted at the end of the second year from the date the loan contract enters into effect, or when 60% of the loan resources have been committed, whichever comes first. In the event that the Bank should find shortcomings in program execution, the MCTOP must provide the Bank with a proposal of remedial measures, accompanied by a schedule for their implementation.

### 4. Ex post evaluation

3.26 The borrower did not consider a specific ex post evaluation to be necessary, inasmuch as the program will be monitored and compliance with objectives evaluated continuously, as explained in paragraphs 3.22 to 3.25.

## F. Other implementation procedures

### 1. Contracting of works and services and procurement of goods

3.27 No exception is proposed to the Bank's procurement policy. Purchases of goods and services and contracting for maintenance and rehabilitation work will be carried out pursuant to the procedures stipulated in Annex B to the loan contract. International competitive bidding will be compulsory for procurement costing more than US$250,000 for goods and US$1.5 million for construction work. These limits are reasonable, considering that foreign bidders are attracted to similar projects in the country when the estimated cost of the works exceeds those thresholds. Prequalification of bidders will be mandatory for works contracts worth over US$5 million. Public bidding on works and services financed exclusively by local counterpart funds — or those whose cost is below the limits quoted above — will be carried out in accordance with the current laws in the country, which require public bidding when the amount entailed exceeds Q900,000 equivalent (approximately US$156,000). The same laws permit limited tendering for smaller amounts, this being concordant with the basic principles required by the Bank.

3.28 Insofar as possible, calls for bids on the maintenance and rehabilitation works will be organized into packages of various projects located in the same region to attract lower bids. See Annex II-2 for the tentative schedule showing approximate dates for tender calls the first year.

### 2. Rights-of-way

3.29 The criteria for selecting projects include a requirement that, prior to each call for bids, evidence to the Bank's satisfaction showing legal possession, easements, or other rights over the land on which the program works are to be built must be presented. No difficulties are anticipated in this regard, inasmuch as existing roads and highways are involved.

### 3. Advance of the loan proceeds

3.30 Since it will be necessary to make advance payments to the consultants, contractors, and consulting firms, it is recommended that an advance consisting of 10% of the loan amount be granted once the conditions precedent have been met and the government so requests.

## G. Natural disasters

3.31 Guatemala sometimes experiences earthquake activity and floods that are difficult to predict. Except for the procurement of rapid-assembly bridges to be used in emergency situations, the program includes no measures to reduce the effects of those natural

phenomena. Should the need for works to cope with natural disasters arise, the borrower, in consultation with the Bank, will decide what solutions are to be used; and the Bank will provide the requisite support pursuant to its policies in that regard.

H. External audits

3.32 Starting with the first year and throughout the execution period, the program's financial statements must be presented to the Bank, after having been duly audited by independent auditors, pursuant to the procedures established by the Bank in that regard.

## IV. PROGRAM JUSTIFICATION

### A. General justification

4.1 The program will have a positive impact, improving the country's economic efficiency by means of the following measures: updating of the MCTOP capabilities for administering the highway system and controlling damage to the environment; making for more efficient use of financial resources; reduction of the percentage of roads in poor repair from 72% to 58%; a 25% cut in the cost of operating and maintaining the vehicles which travel on those roads; heightening of the value of production; and implementation of a sustainable and efficient system of cost recovery in the performance of maintenance work. The program is also expected to improve the standard of living of the rural population in the depressed region consisting of the departments of El Quiché and Huehuetenango, by providing better overland communication facilities. This will make it easier to market farmers products, lower their operating costs and give them access to social and agricultural support services.

### B. Technical feasibility

4.2 The analysis of the program supports the conclusion that it represents a solution that is technically and operationally feasible. The following considerations support that opinion:

a. The program design features satisfactory standards and methods that are consistent with acceptable engineering practices as well as with the present and projected volumes of traffic.

b. The civil works will be executed pursuant to contracts awarded by means of public bidding and procedures consonant with the Bank's procedures and rules for the contracting of such works.

c. There will be no need to employ complex methods in the rehabilitation and construction work. Accordingly, no technical problems are anticipated that might impede timely execution of the program.

### C. Institutional feasibility

4.3 To determine the institutional arrangements to be used in executing the program, the following factors were taken into account: the lessons learned in the execution of previous loans; the institutional support which the program will require; and a realistic assessment of the current situation of the MCTOP restructuring process. To ensure that the institutional transition in which the DGC is now engaged will have no adverse effect on program execution, and that excessive bureaucracy will not cause unnecessary delays or operating weaknesses, it was agreed that

coordination at the MCTOP/DGC level would be conducted within the CGP, which has a record of satisfactory experience in the execution of IBRD loan 3002-GU.

4.4 The CGP's performance as coordinator has been highly satisfactory. It has trained staff, and its equipment, facilities, and systems are functioning properly. The CGP was created and outfitted to coordinate IBRD loan 3002-GU, which is now in an advanced stage of execution. In addition, for project management it was agreed that a consulting firm will be engaged to handle the technical and financial administration of the program. It can therefore be stated that, despite some temporary shortcomings in MCTOP operations stemming from the reorganization process, the institutional and administrative conditions in place should make for satisfactory implementation of the project. Finally, the time-slice and other monitoring procedures will pinpoint any institutional weakness, thus allowing for adjustments during the execution period.

4.5 One factor that could influence the viability of the rural road rehabilitation component in the departments of El Quiché and Huehuetenango is the possibility that ongoing peace talks might fail and the conflict might escalate, ultimately impeding contractors' access to the zone and jeopardizing their safety. This risk will be reassessed each year at the monitoring meetings, to ensure the attainment of objectives and adequate use of the resources for this component, which was designed to help further the peace process, concentrating as it does on the poorest areas in these departments.

## D. Financial feasibility

4.6 Annex IV-1, in the regional department technical files, contains DGC financial projections for the 1993-1999 period. They include two years of actual figures (1993 and 1994) and one year showing budget allocations (1995); and, starting in 1996, projections include the investment plan agreed upon with the Bank for the program, and administrative and operating costs that take into account planned staff cuts and the start of a cost-recovery program. On average, the projected investments over the 1996-1999 period amount to about US$147 million a year. Payroll costs will drop from US$6.7 million in 1993 to US$3.1 million in 1999. The figure of US$11.3 million for 1993 operating expenses will decline to US$5.3 million in 1999.

4.7 The average level of total DGC expenses will be about US$153.1 million, with average investments of US$147 million, as compared with the 1993-1995 historical average of US$84.6 million. That increase is largely due to the construction and rehabilitation works to be carried out in the next several years with financing from the World Bank, OPEC, CABEI, and the IDB: a total of US$266.2 million over the four-year period. The external financing provided for

construction – which accounted for 34% of all outlays over the historical period examined – will rise sharply to reach 45%. Funding for the projected investment plan is feasible, inasmuch as most of the sources of financing have already been approved or are in process.

## E. Economic feasibility

4.8 The economic feasibility of the projects proposed for the first year of the program has been evaluated. Those for rehabilitation of the national highway system have been analyzed and prioritized as a results of simulations using the HDM III model. The projects for the first year include the CA-10 highway and the section from Los Encuentros to Cuatro Caminos, plus (at least one of) the CA projects: CA-2 West between Escuintla and Popoya and CA-9 South between Guatemala City and Palín. The start of a program to improve rural roads in Zonapaz (the peace zone) during the first year is also envisaged.

### 1. Methodology

4.9 The economic benefits examined for the projects to rehabilitate these roads include a reduction of vehicle operating cost and travel time. The considerable benefits relating to future maintenance expense were also taken into account. Those stemming from the normal growth of traffic were also measured, but they were accompanied by sensitivity tests based on the estimated volume of traffic generated through the reduction of those costs. The annual growth rates of traffic resulting from the construction have been conservatively estimated as ranging between 2% and 6.5%, and up to 10% a year when the traffic thus generated is included. The program includes general components to upgrade traffic signs and safety conditions and control the damage inflicted on paved surfaces by excess loads. While the economic costs of construction in the first year include the figures for rehabilitating bridges and improved signposting and highway safety devices, the corresponding incremental benefits (added capacity of the roads, more efficient truck traffic, fewer accidents) were not quantified; this was a further conservative feature of the analysis.

4.10 For the program of road rehabilitation in Zonapaz (the district that encompasses the departments of El Quiché, Huehuetenango, and Upper and Lower Verapaz), an estimate was made of the net incremental value of farm output sparked by improved road access in marketing these commodities, based on the nature of typical construction work in this part of the country. The road program will spur the growth of commercial agriculture since it will cut transportation costs, provide better access to improved production methods, and reduce crop losses. The estimate of these benefits was based on data for current farm production, as well as on socioeconomic and demographic surveys in the works' sphere of

influence, complemented by studies showing the economic impact of previous development projects in these departments.

2. <u>Results</u>

4.11 The findings of the economic analysis are summarized in the following table (in 1994 values).

| REHABILITATION AND IMPROVEMENT WORKS<br>ESTIMATED EIRR, NPV AND SENSITIVITY | | | | | | |
|---|---|---|---|---|---|---|
| CONSTRUCTION SITE | LENGTH (km) | COST (US$000) | EIRR (%) | NPV (US$) | SENSITIVITY (NPV) (US$000) | |
| | | | | | Costs +20% | Benefits -20% |
| Los Encuentros 4 Caminos | 61.6 | 9,345 | 30.8 | 10,797 | 9,484 | 7,466 |
| CA-10 | 97.4 | 16,503 | 57.2 | 30,375 | 26,893 | 17,502 |
| Zonapaz - a. | 90.5 | 8,123 | 24.8 | 6,271 | 3,359 | 2,104 |
| Zonapaz - b. | 36.0 | 965 | 39.2 | 1,695 | 1,241 | 902 |

4.12 The road rehabilitation projects post a high rate of economic return. The economic justification for each segment of these works was also examined, confirming their acceptable return. In the case of Link 4 of highway CA-10, the economic return was substantiated by taking into account the reduced expense of future maintenance specifically aimed at resolving the serious drainage problem present on one portion of this segment.

4.13 Typical rural road improvement projects in Zonapaz also show a high return rate for this part of the first-year program.

3. <u>Sensitivity analysis</u>

4.14 The sensitivity of these results to changes in the major cost and benefit determinants was examined. The economic justification for all of these works remains constant in the face of a 20% increase in the investment cost. A clearly positive NPV on these works persists when the benefits are cut by 20% if slower growth of traffic — and no consideration of additional volume generated — is assumed.

4.15 For the rural roads component, the figures' sensitivity to variations of 20% in the investment costs and the benefits derived from the stimulus to farm production was examined. The economic justification for these works remains stable, as may be seen in the table above. It is also important to consider that improved road access will trigger additional unquantified benefits in connection with the cost of transportation and the economic stimulus to

nonfarming activities, plus the heightened availability and reduced cost of health care, education services, and the like. These added benefits further strengthen the economic rationale for the program.

4. Distributional impact

4.16 Since the program calls for reforms that will rehabilitate and increase the efficiency of the national highway system, it does not qualify as an explicitly poverty-targeted investment: most of the direct beneficiaries will not belong to the low-income sector, based on the poverty line estimate for the country.

4.17 The portion of the program that is designed to improve rural roads in the departments of El Quiché and Huehuetenango will contribute to the peace process in Guatemala, thus providing special benefits for the poor in this area. Although most of the program beneficiaries in that region are from low-income groups (small farmers, transport carriers), there is a possibility that a significant percentage of the direct benefits generated by the civil works may be reaped by larger carriers as well.

## F. Environmental impact

4.18 At its December 7, 1993, meeting, the Environment Committee classified this operation in Category III, and recommended that the corresponding environmental summary be prepared.

4.19 The program's targets are intercity highways and rural roads already in existence that were built between 10 and 30 years ago in farming areas where land-use patterns are entrenched. The pertinent economic studies found that only in isolated instances did plans to intensify the production processes exist. Since the program is designed to improve access to firmly implanted farming areas and does not call for the opening of new roads, its effect on the environment will be either favorable or small in size and intensity. The component of routine and periodic maintenance will not have a significant impact on the environment.

4.20 The earthwork required for the rehabilitation projects will have some small direct effect at a distance of 10 to 30 meters on both sides of the road. No impact is anticipated on streams and bodies of water, but any such effects, if they occur, can readily be eased by using well-known and relatively simple and economical techniques.

4.21 The environmental studies that were conducted helped identify possible adverse effects on the environment. They recommend a number of preventive and mitigating measures. These recommendations have been incorporated into the designs and technical specifications of the first year's projects and have been adopted as an eligibility criterion for future projects that will comprise the investment programs in the years subsequent. Following the recommendations of the environmental studies, and as a part of the MCTOP institutional strengthening, the program also includes a technical assistance package to upgrade the DGC Environmental Unit, as well as ways to improve control procedures and quality in this sphere.

## DESCRIPTION OF THE PLAN OF ACTION

Background: In 1994, the Government of Guatemala instituted activities that were designed to rationalize the MCTOP bureaucratic apparatus; to heighten the efficiency of expenditures on road maintenance and rehabilitation; and to modify the MCTOP functions, defining its new role as a planning and regulatory agency for the transportation sector and gradually eliminating its duties as a direct executing agency.

Results obtained: Early in that year, MCTOP put into effect a voluntary retirement plan for which more than 2,000 employees signed up over a two-year period. The program will continue to be offered, with certain changes designed to make it more attractive to day laborers. MCTOP also set up a pilot program calling for maintenance work to be performed under contracts with private enterprises. The program has been eminently successful, having already attained 35% coverage of the paved road system. The use of this system has boosted the number of companies available to perform maintenance work under contracts, thus allowing the contract unit to concentrate its efforts on monitoring and supervising service quality. With the additional number of contracting firms, savings of as much as 50% are expected in maintenance costs, which would make a substantial contribution to more effective public spending in the sector. The services of an international consulting firm have been engaged to draw up the master plan for the transportation sector. The plan, which is to be completed in October of 1995, will define in concrete terms the functions of the MCTOP and the DGC, plus the complementary measures that must be implemented to modernize highway administration and strategic planning of investment in the sector.

Plan of action: Sufficient information and studies are available to compile the plan of action that is to be presented by the government. As noted earlier (in paragraph 1.22), the plan will cover the following major activities:

(a) To ensure the resources needed for road maintenance:

- Definition of the cost-recovery system by setting up a fund fed by fiscal receipts consisting of taxes collected either directly or indirectly from users of the highway infrastructure, accompanied by the schedule for implementing this measure and a projection of the income levels to be reached with this system.

- Definition of the road concession policy for programming the action to be carried out in this field.

(b) To optimize the use of public funds spent on the road system:

- Definition of the schedule for transferring the present maintenance system to one based on contracts with private companies until the desired indicators are reached. The goal is to privatize more than 95% of all highway maintenance within a four-year period.

- Implementation of specific measures to support the creation of private road maintenance companies.

- Definition of the plan for reducing the DGC staff, including job retraining. It is hoped to achieve substantial downsizing of the DGC staff within the same period.

- Implementation of a system for planning and prioritizing DGC investments, using modern prototypes such as the HDM-III or a similar model.

- Projection of the savings that will result from implementing these systems (a and b).

(c) To implement the new role and structure of the DGC: general tasks

- Concise definition of the MCTOP and DGC functions as a planning and regulatory agency, accompanied by the implementation schedule.

- Definition and implementation of the information systems.

- Improved and simplified procedures for public bidding and the awarding and administration of contracts, in particular as a means of ensuring transparency in the contracting process.

- Development of quality control procedures for the execution of studies, works, and supervision, and for all administrative tasks which involve programming, accounting, budgetary management, and payment or internal audit systems.

- Definition of the activities leading to decentralization of highway administration. Clarification of the responsibilities borne by the national and municipal agencies for maintenance of roads that traverse urban areas.

Specific tasks:

- Strengthen the DGC Weights and Dimensions Control Division. Update the weight and dimension regulations. Put into effect the system and update the schedule of fines, so that the proceeds can be used to finance sustainable weight control and the police role in such control.

- Strengthen the DGC Planning Division Environment Unit to enable it to perform effective control of the road infrastructure works' impact on the environment; and review the regulations of the Environmental Law for the subsector.

- Propose action to improve the safety of travelers on the urban segments of the principal highway system.

- Review the regulations governing intercity bus transportation with a view to stimulating competition and improving service quality.

(d) To facilitate the development of a new role for the DGC:

- Define and implement a human resources management policy that emphasizes qualifications and merit; and redefine the salary scale.

- When the MCTOP has reached an advanced stage in its reorganization process, define and implement a plan to train DGC staff in the technical and administrative areas encompassed by its new role.

# LOAN PROPOSAL
# GU-0017

## Action Plan
## Profile Proposal

| Description of actions | Anticipated completion date | Benchmark (targets) | r |
|---|---|---|---|
| **ions to assure availability of resources for road maintenance** | | | |
| Define cost recovery system, based on creation of a fund containing proceeds of direct or indirect highway infrastructure user charges (surtaxes, fees, tolls). | | Percentage of highway system maintained from the Fund:<br><br>1997 = 20%<br><br>**To be confirmed:**<br>1998 = 40%<br>1999 = 60%<br>2000 = 80% | |
| Reach agreement on terms of reference with the Bank. | October 15, 1995 | | |
| Hire a specialized firm. | July 15, 1996 | | |
| Conduct study to determine system to be established, implementation timetable, and projected revenue levels. | October 15, 1996 | | |
| Implement selected option. Establish road fund and amend pertinent legislation. | January 1, 1997 | | |
| Define highway concession policy for programming of action to be taken in this regard. | | Kilometers of highway under concession arrangements in:<br><br>1996 = 300 km<br><br>**To be decided by MCTOP:**<br>1997 =<br>1998 =<br>1999 =<br>2000 = | |
| Describe achievements of the Transroute study. Present action plan for implementation of concession policy, indicating sections to be put out to concession and timetable for same. | October 1995<br><br>(being done by Transroute) | | |
| Project likely concession revenues, or savings that will ensue for maintenance budget during concession period. | January 1996 | | |
| **ions to optimize use of public monies in highway system investments** | | | |
| Implement specific measures to help in creation of private road-maintenance companies. | | | |
| Devise action plan to help in creation of private road-maintenance companies (financial, fiscal, training areas). | | | |

| Description of actions | Anticipated completion date | Benchmark (targets) | r |
|---|---|---|---|
| Strengthen the contract maintenance program coordinating unit. | | Number of contracts handled by the UMC. | |
| Finalize terms of reference. | November 1995 | | |
| Hire a consulting firm. | June 1996 | | |
| Produce the study. | September 1996 | | |
| Implement actions proposed in technical, accounting, information systems, and programming areas. | November 1996 | | |
| Devise details of privatization process. In connection with the DGC restructuring plan, define targets in terms of privatization of maintenance and timetable for transferring maintenance work to a private contract system, until desired benchmarks are attained. | | – number of new companies<br>– number of jobs in new Maintenance Division:<br>1996 =<br>1997 =<br>1998 =<br>1999 =<br>2000 =<br>– number of jobs in DGC<br>– percentage of maintenance contracted out (in terms of funding)<br>1996 = 75%<br>1997 = 75%<br>1998 = 80%<br>1999 = 85%<br>2000 = 85% | |
| Define plan for DM reduction in force and retraining and manpower adjustment plan. | November 1995 | | |
| Define plan for DGC reduction in force and retraining and manpower adjustment plan. | November 1995 | | |
| Define goals for transfer of maintenance to private sector. | November 1995 | | |
| Implement a system for DGC investment planning and priority-setting, using models such as HDM III. | June 1996 | | |
| (see final business performance report)<br>Define general annual maintenance financing plan, specifying:<br>– funding needs for entire road system<br>– resources expected from the Road Fund<br>– percentages of road system that can be covered | November 1996 | Percentage of road system maintained | |

| Description of actions | Anticipated completion date | Benchmark (targets) | r |
|---|---|---|---|
| tions to implement new DGC role and structure | | | |
| Specify planning and regulatory functions of MCTOP and DGC and timetable for implementation. | December 1995 | | |
| Define and implement information systems. | December 1995 | | a |
| Improve and streamline internal processes for tendering, contracting, and contract administration, particularly to develop transparent contracting procedures. | June 1996 | | a |
| Develop quality control procedures for studies, construction work, and supervision, and for all administrative tasks (programming, accounting, budget management, payments systems, internal audits). | September 1996 | | a |
| Define actions to decentralize road management; clarify national and municipal responsibilities for maintenance of roads traversing urban areas. | November 1995 | | |
| Strengthen DGC Division of Vehicle Load and Size Control, update Load and Size regulations, implement system; update fines, which will fund the load monitoring system to make it sustainable, and police role in the system. | Action plan ready. Implementation: January-June 1996 | | Stud |
| Strengthen DGC Planning Division's Environment Unit so it can effectively monitor environmental impact of road infrastructure works, and revise regulations under the Environment Act pertaining to the subsector. | Action plan ready. Implementation: January-June 1996 | | |
| Propose action to enhance pedestrian safety on sections of main highways that traverse built-up areas. | November 1995 | | |

| Description of actions | Anticipated completion date | Benchmark (targets) | re |
|---|---|---|---|
| **ions to facilitate development of new DGC role** | | | |
| (In connection with ongoing program for civil service) Devise and implement a human resources management policy in which qualifications and merit are foremost, and revamp salary scales. | November 1995 | | |
| Devise and implement a plan for training of DGC personnel in technical and administrative areas for DGC's new role. | Work under way on plan design. To be implemented after the reorganization. | | |

**Tentative date for completion of plan**

t on structure of the plan and framework for reforms: August 15, 1995
on of detailed profile: September 15, 1995
on of final action plan:

## PROCUREMENT PLAN FOR YEAR ONE OF THE INVESTMENT PROGRAM

| Major Procurement for Project | Financing | | | Method (ICB or other) | Prequalification (Yes/No) | Estimated AEA Publication Date Half-year/year |
|---|---|---|---|---|---|---|
| | IDB | Other | Local | | | |
| Description | Rehabilitation of Highway CA-10 (Río Hondo-Agua Caliente) 97.4 km | | | ICB | Yes | 1/1996 |
| No. of lots | 1 | | | | | |
| Total value in US$ millions | 19.4 | | | | | |
| Description | Rehabilitation of Highway CA-2 West (Escuintla/ Popoya) 40 km | | | ICB | Yes | 2/1996 |
| No. of lots | 1 | | | | | |
| Total value in US$ millions | 5.5 | | | | | |
| Description | Rehabilitation of Highway CA-9 South (Guatemala City-Palín) 48 km | | | ICB | Yes | 2/1996 |
| No. of lots | 1 | | | | | |
| Total value in US$ millions | 19 | | | | | |
| Description | Rehabilitation of Highway CA-1 (Los Encuentros-4 Caminos) 61.6 km | | | ICB | Yes | 2/1996 |
| No. of lots | 1 | | | | | |
| Total value in US$ millions | 11 | | | | | |
| Description | Technical and financial management of the program | | | ICB | Yes | 1/1996 |
| Total value in US$ millions | Between 1.2 and 1.8 | | | | | |

| Major Procurement for Project | Financing | | | Method (ICB or other) | Prequalification (Yes/No) | Estimated AEA Publication Date Half-year/year |
|---|---|---|---|---|---|---|
| | IDB | Other | Local | | | |
| Description<br><br>Total value in US$ millions | * Study of financing alternatives for road maintenance<br><br>* Study on strengthening of highway planning and the weight inspection system<br><br>* Production of new highways manual<br>Review and updating of General Specifications for Highway and Bridge Construction<br><br>• Study on the development and incorporation of new road construction technologies<br><br>Approx. 1.5 | | | ICB | Yes | 1 and 2/1996 |
| ICB ceiling amounts: US$ 250,000 for goods<br>US$1,500,000 for construction | | | | | | |

<u>Note</u>: The procurement plan for ensuing years cannot be confirmed, since this is a time-slice program and the works and studies to be executed are determined on a year-to-year basis. It can nevertheless be anticipated that about 50% of the US$150 million IDB loan will be used for road rehabilitation works; around 3% for equipment (quick-assembly bridges, weight inspection stations, and computers); and roughly 8% for institutional studies which will be put out to contract by means of ICB (international competitive bidding). The remainder (39%) consists of financing expenses and the studies or works that will not be eligible for ICB contracts but be subject to local competitive bidding because of the total amount entailed.

# GUATEMALA (GU-0017)

## LOGICAL FRAMEWORK

| OBJECTIVES | BENCHMARKS 1/ | MEANS OF VERIFICATION | HYPOTHESES |
|---|---|---|---|
| **PURPOSE** | | | |
| Support the development of the country's economy through the improvement of road transport. | - Provide targets of reasonable progress as a result of the implementation of prioritary highway system investments based on economic rate of return. | - National Statistics on Transportation.<br>- Project Completion Report. | Overall stability in the country: on a political level (peace agreements are signed before end 1995) as well as on an economic level (fiscal situation gets under control). |
| **OBJECTIVES** | | | |
| 1. Sponsor an in-depth reform of the road subsector. | 1. Level of achievement of objectives set in the plan of action. | 1&2 Annual reports & monitoring meetings.<br>- Mid-program review.<br>- Project Completion Report. | The next government confirms its political commitment to the agenda of reforms in the road subsector. |
| 2. Pursue the network rehabilitation efforts undertaken. | 2. Share of paved network in poor condition to decrease from 72% now to 65% in two years and 51% at the end of the program. | 2. New survey on network condition to be done by year 2000. | |
| | 3. Percentage of the network adequately maintained to grow from 30% now to 90% at the end of the program. | | |

1/ Benchmarks have been selected to be as quantitative as possible. When proposed benchmarks are dates (as opposed to figures), the exact dates are to be agreed upon with the government during loan negotiation. A few figure benchmarks are also to be quantified with the government at the same stage. They are indicated in the table.

| OBJECTIVES | BENCHMARKS 1/ | MEANS OF VERIFICATION | HYPOTHESES |
|---|---|---|---|
| **OUTPUTS** | | | |
| 11. Establishment of sustainable cost recovery mechanisms to finance road maintenance. | 11. Date of establishment of the road fund.<br>- Money collected annually for the fund to exceed US$60 million when program ends. | 11. Annual report & monitoring meeting. | 11. The government has the political will to raise what could be seen as an additional tax on gas 3/. |
| 12. Privatization of road maintenance. | 12. Percentage of maintenance transferred to the private sector to reach 80% after two years and 85% when program ends. | | 12. The government has the political will to reduce the staff of the DGC Maintenance Division. |
| 13. Definition of the DGC's new mandates and implementation of its new structure. | 13. Benchmarks defined in the plan of action. | | |
| 14. Development of new human resources management policies. | 14. Benchmarks defined in the plan of action. | | 14. The government engages in a Modernization of the State program that allows for a comprehensive revamping of civil service. |
| 21. Rehabilitation of 250 km of paved and unpaved roads. | 21. All first year projects 100% completed by January 1, 1998.<br>- 250 km rehabilitated by January 1, 2000. | 21. Annual report & monitoring meeting.<br>- Monthly reports from the CGP. | 21. The executing unit (CGP) enjoys autonomy (and continuity) during the transition period corresponding to the reorganization of the DGC. |
| 22. Maintenance of 70% of the paved network and 50% of the unpaved network over 4 years. | 22. Level of budgetary allocations to average more than US$39.25 million during the 4 years of the program. 2/ | | |
| 23. Purchase of various equipment (weigh control, fast assembly bridges) designed to enhance network reliability. | 23 All investments done by 01 Jan 2000. | | |
| 24. Rehabilitation of 830 km of rural roads in the departments of El Quiche and Huehuetenango, MCTOP. | 24. 830 km rehabilitated by 01 Jan 2000. | | |

2/ This figure does not take into account the yield of an additional tariff on gas for the road fund which is to be established (See Annex IV-2), but only reflects the commitment of the government to maintain its present involvement in road maintenance.

3/ It is in fact not a tax but rather a tariff or a user's charge (see Annex IV-2).

| OBJECTIVES | BENCHMARKS 1/ | MEANS OF VERIFICATION | HYPOTHESES |
|---|---|---|---|
| **ACTIVITIES** | | | |
| 111. Contract consultant to carry out study on cost recovery. | 111. Date of contract signature. | 1. Continuous discussion with the ministry.<br>- Annual reports & monitoring meetings.<br>- Mid-program review. | 1. The government maintains its political will to proceed with the reforms.<br>- There is continuity at management level in the DGC throughout the reform process.<br>- Labor unions are brought on board by the government. |
| 112. Implement solution proposed by the study. | 112. Date of establishment of the fund. | | |
| 121. Gradually reduce staff at DGC Maintenance Division. | 121. Maintenance Division staff reduction level (to be quantified during first year of loan implementation). | | |
| 122. Strengthen and develop private sector. | | | |
| 123. Strengthen the Contract Maintenance Unit (UMC). | | | |
| 131. Agree on DGC's new role. | 131. Date of issue of Presidential Decree modifying DGC's functions. | | |
| 132. Define and Implement DGC's new structure. | 132. Date of implementation of the new structure. | | |
| 133. Strengthen DGC's capacities in numerous fields (inc. environmental asses. and weight control). | | | |
| 141. Define labor reconversion scheme. | 141. Staff reduction at DGC level (to be quantified during first year of loan implementation). | | |
| 142. Define and implement new staff status and procedures (hiring, promotion...). | 142. Date of enforcement of new procedures. | | . |
| 2. Contract the necessary consulting firms and contractors.<br>- Speed up payment procedures.<br>- Carry out supervision. | 2. Date of signature of contracts.<br>- Number of days between request for payment and actual payment. | 2. Monthly reports from CGP.<br>- Annual reports & monitoring meetings.<br>- Mid-program review. | 2. The executing unit (CGP) enjoys autonomy (and continuity) during the transition period corresponding to the reorganization of the DGC.<br>- The CGP gets adequate support from DGC technical and administrative divisions. |

# INSTITUTIONAL AND FINANCIAL ANALYSIS

## A. Institutional analysis

### 1. Organizational structure of the executing agency

1 Up to 1993, the DGC organization reflected the provisions leading to its creation and the regulations designed to govern the execution of road maintenance performed exclusively on force account. In the opinion of the present administration, those functions resulted in an over-dimensioned structure of its human resources and its inventory of machinery, along with excessively centralized decision-making powers; rampant inefficiency in the management of human and material resources; delays in project execution; and weaknesses in the planning of works. It was decided to remedy those shortcomings by restructuring the organization of the MCTOP, in particular the DGC, and a start was made on these activities in 1994. A graphic representation of the present and proposed MCTOP and DGC structures may be seen at the end of this annex. A "tree" of objectives was drawn up to visualize solutions to the sector's problem issues and is also shown in the final pages of this annex.

2 The most relevant features of the DGC restructuring are: a drastic cutback in its staff; the gradual transfer of road maintenance from force account to contracts with private companies; and strengthening of the DGC structure so that it can efficiently discharge its duties as a planning, administrative, regulatory, and supervisory agency and comptroller of the sector's services and activities.

3 At the present time, the DGC is unable to provide the logistic and staffing support needed for the program owing to the weakness and lack of operational stability of its current situation triggered by the organizational transition process. A further contributing factor is the lack of skilled personnel resulting from the voluntary retirement program that was put into effect by ministerial policies in an effort to reduce the bureaucratic apparatus.

4 Because of the program's importance to the sector and the need to prevent the weaknesses identified and the DGC restructuring process from adversely affecting the program, it was agreed to concentrate responsibility for program execution in the General Program Coordination Office (CGP) that is a part of the DGC organizational structure but has an adequate level of operating autonomy. To perform the duties of technical and financial administration, a "project management" contract for execution of the subprograms will be signed with a consulting firm that will report directly to the CGP.

5 The CGP has a staff of seven professional employees and two secretaries. The professional staff comprising the CGP Unit is deemed competent and these workers were engaged through a modality of the Organic Budget Law which authorizes payment of salaries comparable with those offered in the private sector. The CGP has had two years of experience with World Bank loan 3002-GU and its performance has been rated satisfactory. Since it has the facilities, office equipment, computers, and vehicles needed for supervising the works financed by the World Bank, no additional short-term support is considered necessary for coordination of the program under review here. Training and occasional consulting services might nevertheless be included from the second year of the execution period.

2. Reforms in the sector

6 A study of the Master Plan for the sector financed by the World Bank is now being conducted with a view to remedying the weaknesses of the MCTOP and the DGP, and other studies have been completed on the modernization of MCTOP which include various proposed reforms. The resources of World Bank loan 3002-GU have been used to devise a broad training program covering virtually all of the activities on which the new MCTOP structure will concentrate. The program has not yet started, however, because of the persistently unstable status of its human resources; but it is possible that this will take place when the more advanced stages of reorganization are reached.

3. Personnel

7 In December of 1994 the MCTOP had 20,987 employees, 11,284 of whom worked in the DGC, with 7,576 of the latter in the Maintenance Division. The duties of this division have been among the first to suffer cutbacks as the MCTOP/DGC reorganization progresses. The classification of DGC and Maintenance Division staff by function and in comparative terms from June 1992 through December 1994 appear in the regional department technical files. During that period, the DGC staff was reduced by 2,105 workers and the Maintenance Division by another 792.

8 The supply of skilled workers is limited. Only 3.3% of the employees are professionals or technicians with some degree of expertise. The salaries paid at the professional and technical levels are low, but wages at the operations level and for unskilled laborers and field staff are higher than those in the private sector. For the first 18 months after the voluntary retirement program went into effect, very little impact was seen on the laborers and a great deal on the professional and technical personnel, the opposite of what the program had sought to accomplish. The plan is now being revamped by the MCTOP authorities to make it more attractive to unskilled workers.

9 In addition to the foregoing, various reforms have been put into effect. They include a freeze on job openings, except for division heads and in-house transfers, which must be duly justified.

### 4. Budgetary, accounting and financial administration

10 Budget management and the account ledgers will be assigned to the CGP Unit, which will consolidate the semiannual progress reports, the annual investment plans, and the pro forma budgets. The Unit will engage a firm of independent auditors to conduct the annual external audit.

### 5. Internal and external control

11 Internal control duties will be performed by the Internal Audit Section, which reports to the DGC General Director. This section handled the internal control of World Bank loan 3002-GU and earlier IDB loans satisfactorily. External inspection of the DGC will be conducted mainly by means of: (a) periodic visits by tax auditors from the Technical Budget Directorate and the External Financing Directorate; and (b) inspection of the program financial statements by an independent firm of auditors acceptable to the Bank.

## B. Financial analysis

### 1. DGC resources

12 The DGC operations and project execution activities are financed by the government through budgetary allocations approved by the National Congress and funding from international agencies. Those allocations often do not reflect the planning, due to liquidity problems in the Central Government, which frequently doles out the funds earmarked for the DGC to institutions whose priority needs are more pressing at the time. This practice has forced the DGC to use funds that were originally meant for investment to pay its employees' wages.

13 The comparative annual figures for revenue resulting from the statements of budget allocation and execution show the following changes:

| DGC BUDGETS FOR PREVIOUS YEARS (in US$ equivalent) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | Allocation | | | Execution | | | Ops. as % of Total |
| | Operations | Investment | Total | Operations | Investment | Total | |
| 1989 | 11,646,885 | 37,082,100 | 48,728,985 | 11,645,698 | 37,080,096 | 48,725,794 | 24% |
| 1990 | 9,875,809 | 49,571,730 | 59,447,539 | 9,810,562 | 47,497,914 | 57,308,476 | 17% |
| 1991 | 11,622,083 | 100,901,244 | 112,529,328 | 11,008,109 | 46,693,764 | 57,701,873 | 19% |
| 1992 | 14,608,890 | 104,737,248 | 119,346,238 | 12,602,453 | 64,453,459 | 77,055,913 | 16% |
| 1993 | 14,591,929 | 122,269,964 | 136,861,893 | 11,313,168 | 55,141,610 | 66,454,778 | 17% |
| 1994 | 10,894,529 | 90,908,885 | 101,803,414 | 8,204,703 | 71,502,177 | 79,706,880 | 10% |
| 1995 | 21,813,857 | 121,571,240 | 143,385,097 | | | | |

14 The average annual revenue of the DGC during the period under review was approximately US$64.5 million. The pattern of budget execution tells us that almost 100% of the allocations for 1989 and 1990 were executed. In the ensuing three years (1991 to 1994), however, execution plummeted to an average of only 54%; but then improved in 1994 when it climbed back to 78% of the sums allocated. Over the past four years, the agency has had neither the capacity nor the liquidity to carry out all of the investment project works entrusted to it.

2. DGC expenses

15 Operating expenses remained constant up to 1993, averaging US$11.2 million a year, but dropped to US$8.2 million in 1994 with the reduction of personnel. According to data supplied by the MCTOP for the 1989-1994 period, operating expenses accounted for about 16.7% of the total budget amount executed, while investment expenses represented 83.3%. It should be noted that various projects with external financing were carried out during this period, which had a marked impact on the investment category.

3. Fiscal revenue relevant to the road sector

16 Guatemala does not have a policy on direct recovery of outlays in the highway subsector or the expenditures made on the maintenance of roads and bridges. Neither has any specific tax been introduced on the heightened value of property as a result of the execution of public works. Users of the highway system nevertheless contribute regularly to indirect recovery of construction expenses and maintenance of the resulting works, and this input is largely responsible for the recovery of the outlays on maintenance and the investment in roads. The most prominent and onerous tax is the one

on gasoline: the after-tax price to the consumer was US$1.67 equivalent per gallon on June 9, 1995. Annex IV-2, available in the regional department technical files, describes the series of taxes and surcharges levied on gasoline in Guatemala.

4. Road fund

17 At the time of the mission, the MCTOP expressed interest in going ahead with the studies and regulations to prepare the necessary foundation. This will help the next administration's efforts to set up a road fund as a means of making road maintenance at least partially, if not totally, self-sustaining. The findings of the studies thus scheduled are expected to recommend a plan that will be realistic and easily implemented. Contracts for the studies are to be signed during year one of the execution period.

5. Highway concessions

18 The MCTOP has engaged the services of an international consultant to carry out a study of highways in the national system on which the volume of traffic and improved physical condition might offer a potential for privatization through a concession scheme (including a concession for the implementation system). At present there are two highways, totaling 416 km in length, to which concessions might be attracted in the short term. Competitive bidding was recently announced on one of them, but was then canceled. It is hoped that by the end of the consulting firm's services, arrangements for the leasing of concessions will proceed more successfully.

Annex III-1. Confidential paragraph

At the end of year four of program execution, the Maintenance Division staff is expected to have been reduced by some 5,200 additional employees, that is, approximately 46% of its total staff. Similar staff cuts in the DGC will be reflected in the plan of action.

RGII-GU022P
GU-0017
Original: Spanish
Appendix I

# PROPOSED RESOLUTION

## GUATEMALA. LOAN /OC-GU TO THE REPUBLICA DE GUATEMALA
## (Road Rehabilitation and Modernization Program)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Guatemala, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Road Rehabilitation and Modernization Program. Such financing will be for the amount of up to US$100,000,000, or its equivalent in other currencies, except that of Guatemala, which are part of the Ordinary Capital resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.

# PROPOSED RESOLUTION

## GUATEMALA. LOAN /OC-GU TO THE REPUBLICA DE GUATEMALA
## (Road Rehabilitation and Modernization Program)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the República de Guatemala, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Road Rehabilitation and Modernization Program. Such financing will be for the amount of up to US$50,000,000, or its equivalent in other currencies, except that of Guatemala, which are part of the Ordinary Capital resources of the Bank, and will be subject to the "Special Contractual Conditions" and the "Terms and Financial Conditions" of the Executive Summary of the Loan Proposal.

PROPOSED RESOLUTION

GUATEMALA. PARTIAL PAYMENT OF INTEREST ON
LOAN No. ___/OC-GU TO THE REPUBLICA DE GUATEMALA
(Road Rehabilitation and Modernization Program)

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, as administrator of the Intermediate Financing Facility Account, hereinafter referred to as the "account", to enter into such contract or contracts as may be necessary with the República de Guatemala, as Borrower, and to adopt other pertinent measures to use the resources of the account to pay a part of the interest due by the Borrower on outstanding balances of the loan authorized by Resolution DE- /95, for financing part of the cost of the Road Rehabilitation and Modernization Program, hereinafter referred to as the "approved loan." Such part shall represent up to 5% per annum on the outstanding balances of the loan.

2. That the Bank shall charge to the account the amounts due by the Borrower and to be paid by the account, in the currencies designated by the Bank and available in the account, on the dates specified for the payment of interest or on the date or dates on which the Bank receives the payment of the remainder of the interest owed by the Borrower, hereinafter referred to as the "remainder". Should the Borrower not have paid on the date due the remainder, as well as any payment of principal or fees, the Bank shall withhold payment of the amount of interest authorized to be paid from the account to the Bank. In such event, the Borrower shall remain liable for the total amount of the interest due and owed until such time as the Bank has received payment of the remainder and of the respective amounts owed for amortization and fees.

3. That to the extent that the Bank receives payments from the account for interest on the approved loan, the Borrower shall not be liable for the payment of such amounts and, consequently, it shall not be obligated to repay to the Bank any amounts of interest paid from the account to the Bank.

4. That the Borrower may decide to pay the whole amount of the interest accrued on the outstanding balances of the approved loan either during the effectiveness of the loan or only during the amortization period of said loan. In both cases the Bank shall, as soon as possible,

reimburse the Borrower for interest paid to the Bank and which may be charged to the account in accordance with Clauses 1 and 2 above.

5. That to the extent that the Bank determines that there are not sufficient resources available in the account for making the payments referred to in Sections 2 and 4 above, the Borrower shall pay the interest due on the dates and in the amounts specified in the loan contract, up to the full amount accrued on the outstanding balance of the approved loan without any obligation for reimbursement by the Bank.