

ROAD REHABILITATION AND MAINTENANCE PROGRAM

(HA-0041)

EXECUTIVE SUMMARY

BORROWER: Republic of Haiti

EXECUTING AGENCY: Ministry of Public Works, Transport and Communications (MTPTC)

AMOUNT AND SOURCE:

IDB:	US\$ 45,0 (SF)
Local counterpart funding:	US\$ 5,0
Others:	US\$ 75,0
Total:	US\$125,0

TERMS AND CONDITIONS:

Amortization period:	40 years
Grace period:	10 years
Disbursement period:	4 years
Interest rate:	1% 1st ten years and 2% after
Inspection and supervision:	1%
Credit fee:	0.5%

COFINANCING:

IDA	US\$50,0
KFW (bilateral aid)	US\$ 5,0
EU	US\$20,0

OBJECTIVES: The main objectives of the four years program are:
(a) to assist the Government in implementing its four year road maintenance and rehabilitation program on the intercity and Port-au-Prince road network; (b) strengthen road planning and management within a comprehensive restructuring program of the Ministry; (c) foster private sector and community participation in the works of rehabilitation and maintenance; and (d) assist the Government to define the strategy and the mechanism to finance the maintenance of the road network.

DESCRIPTION: The proposed program will finance MTPTC's four year road program. Consists of five main subprograms: (a) an institutional strengthening and restructuring measures and four specific studies; (b) rehabilitation of 395 km and periodic maintenance of 205 km of priority interurban roads representing half of the rehabilitation needs and 35 km of urban roads; (c) labor intensive and routine maintenance works on 2,700 km of interurban roads, representing the entire principal network and 200 km of the urban roads; (d)

bridge rehabilitation (10), maintenance (21) and replacement (5); and (e) supervision equipment and small maintenance tools.

The institutional strengthening component will provide technical assistance to the Ministry in all components and programs areas so that the MTPTC gradually is able to manage the entire road network properly. Specific studies will cover: a traffic master plan for Port-au-Prince, an environmental review and action plan in selected watershed areas where erosion is threatening the life of road investments, technical assistance to support the implementation of an user's charge mechanism, an update of a National Transport Master Plan and the promotion of private sector initiatives in road construction, maintenance and consulting works.

**ENVIRONMENTAL
CLASSIFICATION:**

The Environmental Management Committee, at its meeting of April 8, 1991, classified this operation as Category II.

BENEFITS:

Program benefits will be substantial in terms of reduced transport costs, foreign exchange savings, increased employment through the development of labor intensive techniques and impact for the poor through the reestablishment of regular access to markets and social services for the poor. The IRR on the rehabilitation investments range from 13% to over 100% due to the high level of traffic on the roads selected in the program and overdue maintenance. The institutional restructuring of the Ministry, together with improved mechanisms for road maintenance funding could also ensure that the investments financed under the program are sustainable.

IMPACT ON POVERTY:

The program will have a significant impact on the low-income population. The distributive impact is estimated at about 80%, which corresponds roughly to the percentage of the population living in poverty. This estimate is justified by the fact that the road rehabilitation will be performed throughout the national territory and will therefore benefit each of the social groups proportionately.

RISKS:

Possible risks include: (a) implementation delays and cost overruns, at least initially; (b) insufficient budgetary allocations for maintenance and payment delays which might reduce private sector interest in the program; (c) slow progress on the institutional component; and (d) major constraints in the programming and execution of works, due to poor coordination among public sector agencies slowing the

progress of execution of works. These risks should be mitigated by: (a) the flexible design of the program, which allows annual adjustments based on the implementation capacity of the Ministry; (b) the high interest and idle capacity of the local private sector; and (c) the permanent financing arrangements proposed should lead to increased local road financing.

**THE BANK'S
COUNTRY STRATEGY:**

The Country Programming Paper (CPP) was discussed and approved by the Programming Committee on June 3, 1992. The Bank's strategy continues to adequately respond to the current needs of the Haitian economy.

The Bank carried out a review of the macro economic situation and of the transport sector during the Emergency Economic Recovery Program (EERP) mission, of November of 1994. The EERP will respond to emergency needs focusing on job generation and labor intensive activities. It will support immediate critical needs in all the sectors of the economy and operate outside the state bureaucracy.

The Road Maintenance and Rehabilitation Program is geared to introduce policy changes and to foster institution building over the medium term, and arrest the deterioration of the existing network. This program continues to have the highest priority for the reconstruction of the Haitian economy. It is expected to be under execution by the time the EERP infrastructure component is completed.

The objectives of the program fully conform with the Bank's strategy with the country since it will contribute to: (a) recover the country's investments; (b) promote the participation of the private sector as a prerequisite for growth; (c) generate employment with the use of efficient labor-intensive techniques; (d) protect the environment; and (e) support the needed institutional reforms and sector policy changes.

**S P E C I A L
C O N T R A C T U A L
C O N D I T I O N S:**

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

(a) Conditions precedent to the first disbursement: the borrower must present evidence that: (i) the coordination unit for program administration has been created (3.1); (ii) the specialized procurement firm has been hired (3.6); (iii) the technical support consulting firm has been hired (3.3); and (iv) the

accounting firm has been hired to support the unit for labor-intensive projects (3.10).

(b) Other conditions:

1. The consultants or specialized firms must be hired within the following time limits: (a) the consulting firm responsible for supervising the works under the Program must be hired at least one month before each call for bids on the works is issued (3.9); (b) studies on the following matters must have been submitted prior to March 30, from the effectiveness of the contract: (i) the master internodal transportation plan; (ii) the master traffic plan for Puerto Principe; (iii) the tertiary drainage system; and (iv) maintenance financing (3.14).
2. As part of the monitoring process, MTPTC will meet with the Bank twice a year of each year of program execution from the effectiveness of the contract: during the first trimestre to analyze progress in the program and reach during the third trimestre to agreements concerning action for the following year. To that end, the borrower through the Coordinating Unit, must submit annually to the Bank, at least 15 days before each meeting, the reports indicated in paragraph 3.15 of this proposal.
3. For the first annual meeting, beyond the requirements established in condition 2 above, the executing agency will submit: (a) the plan of action for restructuring and strengthening the Ministry (3.4); (b) evidence that it has set up the environmental unit of the MTPTC (3.25); and (c) the accounting system used to reduce the time periods for financial transactions (3.8)
4. In order to ensure implementation of the recommendations contained in the studies on institutional strengthening and policy reform, and other studies decided upon during program execution, the executing agency will submit a plan of action during the first annual meeting following the completion of each of these studies (3.19).
5. The projects to be financed under this program must meet the selection criteria agreed upon with the Bank (5.5)

6. No later than September 30 of each year, the executing agency will submit to the Bank: (i) the annual plan for maintenance investment and expenditure proposed for the following year; and (ii) evidence that it has the corresponding local counterpart resources (3.16).
7. During the execution of the program and the five years following the date of the final disbursement, and within the first three months of each calendar year, the executing agency must present to the Bank an annual maintenance report on the road system, presenting the evaluation of works conducted during the previous year and programming for the following year (3.18).

I. FRAME OF REFERENCE

A. Economic and social setting

- 1.1 The political stalemate which prevailed since the Fall of 1991, and the ensuing financial and trade embargo, led to one of the worst performances on record of the Haitian economy. Preliminary estimates indicate that GDP fell over 20% during 1992-1993, and by a further 10% in 1994. Unemployment and poverty levels grew significantly and already precarious sanitary conditions deteriorated, which increased the risk of epidemics. Reduced domestic and foreign demand, together with a serious shortage of energy and spare parts, led to the virtual shutdown in the assembly industry. Small farmers also suffered sizable income reductions and over-indebtedness, although many farmers switched plan cultivations for exports to the production of domestic crops, for which prices rose markedly under the embargo. Erosion of the tax base led to a significant rise of the budget deficit, which was financed mainly by monetary expansion, leading to inflationary pressures and devaluation of the gourde. In the financial sector, weak demand for credit and negative real interest rates eroded the capital base of commercial banks. The crisis also exacerbated long-standing problems caused by distorted prices, increasing of the informality of the economy, accumulation of foreign debt arrears, and acceleration of environmental destruction.
- 1.2 The country will require immediate emergency support for economic and social recovery from the international community. The urgency and scope of this challenge will necessitate the mobilization of a whole range of actors to modernize the State institutions, increase private sector participation, and support the decentralization and deconcentration of efforts. This emergency period for reorganization and general rehabilitation of the basic functions of government and physical and institutional infrastructure is expected to last at least 18 months, and possibly longer, depending on how difficult the transition will turn out to be.
- 1.3 To this end the international community is financing an Emergency Program, to be starting in January 1995. This consists of three basic components, namely an Emergency Economic Recovery Program (EERP) providing balance of payments support, economic policy reforms, rehabilitation programs, financing of supplies, civil works and technical assistance; a Humanitarian Assistance Program, focused on emergency relief and; a Governance Program, encompassing strengthening of democratic institutions, restructuring of the army and the police force, and reforms of the judiciary and public sectors.

B. The transport sector

1. Transport infrastructure

- 1.4 Haiti's transport infrastructure consists of 4,500 km of roads; 40 km of a privately-owned railway for the transportation of sugar-cane; two international ports, ten cabotage ports and about 40 mooring points; two international airports and five domestic airfields. Port-au-Prince, the capital and commercial center, where the major international airport and main seaport are located, is the focus of this transport system. Overall, this infrastructure, if properly maintained would be adequate for the country's need, except for the lack of access roads and bridges to remote rural areas. Owing to severe budgetary constraints and a sharp reduction in international financing over the last ten years including its total suspension during the past three years, however, few investments and no maintenance has taken place and, as a result, most infrastructure is now in a dilapidated condition, the road network in particular.
- 1.5 The development of the transport network over the last fifteen years was funded in large part by external financing agencies on highly concessional terms, and was based on a comprehensive Transport Master Plan (TMP) prepared in the late seventies. The objectives of the Government were to support the expansion of agriculture and industry by providing transport infrastructure for local producers to access external and domestic markets. Expansion of the road network also included the social objectives of improving access of remote villages and regions to basic social services such as health and education.
- 1.6 The TMP did not foresee the extent of rural migration towards the cities, in particular to Port-au-Prince, and the corresponding city expansion and increase in traffic which took place. Over the last ten years, the expansion of the city network has not kept pace with the population and traffic growth; investments to remove congestion at key locations have not been undertaken due to problems of expropriation at a time of social unrest, lack of planning and coordination among the various agencies involved, and cost overruns; and traffic management, traditionally weak, has collapsed altogether. Moreover, the lack of maintenance and the absence of urban planning have led to an anarchic development of the city and a serious deterioration of all existing infrastructure, and chronic congestion in the city. It is, for instance, estimated that vehicles in Port-au-Prince consume about 70% of the transport petroleum bill, amounting to the foreign exchange need of about US\$25 million per year.

2. Transport operations

- 1.7 Transport operations are mostly handled by the private sector. Road transport remains the dominant mode for domestic transport (about 80%). The total vehicle fleet in circulation is around

50,000 to 55,000 vehicles, compared to around 23,000 in 1975 (7-8% annual growth). In addition, a large proportion of the registered vehicle imports are undervalued or benefit from tax exemptions.

- 1.8 Private cars amount to over 50% of the total vehicle fleet. Commercial and passenger transport is mostly provided by small operators--with few trucks or vans.. Except for cement, steel, wheat and few other products, the commercial vehicle fleet is not damaging to the road infrastructure. Traffic data from July 1991 on the inter-city road network show that more than 80% of the traffic occurs on the paved network, which forms less than 20% of the main road network. The heaviest concentration of traffic is in the immediate vicinity of Port-au-Prince.
- 1.9 Coastal shipping accounts for about 18% of domestic transport. Since the deregulation of secondary ports, some cabotage ships are also handling international traffic. Some 400 sailboats and 50 motorboats, are engaged in coastal shipping trade. There is little data to assess whether coastal traffic has grown over the last few years. What is certain, however, is that some traffic diversion has taken place on import-export traffic from Port-au-Prince to secondary ports and beaches following the deregulation measures of 1987/1988, due to the high tariffs in the port of Port-au-Prince coupled with serious shortcomings in custom and administrative procedures, and the ensuing tax evasion possibilities. One of the consequences of this development is that secondary ports have become economic centers for their respective hinterland.
- 1.10 Sea transport is the dominant mode for international freight, and air for international passenger traffic. According to statistics in Port-au-Prince, which accounts for the majority of registered international traffic in the country, international freight grew much more modestly than forecast in the TMP from about 800,000 tons in 1975 to 930,000 tons in 1985, including petroleum imports handled on private quays. Two significant trends in general cargo have been: (a) the increase in container traffic (stabilizing at 200-250,000 tons, representing more than 60% of general cargo); and (b) the increase in air traffic (from 13,000 tons in 1975 to 29,000 in 1985). Traffic statistics, from July 1991, also show an increase in import traffic coupled with a drastic decline in export volumes. International passenger traffic increased steadily, in line with capacity expansion at the airport (from 245,000 passengers in 1975 to around 550,000 in 1985), but has declined since then. Tourism has been particularly affected by the recent political situation.
- 1.11 Road traffic and public transportation in Port-au-Prince have increased in line with population growth. Based on the present population level and limited traffic surveys, it is estimated that about 1,800,000 trips occur daily. A great proportion of these trips is still by foot. Motorized traffic has, however, increased steadily as evidenced by the state of congestion existing throughout the city and all the arterial (1,000 to 2,000 vehicles

per hour at peak time). The increase in demand has been compounded by the difficult topographic conditions of the city; the opposing locations of work, school and living centers; the limited infrastructure improvements over the last ten years, coupled with the large deterioration of the existing network due to lack of maintenance; the complete lack of public transport policy; and the absence of any basic traffic management measures.

- 1.12 Finally in 1991, a World Bank/IDA pilot project aimed at fostering labor-intensive techniques and the development of local firms, and financed a program of city street paving by interlocking concrete blocks (also called pavers or flagstones) over 7 km in Port-au-Prince. This program was satisfactorily implemented. The number of interested firms duplicated during the execution of the program, and the quality of the blocks and the construction work improved.

3. Sector policies

- 1.13 The road transport market is competitive and dominated by the private sector, with Government intervention limited to the provision of basic infrastructure, and to the setting of road user charges, safety and vehicle inspections, axle load controls and passenger fares. There is complete absence of enforcement, and the private sector operates, in fact, without any restrictions. Transport costs are generally high because of the poor condition of the infrastructure and high level of congestion in Port-au-Prince. Overall, public transportation seems to be able to meet the demand, even though at a low level of service.
- 1.14 The only regulation which seems to be applied, through customer pressure, is the fixing of passenger fares in Port-au-Prince. Controls on road safety and vehicle inspection are perfunctory. Axle-load controls are performed at the exit of the cement factory, the wheat mill, and the port, but not on the main roads. While this may be broadly adequate, the lack of axle-load data on the roads does not permit a good review of road construction standards. Road markings and signalling will be an integral part of all contracts for road rehabilitation in the future. Portable weighing scales will be introduced through this program. However, the strengthening of the planning, control and enforcement capability of the MTPTC will require a long-term institutional effort.

C. The road sub-sector

1. The inter-city network

- 1.15 The main inter-city road network consists of about 2,500 km and of about 2,000 km of a rural network constructed mostly as part of rural development projects. A road network inventory was carried out as part of the program preparation activities. As can be seen from the condition of the road inventory, most of the network is in very poor condition due to the lack of maintenance over the last few years and poor construction standards.

- 1.16 Most of the network will require rehabilitation before any recurrent maintenance can be performed efficiently. The cost of rehabilitation works will include required additional drainage works. In order to establish priorities, traffic counts were carried out in the whole network in parallel to the inventory. They showed that the paved roads, 580 km or 20% of the network, carry about 80% of the traffic (in vehicle-km); and that about 90% of the traffic would be covered when adding a further 150 km of gravel roads on the national network.

2. Port-au-Prince network

- 1.17 With the exception of the paved streets, the road network of the Port-au-Prince metropolitan area has not been subject of an inventory for a long time. It is estimated that it probably exceeds 600 km of which about 200 km are paved and the rest is made up of earth roads of various geometrical standards. Most of the paved network is about 40 years old and in need of major repairs and rehabilitation. Road deterioration in the city has been accelerated by heavy rainfall and the lack of an appropriate drainage system which has been affected, in turn, by deficient garbage collection and absence of regular maintenance in the last few years. These problems will be addressed in the primary and secondary networks by the Bank's Drainage Project in execution.

3. The MTPTC

- 1.18 The effectiveness of MTPTC has declined substantially over the last few years. Its main structural problems are:
- a. the responsibilities of MTPTC are broad. In addition to the responsibilities outlined above, MTPTC supervises a host of large public agencies in other sectors, such as power (EdH), water (CAMEP, SNEP), telecommunications (CONATEL and TELECO), the national materials laboratory (LNBTP), cartography, mining, etc., and administers various functions in city management, such as garbage collection, drainage and road planning;
 - b. MTPTC's responsibilities in the sectors under its jurisdiction are not always clear in relation to other agencies involved, nor are the necessary coordination mechanisms well established. Specific examples are: blurred delimitation of responsibilities between municipalities and MTPTC in city planning and provision of services; weak coordination with SCCR on traffic management and road planning in Port-au-Prince; inadequate coordination on transport planning on modes other than roads (with some agencies, such as APN, which does not even report to MTPTC). This has exacerbated the difficulty of coordinating sector planning and policies;
 - c. MTPTC combines the functions of broad sector planning, supervision of autonomous agencies, and work implementation in specific sub-sectors. Because of the heavy workload involved

in being an entrepreneur, planning and supervision functions have tended to receive second priority. In addition, the MTPTC is not carrying out its main regulatory functions, such as the establishment and control of standards for civil works, building construction, environmental considerations, safety, public transportation; and

- d. MTPTC's current organization and procedures are complex, outdated and bureaucratic. Basic principles in financial control, recruitment and procurement are not applied and budget planning and management information systems are non-existent. Staff rotation and new appointments have followed each ministerial change over the last few years, providing little continuity in MTPTC's functions. In addition, MTPTC's management is highly centralized in Port-au-Prince, while the country's new Constitution emphasizes regional decentralization.

1.19 In addition to these structural problems, MTPTC's capacity has been seriously hampered by the lack of adequate budget, low salaries, and excess personnel, which have characterized the entire public sector over the last few years. Personnel expenditures account for about 95% of MTPTC's recurrent budget, and the investment budget is negligible. About 90% of MTPTC's equipment is out of order, and the remaining equipment is under-utilized due to the lack of spare parts, fuel and materials. There is little inventory and no cost accounting in MTPTC's warehouse.

1.20 The Government is keen to revamp MTPTC's structure and functions in line with modern management methods. The conclusions of an institutional review of MTPTC carried out with assistance of an experienced external consultant in 1991, are still valid. This review proposes a comprehensive plan of action to: (a) better define MTPTC's role in the transport sector, in line with the decentralization objective embodied in the Constitution; (b) review and modernize its internal structure; (c) implement changes regarding salary policies, financial controls, budget mechanisms, and training, etc; and (d) review the role as an entrepreneur, to limit the amount of works carried out on force account, and foster private contracting and community participation. In addition, the Government will reduce the number of personnel in DDT by about 300 and clean its payroll of ghost employees. These measures will proportionate substantial economies. Furthermore, as a part of the decentralization process, the Government plans to transfer excess personnel from Port-au-Prince to the regions.

D. The Bank's prior operations

1.21 In the transport sector the Bank has participated in the financing of the construction of the Southern Highway (loans 365/SF-HA, 365(A)/SF-HA, 365(B)/SF-HA); in the rehabilitation of 132 km of secondary and rural roads affected by Hurricane Allen (loan 634/SF-HA); and in the construction of 179 km of rural roads included in a

rural development project in the Southern Peninsula (loan 631/SF-HA). In 1990, the Bank approved a new operation for the upgrading of the 74 km long Pont Sonde-Mirebalais road and the improvement of 66 km of rural roads (loan 838/SF-HA), as well as a technical cooperation (ATN/JF-3407-HA) to prepare a rehabilitation project for 400 km of rural roads. These two operations are expected to start up in 1995 with compliance of conditions prior to first disbursement.

- 1.22 Experience with early projects shows that, in general, physical project elements were completed, albeit with delays, cost overruns, or a reduction of initial targets, and that project works deteriorated after completion for the lack of funding to carry-out adequate maintenance. It also shows that institutional objectives geared to specific units were not reached or were unsustainable in the presence of an overall weak organization, MTPTC. Of late, this weakness has been exacerbated by political instability, and its resulting lack of staff continuity.
- 1.23 Lessons learned from the past include: (a) the need for simple project objectives and design; (b) a flexible project design, permitting annual assessments in line with budgetary constraints, and coupled with tight supervision, to adapt projects to changing circumstances; (c) increased focus on institutional building but in the context of the overall role of the Ministry; (d) the need to develop alternative approaches to deal with the problem of lack of maintenance. The design of the proposed project takes into account of these lessons.

E. The Bank's strategy and the financing of the sector

- 1.24 In June 1993 and November 1994, a multi-agency mission integrated by UNDP, IDB, IDA, OAS and USAID took place. This joint task force evaluated the macro economic situation and identified the main issues and sectoral needs to be addressed by an Emergency Program (EERP). The EERP would cover a period of 18 months before regular assistance in the context of a medium-term strategy could be fully reactivated. The EERP includes an infrastructure component of approximately US\$12 million to carry-out critical emergency works over this period which IDB will finance.
- 1.25 The proposed program was identified in late 1989 and technical preparation activities took place during 1990-1991. A joint IDA/IDB analysis mission took place in July of 1991, a joint review of the sector and the program was carried out in Haiti in September of 1993 and November of 1994, with the participation of international and national consultants. During these discussions, it was agreed that the program would be designed as an integral part of a comprehensive road expenditure plan (four years) of the Ministry aimed at arresting the deterioration of the road network, and that it would be integrated with a comprehensive review of the Ministry's institutional structure.

II. THE PROGRAM. ITS COST AND FINANCING

A. Objectives

- 2.1 The objectives of the program are to: (a) assist the Government in implementing a comprehensive four-year road maintenance and rehabilitation program on the inter-city road network and in Port-au-Prince, thereby reducing the road maintenance backlog and bringing these networks to a serviceable level; (b) strengthen road planning and management within a comprehensive restructuring program of transport activities of the Ministry; and (c) foster private sector and community participation in road rehabilitation and maintenance works; and (d) assist the Government to define the strategy and the mechanism to finance the maintenance of the road network.

B. Program description

- 2.2 The five main subprograms of MTPTC's program are: (a) institutional strengthening, restructuring plan and specific studies; (b) the rehabilitation of 395 km and periodic maintenance of 205 km of priority inter-urban roads representing half of the rehabilitation needs, and 35 km of urban roads; (c) labor intensive routine maintenance works on 2,700 km of principal inter-urban roads, representing the entire network and of 200 km of urban roads in Port-au-Prince; (d) bridge rehabilitation [10], maintenance [21], and replacement [5]; and (e) acquisition of supervision equipment and small maintenance tools.

1. Institutional strengthening of MTPTC and specific studies

- 2.3 This subprogram aims at the institutional strengthening and restructuring of MTPTC. It will also contribute to financing of specific studies for the sub-sector. It will provide technical assistance in all key components and program areas so that the MTPTC: (a) develops the capacity to implement the maintenance and rehabilitation subprogram; and (b) gradually is able to manage the entire road network properly. A brief description of the institutional support provided by this program is summarized below.

a. Coordinating unit support

- 2.4 To assist the executing agency with the coordination of all activities of the program, it is envisioned that an international consulting firm specialized in road maintenance management will provide support during the execution period to support the technical unit in: (a) the planning and the supervision of the program; (b) the review of maintenance standards and technical specifications; (c) accounting procedures for the MTPTC; (d) updating of the diagnostic of the road network condition; and (e) preparation of semestral reports and monitoring meetings.

b. Financial systems

- 2.5 Assistance has been included to provide a detailed diagnostic of financial, accounting, auditing and budget procedures, establish new procedures and provide the appropriate training to a core of accounting and financial staff within the Ministry.

c. Training and twinning

- 2.6 This component will finance on-the-job training in Haiti and abroad in maintenance, road planning model and procedures, and other specialized training areas. Technical support through twinning arrangements will be promoted with French-speaking countries (Belgium, France, Switzerland and Canada).

d. Labor intensive works

- 2.7 Consultancy has been budgeted for appropriate support to the special centralized unit for labor-intensive works created in 1991 and to regional offices to set-up appropriate procedures for labor-intensive works by neighboring communities and small contractors.

e. Procurement services

- 2.8 The program will greatly increase the procurement workload of the Ministry as most rehabilitation and maintenance works, and most engineering and supervision activities, will be carried out by contract. This component includes assistance to review and modernize the whole procurement process and procedures of the Ministry and to assist directly in bidding documentation, selection procedures and contract awards; including recommendations for setting-up an appropriate system for pre-qualification of local enterprises, performance evaluation, and contracting arrangements for small and medium firms. A specialized procurement firm will be hired to carry out these activities during the execution of the program.

f. Laboratory and cartography

- 2.9 The French Government will finance a technical cooperation to carry out a diagnostic study of the technical control system, which includes the Laboratory National des Bâtiments et Travaux Publics (LNBTP), and will propose actions to improve the level of technical expertise, taking also into consideration the participation of the private sector. In the same manner, the UNDP will do a diagnosis of the needs for a Cartographic and Geodesic Services, that will be analyzed before commitment of any loans resource.

g. Environmental unit

- 2.10 An environmental unit will be created to oversee the assessment of the environmental impact of activities in all the subsectors under the Ministry's responsibility. Specialized expatriate expertise in

various environmental fields will be provided, to review regulations, procedures, impact assessments and enforcement measures. Some training will be included. Detailed environmental reviews of selected watersheds affecting road infrastructure will be carried out and an action plans will be prepared.

h. Sectorial studies

- 2.11 Five specific studies will be prepared: (a) a traffic master plan for Port-au-Prince, which will include a study of traffic patterns, a review of urban traffic policy options and pre-feasibility studies on the major investments required, as a basis for a possible Traffic Master Plan; (b) technical assistance to study the implementation of the user's charge mechanism; (c) an update of Haiti's Transport Master Plan including possibility of privatization of port's operations; (d) promotion of local private sector initiative in road construction, maintenance and consulting works, and (e) a study of the drainage system (secondary and tertiary) of the central streets of Port-au-Prince, not included in the primary drainage network, presently financed by the Bank.
- 2.12 The goals established for reform activities or effective application of sectorial policy are: (a) to study maintenance cost recovery mechanisms, by means of user fees, to finance highway maintenance activities and improve cost recovery in the highway sector, ensuring equitable contributions from the various categories of users to sector revenues ; (b) To support the process of systematic planning for the sector, including the various modes of transportation by means of the Transport Master Plan and the possible restructuring of the MTPTC's Directorate of Transportation ; (c) Preparation of a traffic master plan for the city is required to cover: (i) policy actions and enforcement, such as parking; (ii) implementation of priority investments at intersections, an inventory of city streets; and possibly (iii) implementation of simple congestion pricing schemes to limit the use of private automobiles.

2. Road rehabilitation and periodic maintenance subprogram

- 2.13 The cost of rehabilitation and periodic maintenance of the main road network during the four years is estimated at the equivalent of US\$86 million and consists of: (a) the rehabilitation of about 395 km and the periodic maintenance of 205 km of inter-urban roads; and (b) the rehabilitation of 35 km of Port-au-Prince streets.

3. Labor intensive and routine maintenance works

- 2.14 The cost of providing adequate routine maintenance to the main road network, 2,700 km of primary and secondary interurban roads for the next four years will be approximately to US\$11.5 million.

- 2.15 This component will also finance works to protect and maintain transportation infrastructure by hiring micro-enterprises and community groups based on the experience gained through the pilot project financed by the World Bank in 1991 and under the responsibility of the specialized HIMO unit created within the MTPTC for this purpose.

4. Bridge rehabilitation and maintenance subprogram

- 2.16 The bridge rehabilitation and maintenance subprogram was prepared in parallel to the main road subprogram, based on a detailed inventory of all bridge structures of the national road network and the economic analysis of priority bridges. This subprogram will finance the rehabilitation of 10 bridges, maintenance of 21 and replacement of 5. The first year of the subprogram amounts to about US\$3 million for the rehabilitation and/or replacement of priority bridges and of about US\$2.1 million for a program of bridge repairs and maintenance in line with the road program. This bridge subprogram is expected to be financed by KFW.

5. Equipment and tools subprogram

- 2.17 This subprogram will finance only a limited amount of supervision equipment and minor hand tools, mostly to: (a) assist maintenance works by the communities by providing wheelbarrows and shovels; (b) provide for a minimum pool of equipment to support road maintenance brigades for emergency works; (c) assist small contractors and neighborhoods crews in carrying out maintenance works in Port-au-Prince; (d) assist the LNBTP with technical expertise; and (e) provide vehicles and computers to permit the supervision of the maintenance subprogram.

C. Program cost and financing

1. Total cost

- 2.18 The total cost of the program is estimated at US\$125 million, US\$45 million of which would be financed by the Bank. The program would be co-financed by the IDA, the EU and KFW. The estimated provisional costs as of June 1991, and updated in October 1994, are as follows:

COST TABLE (in US\$ thousands)						
Investment Category	IDB	IDA	OTHER EXT.*	LOCAL	TOTAL	%
1. Engineering & Supervision	4,000	3,500	—	650	8,150	6.5
1.1 Administration	500	-	-	650	1,150	
1.2 Preinvestment studies	1,000	1,000	-	-	2,000	
1.3 Supervision	2,500	2,500	-	-	5,000	
2. Direct Cost	34,300	34,640	24,600	4,000	97,540	78.0
2.1 Intercity Network Rehab. & Period. Maintenance	21,000	25,580	20,000	-	66,580	
2.2 Routine Maint. Intercity Roads	4,190	2,880	—	2,500	9,570	
2.2.1 Communities	750	2,880	-	-	3,630	
2.2.2 Contract	3,440	-	-	-	3,440	
2.2.3 Force Account	-	-	-	2,500	2,500	
2.3 Bridge Program	—	—	4,600	500	5,100	
2.3.1 Rehab/Replacement			3,000	-	3,000	
2.3.2 Maintenance			1,600	500	2,100	
2.4 Port-au-Prince Network Rehab. & Periodic Maint.	6,610	4,000	-	-	10,610	
2.5 Routine Maint. Urban Roads	500	440	—	1,000	1,940	
2.5.1 Contract	500	440	-	-	940	
2.5.2 Force Account	-	-	-	1,000	1,000	
2.6 Labor Intensive Works	2,000	1,740	-	-	3,740	
3. Concurrent Costs	4,700	11,860	400	—	16,960	13.6
3.1 Equipment	500	2,000	-	-	2,500	
3.2 Institutional Strengthening	3,700	4,400	-	-	8,100	
3.3 Training	500	200	400	-	1,100	
3.4 Other Costs	-	5,260	-	-	5,260	
4. Financial Cost	2,000	-	—	350	2,350	1.9
4.1 Interest	1,550	-	-	-	1,550	
4.2 Credit Commission	-	-	-	350	350	
4.3 FIV	450	-	-	-	450	
TOTAL REHABILITATION PROGRAM	45,000	50,000	25,000	5,000	125,000	100.0
Percentage	36.0	40.0	20.0	4.0	100.0	

*KFW, US\$5 million; and European Union, US\$20 million

2. Terms and conditions of the Bank financing

2.19 The Bank financing terms and conditions are indicated in the following table:

Terms and conditions	FSO
Amount	US\$45 million
Credit fee	0.5% per annum of undisbursed portion
Amortization period	40 years
Grace period	10 years
Interest	1% per annum during the first 10 years and 2% thereafter

III. PROGRAM EXECUTION

A. The Coordinating Unit and execution mechanism

- 3.1 The Ministry of Public Works, Transport and Communications (MTPTC) will be responsible for carrying out the program through a Coordinating Unit (CU), until the restructuring of MTPTC takes effect. This Unit will be under the responsibility of the General Director. The creation and staffing of this Unit is a pre-requisite for the first disbursement.
- 3.2 The functions of CU will be: (a) to coordinate, supervise and monitor all aspects of the program; (b) to prepare, present and verify all documentation concerning the investments and the technical, administrative, financial, legal and economic data on the program that the Bank may require; (c) to oversee fulfillment of the conditions and obligations stipulated in the loan contract; (d) to reformulate and adjust the program execution plan whenever needed; (e) to keep current information on the physical progress of the program; (f) to promote coordination among all the units of the Transportation Directorate for proper execution of the program; (g) to maintain contacts with other public agencies in matters of interest to the program; and (h) to keep the General Directorate informed on the progress and development of the program.
- 3.3 The CU will consist of: (a) a national coordinator; (b) an administrator accountant; and (c) one expert responsible for the technical activities. An international consulting firm is also required to assist MTPTC's staff to launch the program. This contract is a pre-requisite for the first disbursement in order to guarantee the availability of the technical services to assist the CU.
- 3.4 CU will be supported by the technical units of the MTPTC, one for each road subprogram (interurban, Port-au-Prince and HIMO), under the responsibility of their directors. The restructuring study of the Ministry, carried out in 1991, will be updated and the executor must present to the Bank the working plan for the strengthening of the MTPTC by the first annual meeting.
- 3.5 All rehabilitation and most of the maintenance work will be contracted out. Work by force account will amount to less than 20% of the annual work program and will cover maintenance of about 600 km, out of a total of 2,700 km for the four year interurban subprogram, and about 200 km out of 600 km for the four year Port-au-Prince subprogram.
- 3.6 Procurement procedures will follow the Bank's normal guidelines. The program will finance assistance by a professional procurement firm to review the whole procurement system of MTPTC and to assist its personnel with pre-qualification documentation, publication,

bid evaluation and contract award. The hiring of this firm is a prerequisite for the first disbursement.

- 3.7 In addition, the program includes provision for short-term expatriate assistance in various areas for its success. The objective will be to provide specialized assistance, training and follow-up on a regular basis, through short missions at crucial times, notably during the yearly programming exercises, at the start of key programmed work, and during implementation of labor-intensive works under new methods or in new regions. Individual consultants will also be hired as needed to evaluate complex environmental issues and propose solutions. The Banks and MTPTC will agree on the terms of reference of the consultants during the annual meetings.
- 3.8 Delays in payments to private contractors, consultants and village communities have continuously affected past work programs. These are the result of cumbersome payment procedures within the Ministry that even require that each contract, each payment request and each withdrawal application be signed by the Minister and countersigned by the Ministry of Finance. A new system will be studied as part of the program that will allow delegation of authority with appropriate controls. MTPTC will submit to the Bank, by September 1995, prior to the first bi-annual monitoring exercise, evidence that it has set up a system of payment approval procedures to reduce payment delays.

B. Technical supervision and control

- 3.9 For each bidding package of the rehabilitation and periodic maintenance subprogram, supervisory firms will be hired to oversee the works. These firms should have prior experience in the supervision of projects of this nature, and will monitor the quality of the work and verify the quantities of materials and costs, together with compliance with the stipulations of the engineering plans and of the general and technical specifications. Successful firms will be required to provide experienced personnel in the mitigation of the direct environmental impact associated with road works. MTPTC will hire the respective supervisory firm one month before calling for bids from the already pre-qualified contracting firms.
- 3.10 The supervision of works to be carried out under the labor intensive subprogram will be the responsibility of the special Unit which exists in the MTPTC that will contract a accounting firm to assist the unit in the financial management and make a quarterly audit of activities together with the physical progress of the works during the period, and with the productivity indicators. All this information must be included in a semi-annual progress report to be submitted by the consultants. The contract with this firm is a pre-requisite for the first disbursement.

C. Status of preparation of the program

- 3.11 The studies and designs for rehabilitation and periodic maintenance during the first year of the program were prepared in 1991, by international and domestic consulting firms whose engineers-economists are widely experienced in financial, institutional design and socioeconomic analyses of road projects. The roads for the first year of execution will have their final designs updated by an international consulting firm before March 1995, (ATN/JF-3407-HA) including the bidding documents. The studies for the next years of execution will be financed by the program and carried out by consulting firms.
- 3.12 The first year routine maintenance subprograms, both inter-urban and for Port-au-Prince, have been defined and prepared taking into consideration the state of the roads, the priorities on the basis of traffic carried and the specific tasks that will be financed.

D. Program execution

- 3.13 The annual investment plans for each of the following years will be executed, so far as program objectives are concerned, in accordance with the procedures for evaluation, the criteria applicable to its execution, the findings of recent inspections and measurements with respect to the condition of highways, bridges, and streets, as well as the experience gained from program execution in previous years. As part of program execution, it is recommended that the MTPTC submit to the Bank, for review and approval at each annual meeting, not only detailed information concerning the work performed during the preceding period, but also annual investment plans listing the projects to be carried out, including designs and economic, technical, and environmental studies. The selection criteria for the program components are described in paragraph 5.5.
- 3.14 The studies included in the program: (i) a Traffic Master Plan in Port-au-Prince; (ii) a country-wide Transport Master Plan; (iii) the financing of maintenance through the user's charges; and (iv) the tertiary drainage network for the Port-au-Prince downtown, that will stress sector policy and regulatory aspects in addition to setting up appropriate planning and monitoring tools on sector investments will begin before March 1996.

E. Program monitoring

- 3.15 Constant monitoring by the two banks is planned for the various program activities in order to ensure that the objectives are accomplished. Starting one year after program started, and throughout program execution, in order to analyze the program and coordinate with the IDB, the MTPTC, in its capacity as program executing agency, will meet with the Bank twice a year: during the first quarter to assess the activities carried out the preceding year; and during the third quarter to evaluate the activities

planned for the following year. To that end, the borrower, through the intermediary of the MTPTC, undertakes to submit annually to the Bank, at least 15 days prior to each meeting, reports on the following aspects of the activities carried out during the previous year and planned for the following year:

- a. progress with respect to the investment in highway system works;
- b. financial execution of the investment and maintenance program in accordance with the established criteria for selection and execution;
- c. achievements with respect to the process of maintenance administration, and evaluation of the work performed by the consulting firms and experts assisting the MTPTC;
- d. evaluation of the findings of the sectorial studies and policy reforms as well as their plan for implementation, especially in the structuring of the MTPTC, the user fees, and maintenance supervision and decentralization;
- e. execution of the other activities of the institutional strengthening component;
- f. review of the cost of investments and the unit cost applied to the maintenance works;
- g. progress in applying the environmental protection measures; and
- h. progress achieved in hiring private firms and communities for maintenance activities on the system as well as the labor intensive activities of the HIMO unit.

3.16 In addition, no later than September 30 of each year, i.e. at the time of the second annual monitoring meeting, the executing agency will submit to the Bank:

- a. the proposed annual plan for maintenance investment and expenditure for the following year based on the economic, technical, and environmental studies, and on the established criteria for selection; and
- b. evidence that it has the corresponding local counterpart resources.

3.17 If, based on the annual meetings or the reports, the Bank is not satisfied with the progress achieved in executing the program, the borrower, through the MTPTC if appropriate, shall submit within 60 days after the Bank expresses its objections, information on the measures it will take and the timetable for their execution. If the corrective measures referred to are not satisfactory, the Bank

may take such action as it considers appropriate, including the suspension of disbursements.

- 3.18 During the five years following the date of the first disbursement, and within the first three months of the calendar year, the executing agency must present to the Bank an annual report on maintenance of the highway system, presenting the evaluation of the work performed during the previous year and plans for the following year. If it is determined, based on the Bank's inspections or reports it receives, that maintenance is below acceptable levels, the borrower must take the measures necessary to correct the deficiencies.
- 3.19 To ensure implementation of the recommendations of the studies included in the institutional strengthening and policy reform component, it is recommended that the government undertake, through the executing agency, to present a plan of action during the first monitoring meeting following the completion of each of the aforementioned studies and to implement the recommendations within the timetable agreed upon. The estimated time periods for the execution of each study or consultation are indicated in the plan of action.
- 3.20 The success of the program will be measured by means of the following indicators, which will be reviewed through compliance with the contractual clauses and the annual monitoring meetings: (a) increases in the efficiency of human and material resource use within the MTPTC; (b) participation under contract by the private sector and rural communities in maintenance activities; (c) modernization of the MTPTC, especially with regard to (i) contracting and financial management; (ii) planning and prioritization of the works; and (iii) reduction of the periods for revision of documents, contracts, bills of exchange and payment orders for contractors; (d) decentralization, towards the Departments, of local and urban road maintenance activities.

F. Contracting of the works and procurement of goods

- 3.21 No change is planned in the Bank's procurement policy with regard to international public bidding. Taking into consideration the capacity of the local construction firms pre-qualification and international invitations are justified for international works and goods and services to be executed or contracted whose cost exceed US\$1 million and US\$250,000 respectively. In cases where the value of the civil works contracts is less than US\$1 million, national legislation will apply. So far as possible, invitations for bids on civil works will be grouped in packages comprising several projects located within a given region in order to obtain the most economical bids.

G. Rights-of-way

- 3.22 Since all the projected works will be implemented on existing roads and within the existing rights of way, the program does not envisage any acquisition of land.

H. Environmental impact

- 3.23 The environmental impact of the program will be positive for a number of reasons: (a) will involve only the rehabilitation of the most heavily traveled road sections along the national highway system, thus reducing transportation costs and saving fuel; (b) will address problems related to inadequate drainage patterns, sediment flows at torrent crossings, flooding of road sections, proper landscaping of borrow pits and stabilization of side slopes; and (c) through proposed institutional changes, the program will develop prescriptive monitoring and control of road and other infrastructure development activities. It will provide the Ministry with the capability to include environmental considerations throughout the project cycle, carry out environmental assessments, monitor environmental impacts, mitigatory and compensatory measures, and provide technical assistance and training to road crews and communities involved in the execution of road construction and maintenance activities.
- 3.24 As part of its reorganization, MTPTC will create and staff, as agreed with Bank, before September 1995 an Environmental Unit. That unit will be in charge of: (a) making environmental assessments in all the sectors under MTPTC's jurisdiction and preparing appropriate environmental norms and regulations; (b) monitoring and ensuring proper enforcement of those norms and regulations; and (c) providing assistance to MTPTC staff, contractors, communities and municipalities when undertaking major infrastructure programs. The technical assistance subprogram includes the necessary support to make this new unit operational.
- 3.25 The potential negative impact of this program will be minor, involving primarily the disposal of construction waste, especially within the Port-au-Prince metropolitan area. Prescriptions for proper disposal of construction waste and adequate borrow pit excavation and subsequent restoration/landscaping have been developed and will be included in the bidding and contractual documents, thus mitigating any potential negative effects upon the environment.
- 3.26 Possibly the most important environmental issues affecting the program, is the impact of the erosion of upper slopes and watersheds on the roads. Large masses of alluvium and gravel streaming from newly formed ravines routinely reach some road sections and stop traffic, and/or affect drainage systems by plugging box culverts and consequently flooding the road, such as on the Southern Highway. To address the cause of these problems

(i.e. the widespread deforestation occurring in Haiti) is beyond the scope of this program. However, an environmental study will be carried out during the first year of the program to identify sites where erosion and sedimentation problems are currently, or will soon be, affecting road segments to be rehabilitated, and to specify key short-term actions necessary to protect the road sections affected.

I. Period of execution and time table for investments

- 3.27 The schedule for program investments by source of financing, prepared on the basis of the initial timetable, is summarized below.

In US\$ thousands or equivalent						
	Year 1	Year 2	Year 3	Year 4	Total	%
IDB	9,000	12,000	12,000	12,000	45,000	36
IDA	10,000	13,000	14,000	13,000	50,000	40
UE, KFW	2,000	8,000	8,000	7,000	25,000	20
Local	500	1,500	1,500	1,500	5,000	4
TOTAL	21,500	34,500	35,500	33,500	110,000	100
PERCENTAGES	17.2	27.8	28.4	26.8	100.0	

J. Advance of funds

- 3.28 To provide the borrower with the funds needed to finance the various activities to be carried out with resources of the Bank loan, authorization is recommended for disbursing advances for up to 10% of the loan amount. This arrangement will make resources available for timely fulfillment of the various obligations that will arise in the execution of the program.

K. Natural disasters

- 3.29 Haiti is occasionally struck by earthquakes and hurricanes. The probability of phenomena of this kind occurring in a specific place is difficult to predict. The program includes the rehabilitation and substitution of bridges and drainage works which, in their original design and construction included reasonable specifications. In addition, in the subprogram for strengthening of the environmental unit of the MTPTC, studies are planned for the purpose of preventing floods and controlling erosion in critical areas.
- 3.30 To ensure the rapid reestablishment of access roads to populated areas isolated by a natural disaster, the MTPTC will: (a) establish an emergency mechanism for the immediate mobilization of its teams; and (b) include a clause in the works contracts enabling it to use the services of the contractor based on the unit prices agreed upon plus a percentage that will depend on the distance between the works under contract and the disaster area.

L. Financial reporting and auditing

- 3.31 External auditing will be provided by a firm of Certified Public Accountants, satisfactory to the Bank. Annual reports will be submitted to the Bank. Audits will be conducted in accordance with the requirements of the bank.

M. Ex post evaluation

- 3.32 The borrower did not request a specific ex post evaluation given that the program will be monitored on a continuous basis. CU will be systematically responsible for monitoring the program, as well as preparing the related reports, which will be analyzed in the annual meetings. The reports will present, for each of the subprograms, the problems encountered during their execution, special aspects and problems for which solutions are being studied.

IV. BORROWER AND EXECUTING AGENCY

A. The borrower

- 4.1 The borrower will be the Government of the Republic of Haiti and the executing agency will be Ministry of Public Works, Transport and Communications (MTPTC).

B. Organization of the MTPTC and diagnostic

- 4.2 Maintenance and investments of the transport infrastructure are financed through the general budget. The Ministry of Finance controls the recurrent budget, while the Ministry of Planning oversees the capital budget. In the past, most investments have been financed through external assistance. Until 1984, USAID also financed directly the recurrent road maintenance expenditures of SEPRRN, then an autonomous agency, with the exception of salaries and wages. In the mid-eighties, annual transport expenditures averaged US\$40 million, of which about half was allocated to capital expenditures, and half to recurrent costs.
- 4.3 Within MTPTC, DDT is responsible for road and transport sector planning, engineering, construction, maintenance and axle load controls on the inter-city network. DTP is responsible for road planning and maintenance in Port-au-Prince and within the city limits of secondary towns; its activities are, however, mostly concentrated in the capital city. In general, most engineering and detailed design studies, and most construction and supervision activities are carried out by consultants under DDT's and DTP's supervision. Large rehabilitation and new construction works are carried out by private contractors. Maintenance activities are normally carried out by force account. SEPRRN has also progressively emphasized labor-intensive maintenance through the Community Action Maintenance Program (CAMP), under which road sections are maintained under contract with village communities, supervised by SEPRRN foremen. A pilot maintenance project financed by IDA in 1991 tested new labor-intensive techniques by communities and local enterprises. The experience was satisfactory.
- 4.4 Maintenance activities of both DDT and DTP have been seriously curtailed over the last few years due to budgetary constraints and the absence of external assistance. Within SEPRRN and SEEU (the two maintenance departments of DDT and DTP, respectively), personnel increased drastically until 1992, claiming an increasing share of the reduced budget. In 1990, SEPRRN's personnel consisted of about 855 permanent staff, compared to about 500 in 1984/1985 and only 123 in 1994. At most, only about one third of this personnel could become productive once adequate funds are available for fuel, materials and supplies. In SEEU, the permanent personnel has increased from about 50-60 people in 1984/1985 to about 160

now. Personnel expenditures in both departments claim about 95% of the recurrent budget. The equipment pool is old and under-utilized due to inadequate fuel allocations; it is also rapidly deteriorating for lack of spare parts and normal replacement.

- 4.5 Both DDT and DTP are weak departments which have suffered from the continuing deterioration in the administrative structure of the Ministry. DDT's internal organization suffers from a lack of coordination among its various divisions, principally because it was never able to find the right balance between road and transport planning functions, and between its planning and work implementation responsibilities. SEEU's road maintenance capacity has been weak for some time and has not received much attention from DTP's management. DTP's responsibilities are wide, and its capacity will be stretched to the limit by the on-going Bank's financed drainage project. In addition to these internal weaknesses, both departments suffer from the general inefficiency of the administrative procedures within the MTPTC, such as poor financial control, lack of autonomy on personnel decisions and cumbersome payment procedures.

C. Institutional restructuring of the MTPTC

- 4.6 These problems were addressed during the institutional review of MTPTC. A global agreement was reached on the proposed new organizational structure of the road and transport departments, and that of the future road maintenance unit of Port-au-Prince, detailed arrangements will be discussed in the next few months to further discuss the restructuring proposal of the Ministry in order to simplify it; and on the transitional arrangements for program execution until the new organic law of MTPTC is passed. Details are given below.

- a. Under the decentralization policy of the Government, 9 regional departments will be created, as well as a special department for the metropolitan region of Port-au-Prince.
- b. An integrated Central Road Directorate will be created separate from the existing Transport Directorate, covering the whole interurban road network. That directorate will encompass all road functions presently carried out by MTPTC through different departments, except execution of works by force account, which will be decentralized to MTPTC's regional departments. The Central Road Directorate will focus on planning, budget allocations and works supervision. The works will be handled by contract. The maintenance program will be broken into specific road sections to be maintained by contract with private enterprises and village communities. Supervision of the whole program will be carried out by a works supervision unit within the Central Directorate to ensure close monitoring of program integrity, cost effectiveness and works quality.

- c. The Transport Directorate will focus on planning, sector policies, monitoring of decentralized agencies, and the regulatory framework in all transport modes, a range of activities which until now was, in fact, not performed by MTPTC. To assist the new Transport Directorate with these new functions, support will be provided in the program through the financing of a Traffic Master Plan in Port-au-Prince, and a country-wide Transport Master Plan; both activities will stress sector policy and regulatory aspects in addition to setting up appropriate planning and monitoring tools on sector investments.
- d. The Public Works Directorate of MTPTC will also be reorganized into an Urban Development Directorate at the central level, with specific units within the 9 regional departments, and a special Directorate for Port-au-Prince. The Central Urban Directorate will keep overall responsibility for regulations, planning and budget allocations of all urban related works carried out by MTPTC, within the framework of the urban strategy of the Government, in close coordination with the needs of the municipalities. As for the Central Road Directorate, the Urban Directorate will also keep control of all the regional programs (planning, budget approval and supervision) and of all major works by contract. Work execution by force account, which will be limited, will be decentralized to the regional (and Port-au-Prince) departments.

D. Role of the private sector in roadwork

- 4.7 Rather than rebuild the capacity of MTPTC to undertake maintenance works under force account, which would be very costly and has not proven effective in the past, the Government seeks to emphasize increased participation of the private sector and of local communities under labor-intensive techniques. This required shift is based on: (a) a review of experience on maintenance activities performed in Haiti over the last 20 years; (b) the increased capacity of the private local construction sector; (c) the need to emphasize labor-intensive techniques in view of the high unemployment in the country; and (d) the limited capacity of the public sector, coupled with the high investment required to rebuild it.
- 4.8 SEPRRN was relatively efficient until the mid-eighties, when USAID withdrew both its technical assistance and its budgetary support. Since then, its efficiency dropped continuously due to severe budgetary constraints and political interference in personnel decisions. The major lesson of these repeated failures are that: external pressure cannot replace a local constituency for maintenance programs, stemming from a strong contractor's sector with high stakes in such programs and better linkage and supervision from road user revenues in road maintenance and expenditures; and the public sector in Haiti has proven to be

vulnerable to political interference, limiting efficiency considerations.

- 4.9 The private local construction industry developed continuously over the last ten years, except for the last two, fueled by housing construction demand. The industry has grown from about five to six major firms in the early eighties to about 15 at present. In addition, many small-to-medium firms have emerged in all construction fields. To test the interest of these firms in road maintenance work, a pilot road maintenance project catering to those firms was financed by IDA under an on-going credit. In general, the response to the bids and the quality of the work performed have been satisfactory.
- 4.10 In summary, conditions are right to shift maintenance activities from force account to the construction industry and local communities. SEPRRN's capacity is very limited at present, as its equipment fleet is old and in poor condition; in addition, it will require a major restructuring to reorganize its services. In contrast, implementation capacity is not a problem in the private sector: foreign firms have traditionally been interested in large road contracts, and the present road works carried out by the local private sector account only for a small proportion of their turnover. The high unemployment level in the country also calls for labor-intensive techniques where feasible.

E. Maintenance expenditures and road user charges

- 4.11 The average annual expenditure on road maintenance and rehabilitation amounted to US\$6.9 million during the period 1985-1990, of which an increasingly large proportion was for personnel expenditures. Discounting these expenditures, the real maintenance effort by the Government dropped to just over US\$1 million per year over the last four years; this is probably among the lowest expenditure per km of existing roads of any developing country. These actual allocations compare to about US\$10 million which would be required to maintain the network at a serviceable level (in 1990 prices). As a result, a substantial proportion of the network has been lost and will need to be rehabilitated at a much higher cost. Based on the HDM results, it is estimated that about US\$25 million will have to be invested annually for the next five years just to put the network back to its initial normal condition.
- 4.12 A road taxation study was carried out to assess the level of normal road maintenance expenditures needed on the inter-city network and the related normal tax contribution of road users, based on the traffic surveys. The study showed that road user contributions should be sufficient to cover all recurrent and periodic maintenance expenditures once the network is rehabilitated to a serviceable level and provided tax collection efforts are improved. Hence, there is little ground for introducing new taxes on a long-term basis, provided: (a) the revenues from road users are indeed allocated to road maintenance; and (b) collection of those revenues

is adequate. In the medium term, however, the increased effort due to deferred maintenance may call for temporary surcharges on the road users, together with increased borrowing. In the short term, the Bank and IDA will finance maintenance by contract.

- 4.13 The following table shows the level of resources allocated to road maintenance expenditures and rehabilitation investments in real terms during the fiscal years for the period 1986-1990. 1/

(In US\$ millions. 1990 constant prices)					
	1986/87	1987/88	1988/89	Estim 1989/90	Budget 1990/91
Recurrent expenditures					
Permanent Personnel	2.2	3.1	2.9	2.7	2.3
Daily workers, fuel, mat.	<u>3.5</u>	<u>2.6</u>	<u>0.8</u>	<u>1.4</u>	<u>1.1</u>
Total Maintenance	5.7	5.7	3.7	4.1	3.4
Rehabilitation Investments	2.3	2.8	0.9	0.9	5.0 (*)
Total Maintenance and Rehabilitation	8.0	8.5	4.6	5.0	8.4
(*) Estimate based on IDA pilot program					

1/ A partir de 1991, los datos no existen.

V. PROGRAM JUSTIFICATION

A. General

- 5.1 The program forms part of the government's investment strategy for the highway subsector. Its purpose, aside from physical improvement of the system, is to design and implement policies and activities to strengthen the operation and maintenance of the highway system, increase its efficiency, improve safety, place the subsector on a sound financial footing by recovering costs from the users, protect the highway system assets, and reduce transportation costs. In addition, this program is consistent with the Bank's strategy for the subsector, which seeks to rehabilitate economic infrastructure and help reduce transportation costs in order to stimulate the country's economic activity and exports.

B. Technical feasibility

- 5.2 This program includes the best technical solutions to provide adequate trunk transportation conditions in the country and it is feasible from the technical and operational standpoint. The considerations presented below relate those conclusions:
- a. The consultants examined the possible alternatives that could affect the cost and timely execution of the rehabilitation and periodic maintenance of the inter-urban and the Port-au-Prince projects. Concerning the inter-urban subprogram the road surface treatment adopted (asphalt concrete, double surface bituminous treatment, bituminous resealing and re-graveling) for each of the roads to be financed under the first year of the program is in consonance with the actual and projected traffic levels and also represents the least-cost solution for the required works compatible with expected levels of serviceability of the roads. Similar exercises were carried out for the Port-au-Prince subprogram.
 - b. The estimated program cost is reasonable since it was determined from computations of costs for volumes of road works corresponding to the final designs at unit prices comparable to the real prices included in past contracts for similar works. In addition, appropriate measures have been taken to cover contingencies and price increases during the period of execution of the program.
 - c. The tentative execution timetable is considered realistic since all the studies, designs and specifications for the works to be carried out during the first year of the program are now complete.
 - d. It will not be necessary to use sophisticated methods in the execution of works. As a result, no technical problems that

might have a negative impact on timely execution are anticipated.

C. Institutional and financial feasibility

- 5.3 Maintenance funding has declined drastically in the last six years and the institutional structure of MPTPC has been seriously eroded. Thus, the program supports a major shift in maintenance planning and execution, as well as a reorientation of the Ministry's role. On the basis of regional and international experience as well as of experience with previous Bank projects in Haiti, there is no doubt that this shift is necessary and timely.
- 5.4 The program was designed in a flexible way and includes mechanisms and resources to address institutional weaknesses and constraints. In particular, the following features are worth high-lighting:
- a. The program will support overall interurban road and Port-au-Prince street maintenance and will provide a framework for external financing coordination. Planning discipline is expected to develop as a result.
 - b. The proposed approach addresses the maintenance funding issue through the setting up of a user charges mechanism and the development of local companies and micro-enterprises for maintenance and supervision by the users, rather than through unenforceable conditionalities and intermittent international pressure. Inherent in this approach is the country's development of a financial capacity to fund progressively the routine and periodic maintenance requirements.
 - c. Until the user charges mechanism becomes effective, the government's budget will finance the local counterpart for the program, around US\$1,5 million per year, to be applied mostly to routine maintenance works. These amounts are in line, taking in account the current dramatic situation of the country, with past annual budget amounts, around US\$4 to US\$5 million.
 - d. The proposed shift in the Ministry's role, from work execution to planning and regulation functions, the proposed creation of integrated road departments and the proposed increased reliance on the private sector and local communities for work execution are in line with broad regional and international experience.
 - e. The program aims also to coordinate the specific programs being financed within a major institution-building effort.
 - f. Some program components have been tested through an IDA pilot operation and detailed studies of that and other experiences draw on past experience to support new features under the program.

- g. Finally, the program is flexible, as it will be broken down into annual targets with approvals linked to progress on actual implementation of the works. This will not only provide the flexibility required in the present context of Haiti, but also much closer supervision of key program parameters than through standard clauses.

D. Economic feasibility

- 5.5 In order to incorporate a road or a street in the Program for future years, a project should comply with the following criteria:

- (i) The road should belong to the traffic network administered by the TPTC;
- (ii) Having been evaluated and selected using Model HDM-III or alternatives agreed upon with the Bank, and having a minimum profitability of 12%;
- (iii) Maintenance, rehabilitation, reconstruction or improvement proposed should be in accordance with needs and conditions of the highway and bridge, replacing the road surface and existing structure or substituting it for that which is technically, economically and environmentally satisfactory;
- (iv) Include the necessary measures for mitigating the negative impacts on the environment, following the guidelines agreed upon with the Bank and the steps for protecting the highways; and
- (v) Possess the legal right to and effective legal possession of the roadway.

1. Urban subprogram

- 5.6 The main beneficiary of the periodic rehabilitation and maintenance of urban roads that will be permitted by the subprogram consists of a decrease in the operating cost of vehicles because of the improved condition of the road surface. Consequently, considering the limited budget available, the subprogram projects have concentrated on the roads with the greatest traffic volume and which need rehabilitation or periodical maintenance work deferred before permitting suitable routine maintenance. Fifty-four streets or street sections have been so identified totalling approximately 53 kilometers which have been the subject of economic evaluation.
- 5.7 In order to optimize the rehabilitation projects, an analysis was performed to compare road surface alternatives, including asphalt, surface treatment, and paving stones. The analysis found that the use of paving stones, an alternative that requires less unskilled labor, represents an economically attractive solution, especially for streets with limited traffic. The asphalt concrete alternative was adopted for streets with high traffic volumes (more than

5,000 vehicles per day) or where the speed of vehicles exceeds 50 kilometers per hour.

- 5.8 Economic analysis of the works for the first year was conducted for each of the high traffic volume streets requiring rehabilitation or periodic maintenance, comparing the economic cost of investment and routine maintenance with the annual economic benefits resulting from a decrease in vehicle operating costs. The internal rate of return for the projects in the subprogram varied between 13% and 50%, with an average return of 40%. For five streets totalling 1.8 kilometers in length, rehabilitation could not be justified on the basis of the information available; a more detailed analysis is required to consider their future inclusion in the program.
- 5.9 The streets of the first year of the program have been selected taking into account the results obtained, but also criteria such as the existence of water supply and drainage projects underway or planned in the short or medium term, the need to program works in order to limit traffic disruptions during the works, and the time required to conduct the final design studies.

2. Interurban subprogram

- 5.10 The procedure used to evaluate and subsequently select rehabilitation and maintenance projects to be included in the program has been based essentially on obtaining field information, projections of traffic and vehicle operating costs, and their use in the highway design and maintenance standard model (HDM-III).
- 5.11 This model has been used to analyze, in the first phase, approximately 1,000 kilometers of highway corresponding to the total system entrusted to SEPRRN (2,460 km), with the exception of the recently rehabilitated highways or those which form part of periodical rehabilitation/maintenance programs underway or planned, and local roads with traffic volumes less than 100 vehicles per day. This first analysis has permitted the identification of 836 kilometers of highways in need of rehabilitation or periodic maintenance. In a second phase, a supplemental analysis of the 836 kilometers was conducted, using more precise data, which led to the decision to rehabilitate or conduct periodic maintenance on approximately 492 kilometers of the highway system, including paved roads (198.6 km) and unpaved roads (293.4 km). For the other highways, the conclusion of the analysis was that only routine maintenance is required during the period covered by the program.
- 5.12 The Economic Internal Rates of Return (EIRR) of the projects under the program vary between 13% and more than 50%, with an average return of 45%. The results obtained for the projects included during the second year or afterwards will be updated during program execution. The projects of the first year of the program have been selected according to their respective economic priority and the budget available. It has been decided to postpone a number of projects for which the data available does not make it possible to

determine, without risk of acceptable error, the best technical alternative or economic return. It will be necessary to conduct additional inspections to include these projects in the program in subsequent years.

- 5.13 The EIRR and the net present value, by not counting 12% of the cost and economic benefits of the projects under the urban and interurban subprograms, which are included in the first year of the program, are provided below. These indicators show the economic feasibility of these projects. The analysis conducted to determine the optimum year for beginning the projects indicates that it is not advisable to postpone them. The sensitivity analysis, moreover, suggests that the risk that projects will not produce returns is very low.

<u>Net present value and average EIRR for projects during the first year, by Subprogram</u> (in thousands of US\$)		
	Urban	Interurban
<u>Costs</u>		
Investment	3,490	13,113
Maintenance	215	7,966
Traffic disruption	2,123	0
<u>Benefits</u>		
Operating costs savings	12,988	64,452
<u>Total NPV</u>	7,160	43,373
<u>Average EIRR</u>	40%	45%

E. Distributive impact

- 5.14 The distributive impact was calculated based on the proportion of benefits received by the low-income group as a proportion of total benefits received by the private sector as a whole. The program will have a significant impact on low-income population. The distributive impact on the poor population is estimated at approximately 80%, which corresponds approximately to the percentage of the population living in conditions of poverty. This estimate is justified by the fact that highway rehabilitation will be conducted throughout the national territory and will consequently benefit each of the social groups proportionately.

F. Environmental feasibility

- 5.15 No environmental damage is envisaged during implementation. Indeed, the environment is expected to have undergone improvement by the time the projects are completed, as a result of the protection provided for gradients and the expansion of drainage facilities (sewers, bridges, ditches, etc.) to accommodate and dispose of stagnant water, erosion runoff, and floodwater.
- 5.16 At any rate, the program calls for the formulation of a strategy for environmental protection based on the following elements: (a) strengthening of the MTPTC's institutional capacity to deal with the environmental aspects of highway works starting at the design and planning stages up to environmental supervision and control; (b) inclusion in the bidding documents and contract of general and particular environmental specifications for the purpose of including measures to prevent and mitigate environmental impact in the design and cost of the works; (c) preparation of studies and implementation of supplemental environmental protection measures in order to resolve special environmental problems whose solutions require institutional and financial arrangements in addition to the execution of the works; and (d) implementation of a technical training program within the various levels of the MTPTC and for contractors concerning the various aspects of environmental management in connection with highway works.
- 5.17 Taking into account the technical and institutional measures planned to prevent and mitigate environmental impact, this program is considered feasible from the environmental point of view.

G. Risks of the program

- 5.18 The main risks of this operation are financial and institutional due the weaknesses of the MTPTC and the difficult transitional political process currently under way. Possible risks include: (a) implementation delays and cost overruns, at least initially; (b) insufficient budgetary allocations for maintenance and payment delays which might reduce private sector interest in the program; (c) slow progress on the institutional component; and (d) major constraints in the programming and execution of works, due to poor coordination among public sector agencies slowing the progress of execution of works. These risks should be mitigated by: (a) the flexible design of the program, which allows annual adjustments based on the implementation capacity of the Ministry; (b) the high interest and idle capacity of the local private sector; and (c) the permanent financing arrangements proposed should lead to increased local road financing.

HA-5352
HA-0041

APENDICE

PROPOSED RESOLUTION

HAITI. LOAN /SF-HA TO THE REPUBLIQUE D'HAITI (Road Maintenance and Rehabilitation Program)

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the République d'Haïti, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Road Maintenance and Rehabilitation Program. Such financing will be for the amount of up to US\$45,000,000, or its equivalent in other currencies, except that of Haiti, which are part of the resources of the Fund for Special Operations 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.