# HIGHWAY REHABILITATION AND IMPROVEMENT PROGRAM – STAGE 3

## (PE-0197)

## EXECUTIVE SUMMARY

**BORROWER AND GUARANTOR:** Republic of Peru

**EXECUTING AGENCY:** Ministerio de Transporte, Comunicaciones, Vivienda y Construcción (MTC) [Ministry of Transport, Communications, Housing and Construction]

**AMOUNT AND SOURCE:**

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| IDB: | US$300 million (OC) |
| Local contribution: | US$200 million |
| Total: | US$500 million |

**FINANCIAL TERMS AND CONDITIONS:**

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| Amortization period: | 20 years |
| Term for initiation of works: | 36 months |
| Term for contracting studies: | 42 months |
| Disbursement period: | 54 months |
| Interest rate: | variable |
| Inspection and supervision: | 1% |
| Credit fee: | 0.75% |
| Currency: | Single Currency Facility in United States dollars |

**OBJECTIVES:** The objectives are: (i) to develop an extensive region of the Peruvian highlands by improving its road infrastructure and linking it to the more dynamic economy of the coast; (ii) to improve the programming of road investments; (iii) to encourage private involvement through the promotion of highway concessions; and (iv) to boost the MTC's capacity to administer the highway sector.

**DESCRIPTION:** The program will finance: (i) road investments in the highland departments of Junín, Cusco, Huancavelica and Ayacucho, specifically rehabilitation of the sections Cusco-Combapata and Huancayo-Imperial-Izcuchaca, improvement and rehabilitation of the Ayacucho-Imperial road, and construction of bypasses at La Oroya and Urcos (US$339.5 million); (ii) preinvestment studies and works supervision (US$51.5 million); (iii) government investment in a highway concession project (US$30 million); and (iv) support for the MTC's

sector planning and policy-making capacity and revision of the organization and operations of its different highway agencies (US$6.5 million).

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

The project is part of the Bank's strategy to rehabilitate and expand productive infrastructure, finance private investment in physical infrastructure and support the managerial capacity of the central government.

It also conforms to the strategy for the highway sector, which is directed to: (i) improving and expanding road infrastructure, particularly the primary and tertiary networks; (ii) addressing the emergency caused by El Niño; (iii) promoting private-sector involvement and the concession system; and (iv) supporting the modernization and institutional strengthening of the MTC and its agencies.

**ENVIRONMENTAL AND SOCIAL REVIEW:**

The program contains measures to ensure its environmental and social validity. All the projects will have environmental impact studies and management plans and, if necessary, resettlement plans.

The main impact will be felt during construction, particularly as a result of opening up borrow and dump sites and establishing work camps and other contractor facilities. The environmental analysis includes measures for environmental monitoring of the works. The environmental protection costs have been included in the work budgets.

**BENEFITS:**

The proposed program will support the economic development and integration of an extensive region in the Peruvian highlands, which will favor the return of area emigrants by creating new productive opportunities. It will reduce vehicle operating costs and travel times by at least 25%, which will allow for a larger and more varied supply of passenger and freight services. It will also improve investment programming by consolidating effective capacity to prepare and execute projects and will support the private sector by allowing for its participation in highway management under a system of concessions.

**RISKS:**

The risks that have been identified are: (i) resistance to institutional change in the highway sector; and (ii) lack of private-sector interest in participating in the highway concession program.

With respect to the first risk, the Minister of Transport is personally committed to institutional

modernization in the highway sector and has appointed a high-level ad hoc committee to lead the process. The minister has also ordered that an institutional workshop be held, to propose short- and medium-term actions, which the Bank will monitor; work has already begun on organizing this workshop. Specific institutional support and consulting services will also be contracted. This risk will not affect execution of the works, but rather the MTC's long-range capacity to improve its highway management.

With respect to the second risk, the MTC and the Private Investment Promotion Commission, with support from technical-cooperation operation ATN/MT-5532-PE, are taking the steps necessary to carry successfully involve the private sector in highway management.

**SPECIAL CONTRACTUAL CONDITIONS:**

a. Conditions precedent to the first disbursement: (i) plan for institutional reform of the highway sector (paragraph 3.18); (ii) contracting of services to implement and monitor the compensation and resettlement plan for the Cusco-Combapata highway; and (iii) model contracts for works and supervision (paragraph 3.45(a)).

b. Conditions precedent to the first disbursement for the highway concession component: (i) under the public investment contribution subcomponent: (1) bid documents and pro forma contract; (2) proposed bid process; (3) final engineering designs; (4) environmental and social impact assessment; and (5) concession of Road System 5; and (ii) under the technical studies subcomponent: terms of reference (paragraph 2.18).

c. Conditions after the loan contract becomes effective: (i) **three months**: (1) institutional plan of action for the Directorate General of Land Transport (paragraph 3.17); (ii) **six months**: design standards and technical, environmental and social specifications and road safety requirements (paragraph 3.45(b)); (iii) **twelve months**: (1) master plan for establishing or recuperating rights-of-way (paragraph 3.45(c)); and (2) establishment of the MTC's Environment Unit and environmental training (paragraph 3.45(d)); (iv) **eighteen months**: (1) regulations for the transportation of hazardous materials (paragraph 3.45(e)); and (2) pilot plan for the recuperation of rights-of-way (paragraph 3.45(d)).

d. Other conditions: (i) semiannual program monitoring meetings (paragraph 3.49) and presentation of progress reports (paragraph 3.51); (ii) compatibility of the schedule for execution and cost recognition with the plan to compensate the population living along the Cusco-Combapata highway (paragraph 3.47); (iii) initiation of the works after compensation is paid at market prices (paragraph 3.48); (iv) use of the funds for the highway concession component (paragraph 3.22); and (v) maintenance of program works (paragraph 3.20).

**POVERTY FOCUS AND SOCIAL CLASSIFICATION:** Not applicable.

**EXCEPTIONS TO BANK POLICY:** Consulting services costing less than US$50,000 may be contracted directly after obtaining the Bank's nonobjection to the individual consultant or firm and the pertinent terms of reference. For consulting contracts between US$50,000 and US$200,000, a short list will be drawn up by direct invitation and the companies identified will be invited to submit proposals (paragraph 3.60).

The program will finance measures to strengthen the MTC's planning and policy-making capacity by contracting a technical team composed of experienced consultants (paragraphs 2.21 and 3.17).

**PROCUREMENT:** Works costing more than US$3 million will be contracted through international competitive bidding. Consulting services costing more than US$200,000 will be selected through an international call for proposals. Goods worth more than US$250,000 will be procured through international competitive bidding.

# I. FRAME OF REFERENCE

## A. Macroeconomic situation

1.1 In 1998, the Peruvian economy suffered from the effects of two powerful external shocks, El Niño and the crisis in Asia (and more recently in Russia). As a result, economic growth has slumped dramatically, falling from an annual rate of 7.2% of GDP in December 1997 to 3.1% in June 1998. Exports plunged by 27% in the first half of the year and the deficit in the balance-of-payments current account climbed from 5.2% of GDP in 1997 to 6.9% in the first half of 1998.

1.2 El Niño is over but its impact was devastating. A conservative estimate suggests that GDP fell by two percentage points as a consequence of the phenomenon's direct and indirect impact on economic activity. Hardest hit were the fishery sector, industries that process raw materials and farm production. In the first half of this year, production in these sectors declined by 64.9%, 27.3% and 1.7%, respectively. Fish exports plummeted by 83%. The impact of El Niño on physical and social infrastructure was very strong: 6,392 kilometers of highways suffered different degrees of damage (including 884 kilometers destroyed), 59 bridges were left unusable and another 28 suffered serious damage; a hydroelectric plant was buried by landslides and another three suffered from flooding and other major damage. Also damaged were 1,344 schools (with a total of 5,201 classrooms), 339 health care facilities, and sewerage and potable water systems in different localities in 10 departments.

1.3 The economic crises in Asia and Russia have had a significant impact on the Peruvian economy on the financial front and on real activity. The main financial consequences are: (i) the yield differential between Peru's Brady bonds and United States Treasury bonds has widened (from 309 basis points in October 1997 to 925 basis points on September 2, 1998), which means that the perception of country risk on international markets increased and, in consequence, the cost of foreign borrowing has risen; (ii) the prices of shares on the Lima stock exchange experienced a net fall of 35.3% between the average in September 1997 and the average on September 3, 1998; and (iii) devaluation of the new sol has speeded up, from an annual rate of 6% in September 1997 to 15% in September 1998.

1.4 With respect to real activity, the main consequence has been a drop in nonfish exports, as evidenced in the quantities demanded and in prices and, in the case of copper, in both. One relevant aspect of foreign trade patterns as a result of the Asian crisis is that exports to Asia fell by 46% between October 1997 and May 1998, while imports from that region rose by 35%.

1.5 Despite the external shocks, the authorities have continued an economic policy aimed at guaranteeing internal stability and minimizing the impact of external financial turmoil. The policy is based on fiscal discipline, whose goal is to obtain a surplus of 1.7% of GDP in 1998. For its part, monetary policy has been adjusted to discourage short-term foreign borrowing by commercial banks, while continuing with flexible management of the exchange rate, which is an appropriate market mechanism for absorbing part of the instability caused by the international upheaval. The final balance of the impact of the current financial crises is difficult to predict and will depend on the extent of contagion in the region.

B. The transportation system

1.6 In 1991, the Peruvian government decided to rehabilitate the country's transportation infrastructure, which had deteriorated heavily as a result of years of poor administration and scant or no spending on maintenance. Priority was attached to the principal highway system, focusing efforts initially on rehabilitating the Pan American and Central highways and subsequently on highways linking the sierra to the coast.

1.7 Land transport was correctly identified as an essential activity for economic recovery, as demonstrated by the high growth in demand on rehabilitated roads and by the private sector's investments in improving transportation equipment and services for passengers and freight as a result of the restored road conditions.

C. The highway system

1.8 The highway system consists of 73,400 kilometers of roads, 1/ with 16,500 kilometers corresponding to the national system, which is the responsibility of the central government, and 14,300 kilometers to the secondary or departmental system, which is the responsibility of the departmental governments. The remaining 42,500 kilometers belong to the tertiary system and are rural roads which are the legal responsibility of the municipalities.

D. Investment strategy

1.9 In 1995, the Ministry of Transport, Communications, Housing and Construction (MTC) designed a road development plan for 1996-2005, whose goal was to pave 70% of the national highway system (11,550 kilometers), 25% of the departmental network (3,590 kilometers), and surface and improve the entire departmental network and the rural roads (42,600 kilometers).

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1/ Source: Peru's 1996-2005 Road Development Plan.

1.10 This strategy was designed to offer a partial solution to the main problems presented by highway transportation – in particular, a disconnected network that required expansion and upgrading to enable it to respond to existing and future demand. It therefore undertook a highway expansion stage, while stressing preservation of the existing infrastructure. Special importance has been attached to maintaining and operating the rehabilitated roads and procedures have been defined to make the system sustainable. The introduction of tolls on most of the main highways provides the MTC with real funds generated by the users themselves, which can be used for continuous maintenance.

1.11 Expansion of the road infrastructure has been affected by the emergency caused by El Niño. It damaged and cut off major stretches of the northern section of the Pan American highway, which are under reconstruction. This situation has led to new physical and financial demands on the highway sector.

E. Maintenance of the main highway system

1.12 The National Highway Maintenance System (SINMAC) is responsible for maintaining the principal road system, administering tolls and controlling weight. The system it oversees has been expanding (4,580 kilometers in 1995, 4,970 kilometers in 1996, 5,373 kilometers in 1997, and 7,805 kilometers in 1998) and is in good repair (75% in good condition, 25% in average condition) even though El Niño made it necessary to rehabilitate 1,944 kilometers, which is currently underway.

1.13 SINMAC performs its maintenance, rehabilitation and upgrading activities under different arrangements: (i) on force account and at the direct request of the regional offices, 6,251 kilometers; (ii) under contract, 1,051 kilometers; (iii) under concession, 105 kilometers; and (iv) under post-construction contract, 398 kilometers.

1.14 Financing for the activities comes from tolls, amounting to US$40.6 million in 1997. Revenue is expected to decline because users in the departments affected by El Niño have been exempted from paying the tolls. Projections for 1998 are US$18.9 million. Once the basic rehabilitation work has been completed, the tolls will be reintroduced and are expected to return in 1999 to the levels observed prior to the emergency.

F. The institutional situation

1.15 To carry out its transportation responsibilities, the MTC has a Deputy Ministry of Transport to which four directorates general report (roads, land transport, water transport and air transport). The ministry also has several companies (CORPAC for airports, ENAPU for ports, ENAFER for railways, and AATE for the electric train in Lima), some smaller decentralized agencies, and a series of semi-

independent offices, with the most important being in road management.

1.16 The semi-independent offices are the National Highway Maintenance System (SINMAC), the Special Highway Concession Commission, and the Special Transportation Infrastructure Rehabilitation Project (PERT). The latter, in turn, is composed of the Transportation Rehabilitation Program (PERT-PRT), the Inter-oceanic Southern Corridor Program (PERT-PCVS), the Rural Roads Program (PERT-PCR), the Lima and Callao Urban Transportation Program (PROTUM), and the Port of Callao Development program (PDPC).

1.17 Responsibilities are distributed among the different road agencies as follows: (i) PERT-PRT is responsible for the construction, rehabilitation and upgrading of the main highway system, using funds from the IDB, the World Bank and other sources; (ii) PERT-PCVS manages funds from Japan's Overseas Economic Cooperation Fund and the Andean Development Corporation to improve the Ilo-Desaguadero highway and other roads in the southern sierra departments of Puno, Moquegua and Arequipa; (iii) PERT-PCR is responsible for improving and maintaining rural roads; (iv) SINMAC is responsible for maintaining the main highway system already rehabilitated under the PERT; and (v) the Directorate General of Roads (DGC) is responsible for the secondary system and the unpaved primary system.

1.18 The MTC has proven to be a good executing agency for the different loans granted by the Bank. However, its capacity to design sector policies and develop a regulatory framework for their application and its strategic and sector planning capabilities need to be strengthened. It also needs to consolidate its highway agencies according to their functional areas.

## G. Transportation infrastructure concessions

### 1. Background

1.19 The privatization and concession program began in the early 1990s, when a legal, regulatory and institutional framework was established for private investment in energy and telecommunications, followed by the privatization of state-run companies in these two sectors. Establishment of the Private Investment Promotion Commission (COPRI) gave impetus to this policy.

1.20 The government's policies are ambitious and are aimed at involving the private sector in the operation, maintenance and expansion of the country's main highways and the construction of new roads, particularly access roads to Lima. It also plans to concession out airport and port infrastructure. The MTC has published a policy paper setting out its position with respect to highway concessions.

1.21 The government has identified over 10,000 kilometers of main highways that could be concessioned out over the coming years. It is also developing a broad policy that includes government financial assistance for projects which, although economically feasible, are not feasible from the standpoint of private financing, and therefore will require partial public investment to make them attractive. This policy implies that concessions will be highway administration systems and not simply a method for highway financing. 2/

2. Legal and regulatory framework

1.22 Concessions are governed by a legal framework that has, in general, been accepted by the various economic agents interested in the process. The legislation has been modernized on the basis of local and international experience and the way in which the limited system of concessions that exists at present actually operates.

1.23 The legal framework is established in Legislative Decree 758, promulgated in 1992, which promotes private investment in public infrastructure and services, and was supplemented in 1996 by Legislative Decree 839, which is concerned with the same goals and establishes the Private Investment Promotion Board (PROMCEPRI), whose mandate was to promote the preparation of concessions and their transfer to the private sector.

1.24 PROMCEPRI, like the Private Investment Promotion Commission (COPRI), acted through special committees. For highway concessions, it established a Special Road Privatization Committee (CE-Caminos), in which the MTC plays a key technical role.

1.25 Subsequently, the government promulgated a single text that consolidated the two legislative decrees (Supreme Decree 059-96-PCM) and regulations for that decree (Supreme Decree 060-96-PCM). Recently, under Supreme Decree 025/98, the government determined that COPRI would take over the functions of PROMCEPRI, transferring the different special committees to it and thereby giving it full responsibility for concessions.

3. Administration of concessions

1.26 The Supervisory Agency of Investments in Public Transportation Infrastructure (OSITRAN) was established under Law 26,917 of 1998, with the mandate of administering concession contracts in the transportation sector, under the framework of MTC policies. OSITRAN is a decentralized agency with administrative, functional, technical, economic and financial autonomy.

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2/ Some limited experience exists in this area: Arequipa-Matarani highway, 105 km long, currently in operation.

1.27 Although it forms part of the transportation sector, OSITRAN reports directly to Peru's Council of Ministers. Its board of directors is composed of four members appointed by the council, who remain in office for five years. The agency is not yet operational.

H. Other institutions in the highway sector

1.28 Other government institutions are involved in the highway sector, but none of them with the main road network. The Ministry of Defense manages equipment that belongs to the MTC, but is operated by military personnel to perform work in risk areas.

1.29 The main institution is the Ministry of the Office of the President, which is responsible for maintaining part of the secondary road network through temporary regional administration councils (CTARs). The CTARs, in turn, have regional highway offices, which depend on the ministry from the operational and budgetary standpoints. Through the National Social Compensation and Development Fund (FONCODES), the ministry is also present in rural and urban fringe areas and rehabilitates or builds roads as a complement to its other activities, but does not maintain them. However, in areas where the Rural Roads Program is active, it has taken charge of this task through interinstitutional coordination.

I. The Bank's country and sector strategy

1.30 The Bank's country strategy includes: (i) rehabilitation and expansion of economic infrastructure, (ii) financing for private investment in physical infrastructure; and (iii) support for modernization of the State, with stress on the managerial capacity of the central government.

1.31 The strategy for the highway sector is directed to: (i) improving and expanding road infrastructure, particularly the primary and tertiary networks; (ii) addressing the emergency caused by El Niño; (iii) promoting the integration and expansion of the principal highway network and improving its maintenance; (iv) promoting private-sector involvement and the concession system; and (v) supporting modernization and strengthening of the MTC and its agencies.

1.32 The proposed program is consistent with this strategy and will support the economic development and integration of an extensive region in Peru's highlands, which will favor the return of area emigrants by creating new productive opportunities. It will also improve investment programming by consolidating effective capacity to prepare and execute projects and will support the private sector by facilitating its participation in highway management under the concession system.

J. Experience of the Bank and other donors in the transportation sector

1.33 The Bank has considerable and generally satisfactory experience in road infrastructure programs. In 1991, it approved loan 651/OC-PE for US$210 million, which was executed satisfactorily. In 1994, it approved loan 836/OC-PE (US$252 million) which is currently under way, with US$178 million (71%) disbursed and the remainder fully committed. The operation is expected to end for all practical purposes during 1999.

1.34 A rural roads program cofinanced by the World Bank (IDB loan 901/OC-PE for US$90 million) is now 73% complete and has yielded highly satisfactory results, with the physical goals of some of the components actually being surpassed. The program is expected to close on schedule (December 5, 1999).

1.35 To cope with the damage caused by El Niño, the Bank is financing basic rehabilitation of 1,944 kilometers of roadways under loan 1058/OC-PE. Ten construction firms have been hired, with two sections being built by SINMAC on force account. Work is progressing satisfactorily. The project's cost, including supervision, is US$56.7 million. The engineering studies required for permanent reconstruction and rehabilitation are being commissioned.

1.36 The MTC and its agencies are efficiently executing the various loans currently underway. The administrative and technical procedures followed by PERT (PRT and PCR) have been improving and the Bank's recommendations have been taken into account. There has been no difficulty with these operations from the standpoint of the timely provision of the local counterpart.

1.37 For its part, the World Bank is executing loan 3717-PE whose results in the highway sector are acceptable (the project has railway, airport, urban transportation and road safety components) It is also preparing a new loan that will include investments in the principal highway network and road safety. The MTC is also receiving financing from the Andean Development Corporation and the Overseas Economic Cooperation Fund of Japan.

K. Bank experience in institutional development

1.38 Loan 836/OC-PE, whose execution began in 1995, included an institutional strengthening component (US$3.8 million) which is nearing completion. The main institutional components of the loan for stage II of the roads program were: (i) organization of the departmental offices responsible for rehabilitation and maintenance of the secondary road network; (ii) better sustainability of road maintenance; (iii) review of the management of the machinery pool; and (iv) weight control through the installation of scales. The

results of this institutional support are summarized in the following paragraphs.

1.39 The regional road offices are responsible for routine maintenance of part of the secondary road system. Organizationally, these offices are part of the CTARs and report to the Ministry of the Office of the President, not the MTC.

1.40 As for the financial sustainability of maintaining rehabilitated roads in the principal network, the creation of SINMAC and the establishment of highway tolls ensure a steady flow of funds (from users) which are earmarked for maintenance. The results can be improved technically (quality and efficiency of maintenance and procedures). It is also necessary to ensure medium-term sustainability through adequate planning by SINMAC and the MTC. Proceeds from the above-mentioned loan are being used to support these activities.

1.41 Having its own equipment has provided the Directorate General of Roads with flexibility in meeting needs of different kinds, and the MTC wants this to continue. However, rationalization of the machinery pool and its use could be improved. The MTC will update its study on road machinery management with that goal in mind.

1.42 The MTC's progress in the area of weight control has been sporadic, but it is much farther along today than it was four years ago. Supreme Decree 013-MTC of June 5, 1998, regulates vehicle weight and dimensions, sets out the responsibilities of the different participants in the process, and makes SINMAC the administrative authority responsible for enforcing the standards. However, appropriate means and procedures for applying them must be established. Two weigh stations are already in operation (Serpentín del Pasamayo and La Oroya) and others are being built; and SINMAC has 12 mobile weigh stations.

1.43 Progress has also been made in important areas not covered in the Bank's program. Consulting services were hired to establish, strengthen and provide continuity for the MTC's Special Highway Concessions Commission. A study is being commissioned on highway management, which will strengthen SINMAC in the fields of maintenance planning, management and control. Personnel from different parts of the ministry have attended training seminars. Individual consultants have been hired to support the process of strengthening the MTC and its agencies.

1.44 With respect to the tertiary road network, the institutional development provided for in loan 901/OC-PE (rural roads program) has achieved satisfactory results regarding decentralized execution, community participation in project identification, formulation and monitoring, the creation of microenterprises for

road maintenance, and community contributions to paying for maintenance.

## II. THE PROGRAM

### A. Objectives

2.1 The highway rehabilitation and improvement program is intended to improve the efficiency of the national road transportation system by developing an extensive region in the highlands and linking it to the coast. The program will reduce vehicle operating costs and travel times for users and will diversify supply. The program also seeks to boost the government's institutional, technical, planning and management capacity in the roads sector.

2.2 The objectives are: (i) to develop an extensive region of Peru's highlands by improving its road infrastructure and linking it to the more dynamic economy of the coast; (ii) to improve strategic and sector planning capacity and the programming of road investments; (iii) to encourage private involvement through the promotion of highway concession projects; and (iv) to boost the MTC's institutional capacity. To achieve these objectives, the program will finance investments in road infrastructure, public financing for concession projects, technical studies (prefeasibility, feasibility, environmental and engineering), as well as consulting services, training and equipment to strengthen the MTC.

2.3 The program has identified the main roads to be rehabilitated or upgraded. Final studies and detailed construction costs are available for the roads to be built in year one, and basic designs and feasibility studies – including representative construction costs in line with works recently contracted by the executing agency – are available for the rest. The need for detailed terms of reference for the final designs and environmental and social impact studies for the works in year two makes it advisable to include funding for them in this operation. The program will include physical contingencies and cost escalation to prevent the possibility of shortfalls.

2.4 The components for investment planning, institutional strengthening of the MTC, and support for the concessions program will require annual planning and constant monitoring.

2.5 The program will promote the continued development of the solid and professional road management capability that PERT-PRT has demonstrated, by supporting the MTC's capacity to design sector policies and strategies, improve its methods for setting priorities and programming road investments, and involve the community and the private sector in the management and maintenance of the primary system. The logical framework for the program, including key indicators and objectives for each component, can be consulted in Annex I.

B. Description

2.6 The program will finance the upgrading and rehabilitation of 437 kilometers of selected roads in the principal network, as described below.

2.7 The program seeks to assist the MTC in developing its capacity to formulate policies and strategies for the transportation sector, plan, regulate and control implementation of these policies – in other words, the so-called "upper-level activities" – while transferring increased responsibility for detailed planning, programming and execution of works to its line agencies. The program will place special stress on roads management, to adapt the sector to this division of functions.

2.8 Maintenance of the principal network is the responsibility of the National Highway Maintenance System (SINMAC), which has adequate funding of its own from the tolls charged on national highways. SINMAC is receiving technical assistance (financed under loan 836/OC-PE) to support planning for the network as a whole as well as routine and periodic maintenance projects, which will improve its technical capacity and the efficiency of its operations. Therefore, the present program does not need to include funds for road maintenance or for SINMAC.

2.9 The program has expressly excluded institutional aspects relating to road safety. This area is being supported under loan 3717-PE from the World Bank, which is planning a new follow-up operation. The works to be financed under the present program, however, include all practical aspects of road safety, based on the guidelines contained in the document on traffic safety in road transportation projects, prepared by RE1/FI1.

2.10 The program contains the components described below.

1. Rehabilitation and improvement of roads in the primary network (US$339.5 million)

2.11 The program will finance investments in roads in the highland departments of Junín, Huancavelica, Cusco and Ayacucho. The works include upgrading and rehabilitation of highways and the construction of bypasses around cities. 3/

2.12 The activities identified for year one are: (a) rehabilitation of the Cusco-Combapata highway (96 kilometers, final studies are ready) at an estimated cost of US$49 million; (b) rehabilitation of the Huancayo-Imperial highway (33 kilometers) at a cost of US$16.5 million; (c) rehabilitation and major upgrading of the

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3/ The program of works for this component can be consulted in Region 3's technical files.

Imperial-Izcuchaca section (34 kilometers) at a cost of US$20.4 million. The activities for year two involve rehabilitation and major upgrading for the Ayacucho-Imperial highway (257 kilometers) at a cost of US$205.6 million. Works in the third year include construction of a bypass at La Oroya (17 kilometers) at a cost of US$25.5 million.

2.13 Construction of the 15-kilometer bypass at Urcos (which has been budgeted into this program) will depend on the results of the feasibility study to be performed during year one. If it is not necessary to build the bypass during this operation, the funds could be reallocated to new works proposed by PERT-PRT, to be approved during the follow-up missions.

2. Preinvestment and supervision of works (US$51.5 million)

2.14 Preinvestment studies will be financed for program works 4/ as well as some other roads. 5/ The studies will include: (i) technical, economic and financial feasibility studies; (ii) environmental and social impact studies; and (iii) final engineering designs. Supervision for all program works will also be financed.

2.15 Under loans 651/OC-PE and 836/OC-PE, PERT-PRT received and is continuing to receive support from a specialized consulting firm that is assisting it with the technical evaluation of projects and in developing standards for its activities. The nature of this support has changed as PERT-PRT has developed and expanded its own technical and professional capacity. Support during the present operation will need to take a more specific focus. To that end, PERT-PRT may contract consulting firms or individual consultants specializing in studies, design review, construction problems, or other aspects of its activities.

3. Support for highway concessions (US$30 million)

2.16 This component will promote private-sector involvement in highway management by expanding the system of concessions, specifically, it will finance the public investment contribution to Road System 5 (Pan American highway, Lima-Pativilca and Ancón-Chancay sections, and improvements to the Lima-Canta-Abra La Viuda-Unish highway). The MTC and the Special Road Privatization Committee (CE-Caminos) have been working together on this task ever since the Private Investment Promotion Board (PROMCEPRI) was created. The MTC has a

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4/ The final engineering studies for the Cusco-Combapata and Huancayo-Imperial-Izcuchaca highways were financed under loan 836/OC-PE.

5/ To be eligible, the roads must belong to the principal road network, be linked to the paved network, improve connections to that network, and have potential for contributing to the economic and social development of the region in which they are located.

qualified, multidisciplinary professional group that has been growing in number and experience during its more than 18 months of existence. It has also established a highway concession policy to govern this activity.

2.17 CE-Caminos has final designs for Road System 5. It has also commissioned demand, financial and legal studies (bid documents and pro forma contract) with support from technical-cooperation operation ATN/MT-5532-PE. 6/ CE-Caminos expects to initiate the bid process for this section in 1998 and estimates that the public investment contribution will be approximately US$25 million (out of an estimated total investment of US$140 million). A further US$5 million will be set aside to finance studies on future projects for concessions.

2.18 To authorize disbursement of the public investment contribution, the Bank's nonobjection will be required for: (i) the bid documents and pro forma contract to be used in the bid process; (ii) the bid process itself, which must provide for the widest possible competition and equity among the bidders; (iii) the final engineering designs drawn up by CE-Caminos; (iv) the environmental and social impact study; and (v) the contract awarded. Disbursements will be made in accordance with the provisions of the bid documents and the concession contract. For disbursements under the studies subcomponent, the Bank must give its nonobjection for the proposed terms of reference. Regular Bank procedures will be followed in commissioning the studies.

4. Institutional development (US$2.1 million)

2.19 This component will help the MTC to specialize in upper-level activities (policy-making, strategy, planning, control, regulations, etc.) and the line agencies to specialize in executing works. To attain this objective, the component focuses on planning and institutional organization.

a. Support for the MTC's planning and control capacity

2.20 Today, the MTC must cope with a situation that is very different from what it was a few years ago. Economic growth and the demands it places on the transportation system and infrastructure make it necessary for the MTC to develop greater institutional capacity than it needed before. Its responsibilities for defining sector policies, establishing strategies for their implementation, developing a legal and regulatory framework to structure them, obtaining planning and information tools to support them, and the

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6/ PRI has been informed about these studies, which could lead to a project eligible for financing. The MTC and COPRI are complying with their commitments under the investment sector reform program (loan 985/OC-PE) regarding the regulation of highway concessions.

capacity to supervise and monitor their application are crucial for efficient sector performance and for promoting private-sector involvement.

2.21 The program will help to strengthen planning and policy-making capacity by financing a technical team of professionals, composed of experienced consultants, to advise the minister directly. The Office of Planning and Budget plays this role in a partial and limited fashion today. It will likely be designated to take over these new responsibilities, which will make it a key player in planning investments in the transportation sector in general and the highway sector in particular.

b. Planning and organizational development in the highway sector

2.22 The MTC intends to improve the functional classification of the highway network and make a clearer definition of how responsibilities for construction, rehabilitation and maintenance should be distributed among the different road agencies. To that end, it is preparing a plan of action and a timetable for its implementation. The MTC has established a coordinating committee and hired a consulting firm to assist it in the process. The proposal will be corroborated in an institutional workshop attended by the most senior authorities in the sector. 7/

2.23 The plan will include a short-term analysis that will clearly define the different networks (primary, secondary and tertiary) and the roads included in them, the agencies responsible for each and, in the event an undefined or transitional situation exists, it will establish a timetable for addressing the problem. 8/

2.24 The MTC will identify short-term actions that can be carried out under its current regulatory framework and mandate, those that require modifications that can be made by the executive branch, and those that need legislative changes.

c. Environmental issues in the transportation sector

2.25 The program will support enhancement of the MTC's environmental capacity in the highway sector, including: (i) an analysis of existing environment units, their powers and responsibilities, and their managerial capacity; and (ii) preparation of a proposal for reorganization including line reporting, identification of powers,

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7/ The makeup of the committee is described in chapter III. The consulting firm has already been contracted and the workshop will be held toward the end of November 1998.

8/ A preliminary description of the short-term plan of action, activities, and expected outcomes, and the execution timetable are available in Region 3's technical files.

responsibilities, resources, procedures for the execution and approval of studies, supervision of works, operating budget, etc.

d. Support for the Directorate General of Land Transport

2.26 Support will be provided for the Directorate General of Land Circulation (DGCT) in the following areas, without detriment to others that may be identified during the program: (i) supervision of the transportation of hazardous materials; (ii) definition of technical standards for passenger and freight vehicles; (iii) procedures for evaluating the psychological and physical condition of drivers of public transportation vehicles; (iv) compilation of statistical information; (v) rates and the prices and costs of transportation in deregulated markets; (vi) review of the system of penalties; and (vii) improvement in the DGCT's capacity to supervise, control and sanction, through the development and training of a corps of transportation inspectors.

5. Technical studies and support (US$4.4 million)

a. Technical studies

2.27 The program will fund the following specific studies related to the MTC's management capacity: 9/ (i) the traffic and transportation act; (ii) transportation policy and planning studies; (iii) prefeasibility studies; (iv) pilot plan on the establishment and recuperation of rights-of-way; (v) technical specifications for highway construction; (vi) transportation of hazardous materials; and (vii) new technologies.

b. Training

2.28 The MTC will receive assistance in training its professional staff through the organization of courses, workshops, and conferences, and the procurement of technical materials, etc.

c. Equipment

2.29 The program will assist PERT-PRT in its activities as executing agency by providing financing for equipment (vehicles, computers, equipment for the structural and functional evaluation of paved surfaces, etc.).

6. Program administration (US$5 million)

2.30 This component, which will be funded by the local counterpart, covers the administrative costs of PERT-PRT. The estimated distribution of these costs is 45% for salaries, 20% for nonpersonnel services and 35% for overhead.

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9/ These studies are described in Annex II.

C. Year one of the program

2.31 Under the investment plan, the program will begin rehabilitation of the Cusco-Combapata (96 kilometers) and Huancayo-Imperial-Izcuchaca (67 kilometers) highways in year one. The investment for both roads, including supervision, is an estimated US$93.1 million and execution is expected to take 18 months. With respect to preinvestment studies, the program will produce final engineering designs for the Ayacucho-Imperial highway (257 kilometers, estimated cost US$5.1 million) and the La Oroya bypass (17 kilometers, estimated cost US$1 million), and the feasibility study for the Urcos bypass. The high cost of the studies is due to the need to supplement the feasibility studies and to use modern technologies that will lessen uncertainties regarding execution times and the cost of works.

2.32 The Cusco-Combapata highway is typical of the works to be contracted under the program, in terms of quantities and technical features, and no difficulties are expected during construction. Satisfactory engineering and environmental designs have been prepared, including a resettlement plan that complies with Bank guidelines and responds adequately to the requirements of the affected population and the executing agency.

2.33 The budget analysis confirms that PERT-PRT has sufficient funds to begin execution.

D. Distribution of funds by component

2.34 The investment component, which totals US$339.5 million, will absorb 68% of the program's funding and 65% of the loan proceeds. The consulting services for preinvestment studies and supervision will cost US$51.5 million, accounting for 10% in both cases. Institutional strengthening (including technical studies and support), costing US$6.5 million, will absorb 1.3% of program resources and 1.8% of the external funds. Support for the concession program will cost US$30 million or 9.7% and 6% of the loan and program funds, respectively. Physical and cost contingencies will account for 13% of total resources, or US$64.4 million. Last, US$3 million will be spent on inspection and supervision of the loan and US$5 million on program administration.

E. Program cost and financing

1. Costs

2.35 The program will cost an estimated US$500 million in total. The basic costs are expressed in September 1998 prices. Physical contingencies were calculated as 10% of the basic costs. Cost escalation is estimated at 2% a year, cumulative, on the undisbursed balances at the start of the year.

2.36 The cost estimates for the civil works are based on assumptions regarding activities, quantities of work, unit prices and other conventional aspects using typical designs and models proposed by consultants during program preparation, particularly for the projects in year one.

2. Financing

2.37 The prospective Bank loan of US$300 million will finance 60% of the total cost of the program. The Peruvian government will finance US$200 million from its budget, including the 18% general sales tax.

2.38 No retroactive financing or pre-program cost recognition is planned. Most of those costs were covered from the operating budget of PERT-PRT and from loan 836/OC-PE.

3. Financing plan

2.39 The financing plan by investment category and source of funds is given below:

**Financing Plan**

**PROGRAM COSTS (IN THOUSANDS OF SEPTEMBER 1998 DOLLARS)**

| Component | Year 1999 | | | Year 2000 | | | Year 2001 | | | Year 2002 | | | Total Cost | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IDB | PT | Total | IDB | PT | Total | IDB | PT | Total | IDB | PT | Total | IDB | PT | Total |
| **1. Civil works** | | | | | | | | | | | | | | | |
| 1.1 Upgrading and improvement | 27,404 | 20,446 | 47,850 | 64,847 | 48,383 | 113,230 | 61,015 | 45,525 | 106,540 | 40,957 | 30,924 | 71,880 | 194,222 | 145,278 | 339,500 |
| **Subtotal 1** | **27,404** | **20,446** | **47,850** | **64,847** | **48,383** | **113,230** | **61,015** | **45,525** | **106,540** | **40,957** | **30,924** | **71,880** | **194,222** | **145,278** | **339,500** |
| **2. Consulting services** | | | | | | | | | | | | | | | |
| 2.1 Preinvestment studies (2.1.1 + 2.1.2) | 4,582 | 3,418 | 8,000 | 3,834 | 2,860 | 6,694 | 2,463 | 1,837 | 4,300 | 1,689 | 1,261 | 2,950 | 12,567 | 9,377 | 21,944 |
| 2.1.1 Program works | 2,864 | 2,137 | 5,000 | 630 | 470 | 1,100 | 515 | 385 | 900 | 0 | 0 | 0 | 4,009 | 2,991 | 7,000 |
| 2.1.2 Other works | 1,718 | 1,282 | 3,000 | 3,204 | 2,390 | 5,594 | 1,947 | 1,453 | 3,400 | 1,689 | 1,261 | 2,950 | 8,558 | 6,386 | 14,944 |
| 2.2 Works supervision | 2,463 | 1,837 | 4,300 | 5,498 | 4,102 | 9,600 | 4,524 | 3,376 | 7,900 | 3,551 | 2,649 | 6,200 | 16,036 | 11,964 | 28,000 |
| 2.3 Technical support PERT-PRT | 290 | 110 | 400 | 290 | 110 | 400 | 290 | 110 | 400 | 290 | 110 | 400 | 1,160 | 440 | 1,600 |
| **Subtotal 2** | **7,334** | **5,366** | **12,700** | **9,622** | **7,072** | **16,694** | **7,277** | **5,323** | **12,600** | **5,530** | **4,020** | **9,550** | **29,763** | **21,781** | **51,544** |
| **3. Highway concessions** | | | | | | | | | | | | | | | |
| 3.1 Public investment | 10,000 | 0 | 10,000 | 15,000 | 0 | 15,000 | 0 | 0 | 0 | 0 | 0 | 0 | 25,000 | 0 | 25,000 |
| 3.2 Technical studies | 2,600 | 500 | 3,100 | 1,100 | 200 | 1,300 | 150 | 150 | 300 | 150 | 150 | 300 | 4,000 | 1,000 | 5,000 |
| **Subtotal 3** | **12,600** | **500** | **13,100** | **16,100** | **200** | **16,300** | **150** | **150** | **300** | **150** | **150** | **300** | **29,000** | **1,000** | **30,000** |
| **4. Institutional develop.** | | | | | | | | | | | | | | | |
| 4.1 Institutional strengthening (4.1.1 to 4.1.5) | 670 | 130 | 800 | 574 | 106 | 680 | 406 | 64 | 470 | 150 | 0 | 150 | 1,800 | 300 | 2,100 |
| 4.1.1 MTC planning capacity | 150 | 0 | 150 | 150 | 0 | 150 | 150 | 0 | 150 | 150 | 0 | 150 | 600 | 0 | 600 |
| 4.1.2 Institutional organization, highway sector | 300 | 75 | 375 | 300 | 75 | 375 | 200 | 50 | 250 | 0 | 0 | 0 | 800 | 200 | 1,000 |
| 4.1.3 Environmental organization | 80 | 20 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 20 | 100 |
| 4.1.4 Support for the DGCT | 140 | 35 | 175 | 124 | 31 | 155 | 56 | 14 | 70 | 0 | 0 | 0 | 320 | 80 | 400 |
| 4.2 Tech. studies and support | 1,348 | 337 | 1,685 | 1,012 | 253 | 1,265 | 580 | 145 | 725 | 580 | 145 | 725 | 3,520 | 880 | 4,400 |
| 4.2.1 Other studies | 1,108 | 277 | 1,385 | 772 | 193 | 965 | 340 | 85 | 425 | 340 | 85 | 425 | 2,560 | 640 | 3,200 |
| 4.2.2 Training | 40 | 10 | 50 | 40 | 10 | 50 | 40 | 10 | 50 | 50 | 10 | 50 | 160 | 40 | 200 |
| 4.2.3 Equipment | 200 | 50 | 250 | 200 | 50 | 250 | 200 | 50 | 250 | 200 | 50 | 250 | 800 | 200 | 1,000 |
| **Subtotal 4** | **2,018** | **467** | **2,485** | **1,586** | **359** | **1,945** | **986** | **209** | **1,195** | **730** | **145** | **875** | **5,320** | **1,180** | **6,500** |
| **5. Basic costs (1+2+3+4)** | **49,356** | **26,779** | **76,135** | **92,154** | **56,015** | **148,169** | **69,428** | **51,207** | **120,635** | **47,367** | **35,238** | **82,605** | **258,305** | **169,239** | **427,544** |
| **6. Contingencies** | **4,936** | **2,678** | **7,614** | **9,215** | **5,601** | **14,817** | **6,943** | **5,121** | **12,064** | **4,737** | **3,524** | **8,261** | **25,831** | **16,924** | **42,754** |
| **7. Escalation** | **987** | **536** | **1,523** | **3,723** | **2,263** | **5,986** | **4,250** | **3,134** | **7,384** | **3,905** | **2,905** | **6,809** | **12,864** | **8,838** | **21,702** |
| **8. Inspection and supervision** | **558** | **0** | **558** | **1,062** | **0** | **1,062** | **814** | **0** | **814** | **566** | **0** | **566** | **3,000** | **0** | **3,000** |
| **9. Program administration** | **0** | **1,250** | **1,250** | **0** | **1,250** | **1,250** | **0** | **1,250** | **1,250** | **0** | **1,250** | **1,250** | **0** | **5,000** | **5,000** |
| **10. Total cost** | **55,837** | **31,243** | **87,080** | **106,154** | **65,129** | **171,283** | **81,435** | **60,712** | **142,147** | **56,574** | **42,917** | **99,491** | **300,000** | **200,000** | **500,000** |

PT: Public Treasury

## III. PROGRAM EXECUTION

### A. Organization and management

#### 1. Operating framework

3.1 The Ministry of Transport and Communications, through the Transportation Rehabilitation Program of the Special Transportation Infrastructure Rehabilitation Project (PERT-PRT), has primary responsibility for program execution, understood to include preparing investment projects, contracting the works, and contracting and monitoring the preinvestment studies and supervisory and institutional strengthening services. Other agencies of the MTC will be responsible for technical follow-up on the specific consulting services that will be providing them with support.

3.2 PERT-PRT was created by decree in 1994 as a special project administered by the MTC. As a special project, it is by definition temporary and created for a specific purpose, which is to rehabilitate transportation infrastructure. It has the highest degree of autonomy possible under the current administrative scheme, reporting directly to the Deputy Minister of Transport. Although its budget forms part of the MTC's, PERT-PRT has independent control over its own budget. It has carried out projects and works on the national highway network totaling US$156 million in 1996, US$379 million in 1997, and US$335 million in 1998 (projected).

3.3 A committee chaired by the secretary general of the MTC and composed of the executive director of PERT-PRT and the technical secretary of the National Road Safety Committee will coordinate the program's institutional component. This committee reports directly to the Minister of Transport.

#### 2. Other participating agencies

3.4 Other MTC agencies will have specific responsibilities for institutional actions and related studies. The ministry's Office of Planning and Budget will have primary responsibility for supervising the studies on planning and for institutional assistance to strengthen its professional level. The Specialized Environmental Impact Studies Unit of the Directorate General of Roads will be the core around which the MTC's institutional structure for road and environment issues will be revamped. The Directorate General of Land Transport will perform the activities and studies mentioned in paragraph 2.26.

3. Operating procedures manual

3.5 The operating procedures will be those currently used by PERT-PRT. No major changes are expected in them, particularly with regard to financial administration of the program. However, technical items will be updated in order to incorporate general specifications applicable to all the roads in the program, design standards, new terms of reference for studies, works and supervision, development of procedures for expropriation and resettlement, etc., thereby providing the executing agency with a full set of tools to carry out its mandate.

B. Investment selection and programming

1. Project selection

3.6 The program will finance the upgrading and rehabilitation of roads in the national highway network in the highland, departments of Junín, Huancavelica, Cusco and Ayacucho. It also includes the construction of alternative routes or bypasses around cities in the area of influence of the identified roads. These roads are important on account of their role in the local road network and its linkage to the pertinent national circuits, as well as for the use made of them, measured in terms of average daily traffic and the types of vehicles that travel them.

2. Eligibility criteria

3.7 Four basic types of closely interrelated criteria were used to select the projects: institutional, socioenvironmental, economic and technical. According to the institutional criteria, roads in the geographic area assigned priority by the authorities will be selected on the basis of their importance from the standpoints of use (traffic levels) and functionality (role played by the road).

3.8 One of the socioenvironmental criteria is that the selection be validated by the affected communities, through the dissemination of information on the works to be built and the technical solutions adopted, and their acceptance. The technical criteria include adoption of the best technical and environmental solution, avoiding over-investment and the use of technologies that are more sophisticated than are actually, required to address the communities' needs while protecting the environment.

3.9 Last, the economic criterion is that projects must have an internal rate of return of at least 12% to be selected.

3. Nature of the operation

3.10 The program has identified the main works to be carried out; a final decision on the Urcos bypass will be made during the operation. Although final engineering designs are not available

for all the works, the basic studies and the technical and economic feasibility studies have made it possible to establish construction costs with an acceptable degree of reliability. Several of the institutional strengthening activities will be defined during the program. Accordingly, this operation has an investment timetable and startup dates for the main institutional development activities that can be adjusted during the follow-up missions.

3.11 The program's benchmarks are linked to the nature of the operation. Physical goals have been established in terms of dates for beginning and completing the studies and works; follow-up indicators will be used to track progress in institutional aspects. 10/ The progress reports and annual meetings will determine whether the goals are being attained.

C. Execution strategy

1. Preinvestment studies and works

3.12 The program will rehabilitate and improve highways and build bypasses. To do so, it has an agency (PERT-PRT) that has demonstrated good execution capacity and great flexibility in incorporating the technical changes made necessary by the characteristics of the roads and the zones where they are located.

3.13 The Cusco-Combapata highway, which will be included in year one, has final engineering studies that comply with the Bank's requirements. It also has a detailed environmental and social analysis and a resettlement plan which, although the number of people involved is small, has allowed PERT-PRT to familiarize itself with Bank policies and procedures in that regard; this will expedite work on the remaining roads in the program.

3.14 Although the bulk of the preinvestment studies for the program works will be financed with proceeds from loan 836/OC-PE, they will all be carried out applying the criteria and terms of reference developed during preparation of this operation, which will be updated during execution. The final engineering designs for the Ayacucho-Imperial highway will be financed under the present operation.

3.15 The general execution agreement will establish that PERT-PRT will submit progress reports to the Bank for examination and approval during the annual meetings as well as the proposed investment plan for the following year, indicating the activities to be carried

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10/ The main institutional benchmarks will be defined at the institutional workshop scheduled for November 1998. The institutional plan of action will be presented to the Bank as a condition precedent to the first disbursement.

out, the execution schedule, the budget for each of the program's components and the corresponding justification.

3.16 The deadlines for beginning the works and commissioning the studies will be 36 months and 42 months, respectively, after the loan contract is signed.

2. Institutional development

3.17 The MTC will coordinate this component through its ad hoc committee, and will execute strategic planning activities for the transportation sector and the institutional organization of the highway sector (paragraphs 2.21, 2.24 and 2.25, respectively). The Office of Planning and Budget will be responsible for identifying and selecting professionals to assist it in its planning activities (paragraph 2.21). The Directorate General of Land Transport will provide technical supervision of the studies in its area (paragraph 2.26). 11/ PERT-PRT will submit the respective terms of reference and action plans to the Bank for its nonobjection in the first quarter of 1999.

3.18 During year one, the MTC will begin to implement the recommendations for institutional strengthening in the highway sector by adopting the plan of action approved at the workshop that is currently organized. The resulting plan of action, including general objectives, benchmarks and means of verification, are to be agreed upon with the Bank prior to the first disbursement.

3.19 The expected results will be: (i) an institutional proposal for the highway sector, outlining the new organization and assigning responsibilities among the different road agencies; (ii) a plan of action for implementing the proposal, the execution term and schedule, final results and partial goals, the institutional limitations to be overcome and the resources to be allocated for that purpose; (iii) the legal and regulatory framework that will have to be modified to achieve the expected results and clear-cut procedures for obtaining the necessary legal changes; and (iv) a short-term plan of action to rapidly improve the efficiency of the MTC and maintain the momentum for institutional strengthening of the highway sector.

3. Maintenance of the works

3.20 The borrower undertakes to maintain the program works up to generally accepted technical standards and to present annual maintenance plans to the Bank by September 30 of each year,

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11/ The DGCT will present the corresponding institutional plan of action to the Bank within three months after the loan contract has been signed.

starting in 2001 and continuing up to five years after disbursement in full of the loan.

3.21 The annual maintenance plans are to include: (i) name and description of the agency in charge; (ii) work format (on force account, under contract); (iii) condition of the program roads; (iv) weight control on program roads; (v) budget execution in the previous year and the current year; (vi) work plan and budget for the following year; (vii) report on maintenance condition, based on the sufficiency evaluation system established by the borrower; and (viii) the budgets for work to be done on force account and under contract.

4. Highway concessions

3.22 This component will be carried out jointly by the Private Investment Promotion Commission (COPRI), which is responsible for bids for the concessions, and the MTC, which will provide it with technical support through the Special Highway Concessions Commission. During the first half of 1999, these agencies will be provided with the Bank-supervised studies financed under ATN/MT-5532-PE. COPRI will then call the first bid (Road System 5), allowing for the possibility of public-sector financial support for the investment; if such support is requested by the winning bidder, it will be financed from the loan. If these funds are not committed by April 2001 owing, for example, to delays in the bid process, they may be reallocated to other program components.

D. Social and environmental issues

1. Legal framework

3.23 Environmental protection is enshrined in the 1993 Constitution and, more specifically, in Law 26,410 on the National Environmental Council (CONAM). Article 3 of that law promotes environmental conservation and Article 4(e) establishes general criteria for preparing environmental impact assessments. The organizational and operating regulations to the law (Supreme Decree 048-97-PCM of October 4, 1997) stipulate that "pursuant to the mandate contained in Article 4(c) of the law, CONAM is responsible for establishing general criteria for the preparation of environmental impact assessments".

3.24 The Law on Environmental Impact Evaluation for Works and Activities (No. 26,786) amends articles 51 and 52 of Legislative Decree 757 (Framework Law for the Growth of Private Investment), making CONAM responsible for cross-sector coordination. The Environment and Natural Resources Code (Legislative Decree 613, Article 9) sets forth the contents of environmental impact assessments.

3.25 The program will support the establishment of precise environmental standards for the highway sector, developing them, promoting their adoption by national agencies and coordinating their approval and implementation with the MTC. This will facilitate the technical approval of projects, while ensuring uniformity of criteria and training for participating agencies in their application.

2. Institutional organization of environmental authority

3.26 The MTC recently restructured the Environment Directorate of the Deputy Ministry of Housing and Construction, transferring the unit specializing in highways to the Directorate General of Roads. The Specialized Environmental Impact Studies Unit (UE) was created by Ministerial Decision 258-98 MTC-15.01 of June 8, 1998, which assigned it responsibility for environmental impact evaluation. In April 1994, the MTC established a register of companies authorized to prepare environmental impact assessments (EIAs) and it approved terms of reference for EIAs for road construction projects.

3.27 Although this institutional change was a step in the right direction, it did not fully clarify the UE's powers and responsibilities for establishing environmental rules and regulations or its capacity to supervise their compliance by the different highway agencies or its authority to enforce its decisions. The UE's powers should include the social and environmental aspects of the planning, design, execution and supervision of works and the operation and maintenance of highways, and not just activities related to environmental impact assessments. Furthermore, its operating capacity (staff, equipment, budget and independence in decision-making) was not increased, which limits its activities.

3. Environmental procedures

3.28 When this operation was being prepared, a review was performed of the methods, procedures and terms of reference that PERT-PRT uses in the environmental and social evaluation of projects for which it is responsible. Recommendations to broaden them were made, 12/ which were included in the terms of reference that PERT-PRT used and is continuing to use in socioenvironmental impact assessments currently under way.

3.29 The legislation does not establish environmental categories. However, full EIAs and environmental management plans will be

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12/ The recommendations covered: regional impact assessments; site selection and the definition of environmental criteria and rules for the operation and recovery of borrow and other work-related areas; river crossings; areas of environmental, archeological or cultural interest; expropriation and resettlement; town crossings; and protection of rights-of-way.

prepared for all the projects, given their nature. The program has recognized this "best practice" in the terms of reference that will be used to contract the design, supervision and execution of the works, and has included them in PERT-PRT's manual of operating procedures. 13/

3.30 The program includes institutional activities to: (i) guarantee that environmental procedures will be included in the projects; (ii) establish coordination with the environmental authorities; and (iii) train the MTC's agencies responsible for highways.

3.31 The environmental activities include training workshops and seminars, environmental training for professionals of PERT-PRT and other MTC agencies, and the formal adoption of environmental management procedures and guidelines by including them in the operating manual and discussing them with the environmental authorities, with a view to having them form part of their policies.

4. Public consultations

3.32 As part of the socioenvironmental impact studies for the Cusco-Combapata highway, PERT-PRT conducted public consultations in the localities of Accopata, Chupanhuaro and Urcos. They were carried out with support from social and environmental experts and specialists from the UE, in accordance with Bank guidelines.

3.33 The guidelines and procedures that PERT-PRT adopted for these public consultations will be applied to the EIAs that will be conducted for the program's projects.

5. Resettlement of the affected population

3.34 The realignment of the Cusco-Combapata highway will affect 41 properties and two houses in the rural communities of Accopata and Chupanhuaro. An action plan for compensation and resettlement (PARR) was drafted in accordance with Bank policies and found that just four properties would require expropriation and resettlement. The cost of the measures recommended in the plan are included in the project cost. For the other highways in the program, if it is necessary to resettle low-income families, Bank policies will be followed, 14/ as will the specific terms of reference for this activity which were agreed upon when the operation was prepared.

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13/ During project preparation, PERT-PRT commissioned the EIA for the Cusco-Combapata highway; the study has been completed and complies with Bank requirements.

14/ The Bank provided PERT-PRT with the following IDB documents: (i) Policy on involuntary resettlement - Background paper, May 28, 1998; (ii) Operating Policy OP-710, Involuntary Resettlement, May 28, 1998.

3.35 If it is necessary to relocate low-income families in other program projects, a preliminary PARR will be prepared for the respective EIAs. The definitive plan will be drafted when the final engineering designs are prepared; the definitive PARR must be ready and have received the Bank's nonobjection prior to calling the bids for the works. Execution of the PARR will be a crucial element in the progress of work. Disbursement requests for each project will be required to certify that the PARR has been fully complied with in content, scope and timeliness. Otherwise, the Bank will not recognize the respective work-related costs out of the loan proceeds or the counterpart funds.

6. Areas of archeological interest

3.36 The Cusco-Combapata highway is located in the vicinity of an area of archeological interest. As a result of the EIA, the design includes measures to prevent any impact from the operation of borrow and dump sites. Roads and signs to facilitate access to the site have also been included.

3.37 The terms of reference for the EIAs establish specific rules for prior consultation and the adoption of procedures to protect Peru's archeological heritage, in accordance with the requirements of the National Institute of Culture. Also, PERT-PRT requires that approval be obtained from the institute for works that cross areas of archeological interest.

7. Bypass at Urcos

3.38 There is no way of improving the road and retaining sidewalks in Urcos, without affecting a large number of houses and other properties. In some sections, it is impossible to construct a dual carriageway even in the form of a city street, and traffic management solutions would have to be used as a stop-gap.

3.39 Accordingly, the project will: (i) improve the access roads to Urcos along the current alignment of the road; (ii) respect the existing right-of-way in the urban area, without attempting to widen it, since any solution adopted would still leave the long-term problem of a highway running through this town of 12,000; (iii) build sidewalks, improve the pavement, install pavement markings and road signs in the urban zone and, if necessary, provide solutions to limit two-way traffic in narrow areas (possible solutions would be a two-way road, traffic lights that allow alternating one-way traffic on the same section, remove obstacles, police traffic control in the town square, etc.); (iv) study construction of a bypass around the town during the first year of the project; and (v) build the bypass as part of the program. This solution would limit the capacity of the rehabilitated road for a certain time, but would provide a long-term solution for the town of Urcos and for the Cusco-Combapata highway.

8. Rights-of-way

3.40 The vast majority of the works will be built along existing rights-of-way and therefore the need for expropriation or relocation will be small. 15/ During the field visit, it was observed that some houses were located close to the right-of-way. Most of these houses are on sites where there is adjacent space for relocation, and therefore major difficulties are not anticipated in this regard. These observations will be confirmed through studies; in the event that involuntary resettlement is necessary, applicable Bank policies and specific terms of reference will be followed.

3.41 For bypasses that require new alignments with a greater impact on property, the feasibility study includes a preliminary analysis of the properties and population affected. This analysis will be confirmed during preparation of the final designs and the EIA. If necessary, the EIA will include a plan of action for compensation and resettlement.

9. Urban areas

3.42 Improvements to road surfaces could lead to an increase in the average speed at which vehicles travel and consequently to a larger number of accidents. Therefore, for sections of highway that cross populated areas, the final designs will include infrastructure for pedestrians and nonmotorized transport, and specific road safety measures during the works and during operation.

10. Expected environmental impact

3.43 The main environmental impacts will occur in the construction stage, particularly when borrow and dump sites are opened up, and camps and other construction facilities are set up. The environmental analysis of the projects should include environmental control and monitoring measures for the works, covering procedures to protect archeological heritage and detailed plans for environmental recovery in all borrow and dump sites. The costs of measures to control and monitor the works will be included in the respective budgets.

3.44 The program will include the identification and cleaning up of any critical environmental problems along the rights-of-way and their environs.

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15/ Prior to beginning the works, the borrower will submit evidence of legal ownership of the land on which they will be built.

11. Recommendations 16/

3.45 To ensure that the socioenvironmental measures provided for under the program are carried out, it is recommended that the executing agency present the following to the Bank:

a. Prior to the first disbursement of the loan: (i) evidence that the company responsible for implementing the PARR for the Cusco-Combapata highway and the NGO responsible for monitoring it have been contracted; and (ii) the model contract to be used for works and supervision, setting forth the socioenvironmental responsibilities and sanctions for failure to comply.

b. Three months after the loan contract is signed: (i) the technical construction specifications, including socioenvironmental and road safety aspects; 17/ (ii) the terms of reference for the study on the transportation of hazardous materials; and (iii) the terms of reference for the feasibility study and analysis of alternatives for crossing the town of Urcos.

c. Six months after the loan contracted is signed: (i) studies relating to the proposal to create an environment unit; and (ii) the master plan including criteria and procedures for the expropriation and compensation of the population affected by the establishment or repossession of rights-of-way.

d. Twelve months after the loan contract is signed: (i) the pilot plan for rights-of-way; (ii) the study on regulations and measures to control the transportation of hazardous materials; and (iii) the feasibility study and analysis of alternatives for crossing the town of Urcos. Evidence will also be presented that the environment unit has been established, at least one environmental training course has been offered, and the consultant to perform the ex post evaluation of the PARR has been hired.

e. Eighteen months after the loan contract is signed, evidence will be presented that the regulations governing the transportation of hazardous materials have been approved.

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16/ These recommendations were established as conditions and are presented in the executive summary (special contractual clauses).

17/ Full technical specifications are available for the works in year one of the program. They were revised and approved during preparation of the operation. PERT-PRT's commitment to have general technical specifications means that it will have standards that are applicable to all its works. Specific technical specifications will continue to apply to each road and its individual characteristics.

3.46 It is also recommended that the Bank hire the consultants who will assist it in evaluating the engineering studies and socioenvironmental plans and in the technical audits of progress in the works, prior to approval of the studies for the Huancayo-Imperial highway.

3.47 Execution of the compensation and resettlement plans, which must be compatible with the schedule of works, should be monitored and linked to cost recognition. One month prior to beginning the works at Accopata and Chupanhuaro, PERT-PRT should have concluded the process of compensation for the properties affected. None of the works in the program will begin until PERT-PRT has presented evidence that the people affected have been relocated or compensated.

3.48 PERT-PRT should apply Bank policies in all cases of expropriation and involuntary resettlement, particularly with regard to the payment of compensation at market prices.

E. Monitoring and supervision

1. Monitoring

3.49 Program monitoring will be done through semiannual reports, similar to those that PERT-PRT regularly prepares under loan 836/OC-PE and submits to the Bank for consideration. Follow-up missions will be sent twice a year (in April and October) until 2000, since it is in this period that the main works and institutional processes will begin. Afterwards a single annual mission will be sent in October.

3.50 Given the technical and socioeconomic complexity of these projects, as part of the project monitoring activities it is recommended that individual consultants or a consulting firm be hired to review and evaluate the feasibility studies (technical, economic, environmental and social) and the final designs for the works; they should give their opinion on the proposed solutions, the respective costs, and compliance with the Bank's guidelines and PERT-PRT's manual of operating procedures. 18/ If necessary, they will recommend complementary studies to the Bank, to be carried out by PERT-PRT, to bring the feasibility studies and final designs up to par. The consultants may also perform a technical and environmental audit of the progress of work to assist the Bank in monitoring the operation.

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18/ With respect to personnel requirements during execution, an average of 24 consultant/weeks will be contracted each year to perform this task. This time allocation will make it possible to prepare auditing reports each quarter.

2. Reports

3.51 PERT-PRT will present semiannual reports on all project components, including those implemented by other MTC agencies. The reports will be submitted 30 days prior to the follow-up missions and are to describe the following aspects: (i) progress in relation to the execution indicators and disbursement schedule; (ii) updated execution and disbursement schedule for the rest of the program; (iii) progress in the technical and institutional assistance; (iv) compliance with the contractual clauses; (v) program of work and plans of action for the following two six-month periods; and (vi) budget considerations.

3. Periodic examinations

3.52 On the dates mentioned (paragraph 3.51) the Bank and PERT-PRT will perform a joint examination of the program's status and the objectives achieved. Other institutions (MTC, MEF, COPRI), consultants and agencies involved in the investment and institutional strengthening programs will participate. The beneficiary communities may also be invited to participate in the examination of works of particular interest to them.

3.53 The evaluations will be an opportunity to examine the following aspects: (i) progress in carrying out the physical components of the project; (ii) performance by PERT-PRT; (iii) participation by local communities and governments in the projects; (iv) progress in the institutional strengthening components; (v) suitability of the procedures set forth in the manual of operating procedures; (vi) application of the criteria for environmental protection, expropriation and resettlement; (vii) justification of the investments made, institutional proposals to be carried out and the plan of action and budget for the following year; and (viii) the schedule of execution and performance indicators. Progress in the highway concession program will also be examined.

3.54 If execution is unsatisfactory, the government will prepare a plan of corrective actions to be presented to the Bank for nonobjection within the two months following the end of the mission.

4. Ex post evaluation

3.55 The Peruvian government has been informed of the Bank's policy regarding ex post evaluation and has decided not to have one performed for the program.

F. Procurement

1. Civil works

3.56 International competitive bidding will be held for all civil works costing more than US$3 million. The size of the works, their cost,

and experience under stages I and II of the highways program suggest that a considerable number of foreign contractors will participate. Due to the complexity and importance of the works, and in accordance with the operating procedures, prequalification will be used for these bids.

3.57 For works costing between US$300,000 and US$3 million, competitive bidding will be held, in accordance with local legislation. Works costing US$300,000 or less will be contracted through price shopping based on quotes obtained from at least three qualified national contractors in response to a written invitation.

3.58 Goods costing more than US$250,000 will be procured through international competitive bidding. Local legislation will apply below that amount.

2. Consulting services

3.59 Consultants will be hired in accordance with established procedures. The services that may be contracted include: economic and financial studies, environmental and social studies, engineering designs, works supervision, technical assistance, training courses, auditing services, management control and institutional strengthening.

3.60 For all contracts over US$200,000, the format of international competitive bidding with calls for proposals will be used. For contracts between US$50,000 and US$200,000, a short list will be drawn up by direct invitation and the companies identified will be invited to submit proposals. Consulting contracts under US$50,000 may be arranged directly, without calling for proposals, owing to the need for quick responses to specific demands.

3. Procurement review

3.61 The publicity, bid documents, bid evaluations and contract awards will be examined for all international bid calls and for the first local bid for civil works. Subsequent local bids will be examined ex post. All documentation will be processed directly by PERT-PRT.

3.62 The publicity, prequalification documents, terms of reference, bid evaluations and contract awards will be examined for consulting services costing US$100,000 or more. Similar controls will be applied to contracts for individual consultants costing more than US$50,000. Consulting services below these limits will only require prior examination of the terms of reference and professional experience of the firm or consultant selected.

4. Procurement plan

3.63 The procurement plan for the program (in September 1998 prices excluding contingencies and cost escalation) is presented in Annex III.

G. Financial aspects

1. Revolving fund

3.64 A revolving account will be opened for the equivalent of 5% of the loan (US$15 million). The Bank will replenish this fund upon receipt of duly justified disbursement requests from the borrower. PERT-PRT will control use of the fund and prepare the disbursement requests.

2. Disbursements

3.65 Disbursement requests will be reviewed ex ante in accordance with normal Bank procedures.

3. Retroactive financing and cost recognition

3.66 These items have not been included in the present operation.

4. External auditing

3.67 The government, through a private firm, will audit the program in accordance with principles and procedures acceptable to the Bank. The auditors will examine program costs and the special account, transfers and the statements of costs, beginning with the documents for 1999, in accordance with terms of reference approved by the Bank. During the project, audited annual financial statements will be presented to the Bank within four months after the close of each fiscal year.

5. Disbursement period

3.68 The loan will be disbursed in 54 months.

## IV. INSTITUTIONAL AND FINANCIAL ANALYSIS

### A. Borrower and executing agency

4.1 The borrower will be the Republic of Peru and the executing agency will be the Ministry of Transport, Communications, Housing and Construction, through the Transportation Rehabilitation Program of the Special Transportation Infrastructure Rehabilitation Project (PERT-PRT).

### B. Institutional aspects

#### 1. Institutions in the highway sector

4.2 The following institutions are involved in the sector:

a. The Ministry of Transport, Communications, Housing and Construction (MTC) plans, formulates, directs, coordinates and evaluates sector policy.

b. The National Highway Maintenance System (SINMAC), which reports to the Deputy Ministry of Transport, has the functions of planning, managing and controlling activities and spending for maintenance of the paved highways in the national highway network.

c. The Directorate General of Roads (DGC), a line organization of the Deputy Ministry of Transport, proposes policies relating to land transportation infrastructure and supervises and evaluates its implementation. It is also responsible for construction, upgrading, rehabilitation and maintenance of some 15,000 kilometers of the national highway system. 19/

d. The Special Transportation Infrastructure Rehabilitation Project (PERT) is the executing agency for projects with international financing. It reports directly to the Deputy Ministry of Transport.

#### 2. Organization

4.3 PERT-PRT is headed by an executive director and has various offices (administration and finance, IDB program, IBRD program), a project planning and control unit, a legal advisory service and several administrative units. It has a total staff of 115. The technical team assigned to the IDB program is composed of 18 professionals, assisted by five professionals from a local consulting firm. This

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19/ According to the description contained in the mission and functions of the MTC.

staff is considered appropriate for the operation under consideration.

3. Functions

4.4 With specific reference to the proposed program, PERT-PRT's functions will be those typical of an executing agency: (i) to plan, coordinate, direct and evaluate execution of the works; (ii) to formulate the operating plan, restructuring it when necessary; (iii) to coordinate preparation of the annual budget; (iv) to coordinate arrangements with the Ministry of Economic Affairs and Finance (MEF) for the timely allocation of local counterpart funds and approval of loan disbursements; (v) to verify and approve the budgets for the works; (vi) to review and approve bid studies and documents; and (vii) to prepare and propose the bid documents and arrange for their approval as established in the loan contract.

4. Financial organization

4.5 PERT-PRT has its own resource-management authority. It processes requests for funds directly with the MEF and the Directorate General of the Public Budget, without going through the General Administration Office of the MTC.

5. Internal and external control

4.6 PERT-PRT is subject to supervision by the Controller General of Peru and the Inspector General of the MTC. External financing contracts require the annual financial statements to be audited by independent external auditors (annual external control).

6. Conclusions of the institutional analysis

4.7 With respect to the investment plan, PERT-PRT has well-defined functions, its processes are clear, and the information system is efficient. PERT-PRT enjoys a certain degree of independence in managing funds, but is still subject to the controls and authorizations of the MEF's Directorate General of the Public Budget.

C. Financial analysis of the highway sector

1. Introduction

4.8 Financial data on the highway sector are presented below, covering recent years and medium-term projections, focusing on the program under consideration in particular.

4.9 The budget data in current soles have been taken from statistics kept by the Office of Planning and Budget. They were converted

into current United States dollars at the average exchange rates published by the Central Reserve Bank of Peru.

2. Budget performance of the MTC (1995-1998)

4.10 Capital outlays accounted for the bulk of spending by the MTC (averaging 88% per year from 1995 to 1997). The relative weight of operating costs has declined markedly since 1991, when they accounted for approximately 50%. The increase in capital outlays is due to past and present IDB and IBRD programs, since the highway sector represents about 90% of the MTC's total spending. The ministry has executed an average of 67% of its budgeted capital spending.

3. History of investments in the highway sector

a. Sources of funds

4.11 In 1990 and 1991, roads were built exclusively with funds from the public treasury. In 1992, the start of disbursements under loan 651/OC-PE caused fiscal resources to drop to about 60% of total investment, and the percentage continued to decline with the subsequent approval of loans from the IDB, IBRD and other international agencies. Today, although funds from the public treasury account for just 40% of the total, the overall activity level has risen.

**MTC highway sector**
**Origin of capital resources**
**(In current US$ millions)**

| Description | 1995 | 1996 | 1997 | 1998 | 1998 Jan.-June |
|---|---|---|---|---|---|
| Public treasury | 184 | 197 | 235 | 187 | 91 |
| a. DGC | 136 | 128 | 92 | 66 | 38 |
| b. PERT (local contribution) | 48 | 69 | 143 | 121 | 53 |
| SINMAC (tolls) | 25 | 21 | 20 | 40 | 33 |
| IDB | 88 | 32 | 105 | 114 | 52 |
| World Bank | 12 | 41 | 85 | 58 | 30 |
| Andean Dev. Corp. | 22 | 4 | 32 | 29 | 13 |
| Other lenders | 24 | 22 | 35 | 53 | 7 |
| Donations | 1 | | 3 | | |
| Total | 356 | 317 | 515 | 481 | 226 |

4.12 The funds assigned to and available for investments have grown significantly between 1995 and 1998. Disbursements under loan 836/OC-PE began in 1995 and, together with the local counterpart, became the main source of financing for this activity.

b. Application of funds

4.13 An analysis of spending on the different items shows that rehabilitation and maintenance have received the largest share. In absolute terms, they grew from US$180 million to US$340 million between 1994 and 1997. In relative terms, this investment category has grown from 60% of total investment in 1994 to 80% in 1997.

4. Conclusions of the financial analysis

4.14 Total spending by the MTC grew at an annual average of 65% between 1990 and 1997. While in 1991, operating costs accounted for 50% of total spending, in 1997 they had fallen to 13%. This was due, on the one hand, to the marked increase in spending on investments (which grew on average by 85% a year) and, on the other, to the drop in current spending in relative terms, as a result of the policy to curtail public spending. The MTC's budget performance in 1997 was 67% and its financial performance is good.

4.15 In 1997, spending on highways accounted for 94% of total spending by the MTC. The funds received by the sector grew an average of 12% a year, cumulative, between 1995 and 1998. Up to 1992, funds from the public treasury were the main source of financing for programs, which were mostly executed by the DGC. Beginning in 1993, budget funds allocated to the sector diminished in relative terms, but the sector as a whole obtained more funding, owing to the heavy use of foreign borrowing. In 1994, when its direct activities outstripped those of the DGC, PERT-PRT became the leader in the use of investments.

5. Financial projections

4.16 The financial projections included here are intended to gauge the likely availability of funds that the public sector will earmark for the highway sector in the near future, including the estimated requirements for the program under consideration.

4.17 To better visualize growth in sector activity, estimates for 1999-2003 are compared with actual spending in 1996 and 1997. The figures for 1998 are a general estimate for this year and those for 1999 are contained in the draft budget presented to the legislature.

4.18 The following table shows the aggregate estimates for investments programmed by the DGC, PERT-PRT and SINMAC, in addition to estimates of funds from external financing, SINMAC's own income and income from other sources. It also includes the estimated amounts that the public treasury will have to contribute each year.

Financial projections for the highway sector – MTC
(1999-2003)
(US$ millions, September 1998)

| Descript. | DGC invest-ment | PERT invest-ment | SINMAC invest-ment | Total invest-ment | External financing | SINMAC financing | Other finan-cing | Public treasury financing |
|---|---|---|---|---|---|---|---|---|
| 1996 (actual) | 140 | 156 | 21 | 317 | 93 | 21 | 6 | 197 |
| 1997 (actual) | 116 | 379 | 20 | 515 | 257 | 20 | 3 | 235 |
| 1998 | 66 | 335 | 40 | 441 | 253 | 40 | 1 | 147 |
| 1999 | 96 | 433 | 40 | 569 | 296 | 40 | 0 | 233 |
| 2000 | 112 | 418 | 40 | 570 | 306 | 40 | 0 | 224 |
| 2001 | 80 | 326 | 40 | 446 | 205 | 40 | 0 | 201 |
| 2002 | 80 | 326 | 40 | 446 | 205 | 40 | 0 | 201 |
| 2003 | 80 | 190 | 40 | 310 | 123 | 40 | 0 | 147 |

4.19 The funds that the public treasury will have to contribute to the sector to finance the planned activities range from US$233 million in 1999 to US$147 million in 2003. These figures include the works built by the Directorate General of Roads and the local counterpart for programs with external financing, based on projected disbursements. The use of SINMAC's funds is financially neutral since its investments are funded out of toll revenue.

4.20 The investments by PERT-PRT reflect the country's present and future commitments with the IDB and the IBRD. The programs identified as IDB II, IBRD I and Rural Roads are well under way. The present analysis is concerned with the program IDB III. The alternative roads development program is in the initial analysis stage, as are IBRD II and stage II of the rural roads program.

4.21 Peru's historical budget effort and its budget allocations for 1999 demonstrate the political will to address the needs of the highway sector. The drop towards the end of the projected period reflects the end of lending programs and not a decision to reduce funding for the sector.

## V. PROJECT JUSTIFICATION

### A. General aspects

5.1 The MTC will execute the program. The operational aspects will be managed through PERT-PRT. With respect to the institutional component, the MTC has established a coordinating committee responsible for monitoring compliance with the objectives. In addition, other MTC agencies will bear technical responsibility for institutional development activities in their respective domains.

### B. Institutional feasibility

5.2 Institutional feasibility is assured by the support provided for the program by the most senior authorities of the MTC.

5.3 PERT-PRT will act as the program's executing unit. It has well-defined functions, its processes are clear, and its information system is efficient. Based on the results achieved in the program currently under way, no institutional or administrative problems are anticipated that could affect the normal development of the proposed operation.

5.4 PERT-PRT has an adequate organizational and operating structure to execute the program. Its professional and technical staff participated actively in the program's formulation and preparation and have sufficient experience to administer it, once the loan is approved.

5.5 PERT-PRT will use external consultants to assist it in technical, administrative and financial aspects, to complement its own capacity and ensure timely evaluations of project execution and results.

5.6 With respect to the institutional component, the ministry has appointed a committee chaired by the secretary general of the MTC and composed of the executive director of PERT-PRT and the technical secretary of the National Road Safety Committee, who will report regularly to the minister on progress in the institutional action plan. The committee is responsible for coordinating this component.

### C. Technical feasibility

5.7 Although in some cases the upgrading and rehabilitation works require the use of complex execution methods, they are considered appropriate for the highway design adopted and have been successfully tested in earlier road projects. Therefore, no technical problems are anticipated that could affect their timely execution. Furthermore, the country has consulting companies and

contractors with proven technical capacity and experience, and the fact that the works will be executed using international bidding largely ensures normal development of the planned activities.

D. Financial feasibility

5.8 The US$500 million program under consideration includes a loan of US$300 million. The local counterpart funds (US$200 million) will come from the national treasury.

5.9 Financial feasibility is guaranteed by the priority that the government and the Ministries of Transport and Economic Affairs and Finance attach to the program and to the sector. This priority is not expected to change in the near future.

5.10 The government is not expected to encounter difficulties in complying with its financial commitments to the program. Furthermore, program monitoring will make it possible to adjust the investment plan and verify the availability of local funding for the subsequent years.

E. Economic feasibility

5.11 Since the highways belong to the principal road network, the evaluation methodology was based on estimating the benefits that would accrue from savings in vehicle operating costs, travel times and highway maintenance once the roads have been rehabilitated. The HDM III program was used for the evaluation.

5.12 The projects in the program form part of the 1996-2000 highway infrastructure development plan. The works to be included were selected and prioritized on the basis of functional and economic criteria, such as: (i) completing sections of the north-south highway in the sierra, improving the integration of the sierra itself and the linkage between the sierra and the coast; (ii) construction of bypasses around cities; (iii) prioritization of highways that provide access to zones with the social and economic problems; and (iv) the economic returns from the investment.

5.13 Traffic projections have been based on constant growth rates, in the range of 3% to 5% cumulative a year 20/, depending on the type of vehicle and section under consideration. These rates are adequate, given the poor condition of the roads included and experience observed on roads that underwent similar upgrading. The improvement in economic performance, with high growth rates and the benefits obtained from the pacification of the area, suggest that the earlier experience will be repeated.

5.14 The cost of vehicle operation is estimated using the vehicle operating costs model (VOC, a component of HDM III). The data reflect the cost of purchasing goods and services at the time the studies were performed and do not present distortions with respect to market prices. Therefore, the operating costs obtained are a sufficiently accurate reflection of the costs incurred by users.

1. Cost-benefit analysis

5.15 The internal rate of return for the sections analyzed is: (i) Cusco-Combapata, 21%; (ii) Huancayo-Imperial-Izcuchaca, 19.9%; (iii) Ayacucho-Mayocc-Pampas-Imperial, 21.3%; and (iv) the bypass at La Oroya, over 30%.

5.16 An analysis of the investments in the projects in year one indicates that the timing is good, since delaying them causes a reduction in the expected benefits. However, the sensitivity analysis indicates that even if there were significant changes in the levels of investment (+20%) and savings (-20%), the returns on these roads would continue to be acceptable.

F. Environmental feasibility

5.17 The program contains various measures to ensure its validity from the environmental and social standpoints. PERT-PRT has included environmental protection measures in its procedures. All the projects will have EIAs and environmental management plans and, if necessary, a plan to resettle the affected population. This "best practice" (including public consultations) is reflected in the terms of reference for the contracts for designs, supervision and works and has been included in the manual of operating procedures.

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20/ Although these rates may appear to be high, they are actually conservative. Experience with road rehabilitation in Peru has shown that in the first two years after a road has been improved, demand grows between 20% and 30% and then stabilizes at about 3% a year. Therefore, the rates used underestimate immediate and medium-term demand, i.e., the period during which savings in vehicle operating costs are more significant in calculating the internal rate of return. These rates of growth in demand are backed by a rapid expansion of the vehicle park.

5.18 The program contains activities to: (i) guarantee the inclusion of environmental and social procedures in the projects and monitor their implementation; (ii) establish coordination with the environmental authorities; and (iii) train the MTC's road agencies in environmental and social aspects.

5.19 The main impacts will be felt during construction, particularly as a result of opening up borrow and dump sites and establishing work camps and other contractor facilities. The environmental analysis includes measures for environmental monitoring of the works. The environmental protection costs have been included in the works budgets.

G. Poverty focus

5.20 The project is targeted specifically to improving the economic infrastructure. Therefore, it does qualify as a poverty-reduction program, as established in paragraph 2.15 of the Eighth Replenishment Document. However, it will benefit a large number of low-income rural communities and small production and consumption centers located in the vicinity of the rehabilitated roads.

5.21 The project is not specifically oriented to the promotion of women either. However, it will improve access to social services such as hospitals and schools, which is a larger proportional benefit for this segment of the population.

H. Benefits

5.22 The program's benefits stem from the development and integration of an extensive region in the sierra, reductions in vehicle operating costs and travel times, and the expansion of transportation services. It will also bring about an improvement in the road management capacity and greater private involvement in operating and maintaining the system.

5.23 In particular, the adoption of strict road planning criteria and their annual review by the competent agencies (PERT-PRT, MTC, MEF) will provide road management with stability and a professional level attuned to investment size. This, supported by strict technical criteria for the scaling, evaluation and design of projects, will enhance the professionalism with which highways are managed.

I. Risks

5.24 The risks that have been identified are of two types: (i) resistance to the institutional changes in the highway sector; and (ii) lack of interest by the private sector in participating in the highway concession program.

5.25 With respect to the first risk, the Minister of Transport is personally committed to institutional strengthening and has appointed a high-level ad hoc committee to lead the process. The minister has also ordered that an institutional workshop be held, which is now being prepared and which will propose short- and medium-term actions to overcome this risk. Specific institutional support and consulting services will also be contracted. This risk will not affect execution of the works, but rather the long-term capacity of the MTC to deliver good highway management.

5.26 With respect to the second risk, the MTC and the Private Investment Promotion Commission (COPRI) have a trained, experienced and stable group of professionals. With support under technical-cooperation operation ATN/MT-5532-PE, they are preparing technical and legal documents to offer an attractive process, which will be publicized with international investors. This ensures that the process of involving the private sector in highway management will be a success.

**PERU**
**HIGHWAY REHABILITATION AND IMPROVEMENT PROGRAM — STAGE THREE (PE-0197)**

**Logical framework**

| scriptive Summary | Quantifiable Indicators | Means of Verification | Main assumptions |
|---|---|---|---|
| | ***By the end of the project:*** | | |
| an extensive region of the<br>proving its road infrastructure<br>it with the more dynamic<br>the coast. | 1. 439 km of roads in the national highway system in the departments of Junín, Cusco, Huancavelica and Ayacucho have been rehabilitated. | 1. The highways rehabilitated under the new technical standards have been included in the road inventory. | 1. The government continues to s<br>road expansion policy. |
| the efficiency of the road<br>n system, reducing vehicle<br>sts and travel times and<br>ne supply of services. | 2. The supply of transportation along the rehabilitated corridors has increased; transportation costs and travel times have dropped by at least 25% with respect to the current situation. | 2. Surveys of users; the HDM III has been run on the highways in the program. | 2. Economic recovery and growth |
| the institutional, technical,<br>d managerial capacity of the<br>highway agencies. | 3. The MTC has strengthened its planning capacity and revised its institutional structure for roads. | 3. The MTC has carried out an institutional discussion and defined a plan of action and outcomes. | 3. Support for the administrative r<br>the highway sector continues. |
| private involvement in highway<br>t. | 4. One 'highway system' is conceded to the private sector. | 4. The concessionaire is operating the privatized road. | 4. There is on-going support for p<br>sector participation in highway<br>management and operation. |
| | ***By the end of the program:*** | | |
| , improvement and<br>of specific roads. | 1. The roads have been delivered by the construction companies and are subject to a routine maintenance program. | 1. Reports by works' supervisors and PERT-PRT. Contracts for maintenance or transfer of the roads to SINMAC. Country Office reports. | 1. Timely and sufficient counterpa<br>are provided. |
| strengthening and<br>on of road management. | 2. Road management is being carried out by one or several agencies specializing in the different categories of roads. | 2. The MTC has issued administrative rules for restructuring the highway sector. | 2. The MTC continues to support t<br>institutional reform of the sector. |
| t and execution of pluri-annual<br>nance and investment plans. | 3. The MTC has a reliable and sustainable road investment planning system. | 3. The Office of Planning and Budget (OPP) has capable professionals and produces pluri-annual road plans which are made public and are periodically up-dated. | 3. The OPP is assigned clear resp<br>for strategic planning. |
| essions as a means of road<br>t. | 4. Concessionaires are operating at least one highway concession. | 4. Contractual information and reports by the regulatory agency. | 4. The bid process for the concess<br>not encounter difficulties and th<br>sector shows interest. |

| escriptive summary | Quantifiable indicators | Means of verification | Main assumptions |
|---|---|---|---|
| nt, rehabilitation and routine<br>e of the national highways in | 1. The Cusco-Combapata, Huancayo-Imperial-Izcuchaca and Ayacucho-Mayocc-Pampas-Imperial highways and the bypass at La Oroya have been rehabilitated, improved or constructed. | 1. Road inventory. | 1. PERT-PRT and the MTC are op<br>implementing the program in ac<br>with the agreed performance in |
| ive structure of the road<br>evised and approved by the | 2. The institutional plan of action is approved and under way and the transition from the old structure to the new is in progress. | 2. Administrative directives issued to reform the highway agencies. | 2. Timely execution of the institutio<br>plan; sufficient resources alloca<br>task. |
| ession in operation. | 3. The concession for Road System 5 has been granted and the road is being operated by a private concessionaire. | 3. Concession contract and meetings with the concessionaire. | 3. On-going support for the highw<br>concession program; good insti<br>relations between the MTC and |
| *g of:* | | Reports by the executing agency; administration of the operation by the Country Office; follow-up missions. | 1. Availability of local and internat<br>contractors and consultants with<br>necessary capacity and experie |
| ction companies | Investment of US$339.5 million | | |
| nic, socioenvironmental and<br>al feasibility studies | Investment of US$23.5 million | | |
| sory firms | Investment of US$28 million | | |
| *l development:* | | | 2. Timely and sufficient counterpa<br>contributions. |
| ration of professionals into<br>TC | Investment of US$600,000 | | |
| nance and implementation of the<br>onal studies | Investment of US$3.5 million | | |
| nance and implementation of<br>studies | Investment of US$1.4 million | | |
| *oncessions*: | | | 3. Streamlined contracting proced |
| nvestment contribution | Investment of US$30 million | | |
| cal studies | Investment of US$4 million | | |

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**SPECIFIC STUDIES AND ASSISTANCE**

The program will fund the following specific studies linked to the MTC's management:

i. Traffic and transportation act

Congress is considering a land traffic and transportation act which has received a favorable committee report and is ready to be debated by the full house. The legislation covers transportation, traffic, and highway management, which makes it a complex law. Accordingly, regulation is a key tool for making it effective. If the law passes, it will require an in-depth review of the MTC's procedures and mandate. This component will support regulation of the act and the institutional adjustment of the MTC and its agencies to its mandate.

ii. Studies on transportation sector policies and planning

These studies will be identified through the work done by the Office of Planning and Budget and the group that assists the minister. They could include methods for activities depending on the category of the roads, systems for transferring technology to municipal governments for infrastructure maintenance, studies on land transportation supply and demand, institutional requirements for the development of inter-modal transport, etc.

iii. Prefeasibility studies

These studies will provide the MTC with a pipeline of projects which it can use to establish investment priorities and to program short-, medium- and long-term investments.

iv. Pilot plan for establishing or recuperating rights-of-way

Illegal occupation of rights-of-way causes innumerable problems for road agencies. It deteriorates the quality of the road, creates risks for traffic and the people occupying the rights-of-way, and reduces road capacity. It is also a decisive factor for making headway in the concession program, since it affects the liability of the potential concessionaire. Therefore, the program will include a pilot plan to establish and recuperate rights-of-way. Once a consolidated section of highway belonging to the principal road network has been identified, the plan will establish: (i) guidelines and procedures for expropriation and compensation for people directly affected by the rights-of-way to be established or recuperated; (ii) methods to protect rights-of-way; (iii) illegal occupation of rights-of-way and the problems it causes;

(iv) procedures for clearing rights-of-way; and (v) policies and criteria regarding the ownership of rights-of-way, authorized activities, liability of legal occupants, access to the road, etc.

v. Technical specifications for highway construction

The MTC's technical specifications for highway construction need to be updated for the works to be built under the program. PERT-PRT has instructed the program's consulting firm to carry out this task. The proposed study will review and complement that work in order to ensure that it includes the environmental, social and road safety specifications required for execution, quality control, monitoring and supervision of the works. The new technical specifications will be included in the bid documents for program works.

vi. Transportation of hazardous materials

The MTC lacks suitable regulations for the transportation of hazardous materials and does not have adequate information on the volume and nature of the materials transported. The program will study hazardous materials, their origins and destinations, the vehicles used, the security measures adopted by shippers and transporters, and institutional capacity to manage emergencies, and it will propose suitable regulations based on international experience.

vii. New technologies

The program will support the development of new technologies for pavement design and management, quality control, hydrogeological studies, slope stabilization, etc.

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**PROCUREMENT PLAN**

| Procurements | Financing (US$ millions) | | | Method | Date of publicat SPN |
|---|---|---|---|---|---|
| | IDB | Public treasury | Total | | |
| **bapata highway** | | | | | |
| n | 2.3 | 1.8 | 4.1 | ICB | IV 98 |
| | 30.3 | 22.8 | 53.1 | ICB | IV 98 |
| **mperial highway** | | | | | |
| n | 0.8 | 0.5 | 1.3 | ICB | I 99 |
| | 9.4 | 7.1 | 16.5 | ICB | I 99 |
| **uchaca highway** | | | | | |
| n | 1.0 | 0.8 | 1.8 | ICB | II 99 |
| | 11.6 | 8.8 | 20.4 | ICB | II 99 |
| **vocc-Ayacucho highway** | | | | | |
| | 2.9 | 2.2 | 5.1 | ICB | IV 98 |
| n | 9.4 | 7.0 | 16.4 | ICB | III 99 |
| | 117.3 | 88.3 | 205.6 | ICB | I 00 |
| **pass** | | | | | |
| | 0.6 | 0.4 | 1.0 | ICB | I 99 |
| n | 1.5 | 1.1 | 2.6 | ICB | II 00 |
| | 14.6 | 10.9 | 25.5 | ICB | III 00 |
| **ns** | 9.1 | 6.7 | 15.8 | ICB | 2000/200 |
| **development** | | | | | |
| l organization of the highway sector | 0.8 | 0.2 | 1.0 | ICB | II 99 |
| ntal organization | 0.1 | | 0.1 | LCB | II 99 |
| r the DGCT | 0.3 | 0.1 | 0.4 | ICB | III/IV 99 |
| ion of rights-of-way | 0.3 | 0.1 | 0.4 | ICB | II 99 |
| ndards | 0.1 | | 0.1 | LCB | IV 98 |
| tion of hazardous materials | 0.4 | 0.1 | 0.5 | ICB | II 99 |
| | 0.8 | 0.2 | 1.0 | ICB | 2000/200 |

ng not identified as "civil works" will be contracted with consulting firms.

PROPOSED RESOLUTION

PERU. LOAN /OC-PE TO THE REPUBLIC OF PERU
(Highway Rehabilitation and Improvement Program - Third Stage)

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, to enter into such contract or contracts as may be necessary with the Republic of Peru, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Highway Rehabilitation and Improvement Program - Third Stage. Such financing will be for the amount of up to three hundred million dollars of the United States of America (US$300,000,000) from the Single Currency Facility 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.