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PD-AAA-99381

MAR 16 1976 224 p.

INFORMATION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR (IA) 3/12/76

FROM: Donor M. Lion, LA/DR

SUBJECT: ISSUES PAPER -
Haiti Agricultural Feeder Roads Project Paper

The DAEC will review the subject PP on Thursday, March 18th, 1976 at 2:30 PM in the LA/DR Conference Room (2252).

The proposed five-year project will provide a \$5.0 million loan and \$2.4 million grant to the Government of Haiti (GOH) to insure all-weather access to presently isolated Haitian farming communities.

The project will reconstruct approximately 940 kilometers of rural roads throughout Haiti over a five-year period. Reconstruction will be accomplished by GOH Force Account (620 km.) and private Haitian road contractors (320 km.). An Equipment Leasing Service will be established to facilitate private contractor participation, and a pilot project will be carried out to test various labor intensive methods of road reconstruction/maintenance. Approximately 24 work years of grant-funded technical assistance will be provided the Secretariat of Public Works, Transport and Communications (TPTC) to improve its capabilities to plan, design and execute road reconstruction work and procure goods and services.

TPTC will be the major implementing agency. The Equipment Leasing Service will be a semi-autonomous service within TPTC, which will hold title to the equipment to be leased, and management will be under a contract with a private consultant. All leasing revenues will be managed through a separate account of the National Bank of the Republic of Haiti (BNRH), and leasing rates will reflect the true cost of the equipment.

The pilot project in labor-intensive techniques will be supervised by TPTC, but will be executed jointly with the Permanent National Highway Maintenance Service (SEPRRN).

Loan funds will finance the purchase of road construction equipment and spare parts for the TPTC Construction Brigades (\$2.0 million) and the Equipment Leasing Service (\$1.0 million). Operating costs and materials totaling \$2.45 million will be shared on an approximate 25-75 basis by AID and the GOH. Local contract engineering

strategy - how this fits - aq./nutut./health
to be included
to be included

Information Memorandum for the Assistant Administrator (LA) -2-

and the Equipment Leasing Service operating expenses will be borne by the GOH (\$0.55 million). The pilot project will be entirely funded by AID. GOH counterpart will total \$3.75 million, or 33% of the \$11.150 million total program.

The loan was included in the FY 76 Congressional Presentation (page 158) at \$5.0 million and the grant was included (page 151) for \$1.66 million. No Congressional notification will be required for the loan or grant on FY 76 or TQ grant obligations. A notification will be required, however, for the increased grant expenditures in FY 77. If approved (see Issue 6), this will be accomplished during FY 77.

PCS
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comment
p 3

The DAEC will consider the following issues and discussion points:

1. Project Purpose (Issue): The project's purpose of providing all-weather access to small farmers is rationalized within complementary programs by AID and the GOH to raise agricultural productivity, and eventually, small farmer income. Specifically, the project assumes that a projected 50% decrease in transportation costs will result in an increase in farm income. The DAEC will discuss this assumption and seek to determine the extent to which reconstruction of the roads contributes to increased agricultural productivity and farm income.

2. Project Design (Issue): The program almost wholly involves the reconstruction, rather than construction, of already existing rural roads. The equipment/labor mix will vary accordingly to road strata condition. The PP identifies 66% of the roads as being rock and stone, and estimates that this type of road calls for a high proportion of capital intensive technology.^{1/} In contrast, a labor intensive approach is recommended for the 23% of earth roads within the program. Using both approaches, the average costs are estimated at approximately \$8,000 per kilometer, including inflation/contingency. The DAEC will discuss the basis for the recommended labor/capital mix and the nature of the work involved in order to determine whether the project design and approach is appropriate for Haiti. The DAEC will also discuss the consequences of varying the proposed mix upon the program's implementation schedule and whether the proposed 940 km. could be accomplished within the five-year program.

1/ An additional 11% represents gravel and "other" road strata which are also substantially capital intensive.

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3. Maintenance (Discussion): The GOH will covenant to provide adequate maintenance of the reconstructed roads. Also, the PP states that the proposed FY 77 Road Maintenance II loan/grant will expand GOH road maintenance capability throughout the country. Thus, the effective maintenance of the reconstructed roads is under active discussion between AID and the GOH, and the covenant is additive to those discussions. The DAEC will discuss whether the project's maintenance needs will adequately be met through these measures.

4. Capacity to Execute (Discussion): The DAEC will discuss the current capacity of TPTC and private contractors, the measures proposed to strengthen their ability to reconstruct roads, and determine whether the proposed reconstruction work may be reasonably performed.

5. Leasing Service (Discussion): The DAEC will discuss the institutional arrangements and viability of the proposed Leasing Service and whether the self-sufficiency expected within two years is reasonable. Also, the DAEC will discuss the desirability of adding a covenant to the loan which calls upon the GOH to support the Leasing Service until it is viable.

6. Technical Assistance (Issue): The PP proposes an increase in life-of-project grant funding from \$1.660 million to \$2.4 million, and an increase in FY 77 funding of \$300,000 over the amount now shown in the FY 77 CP. If approved, this will require a notification to Congress during FY 77. The DAEC will discuss the nature and scope of TA proposed and determine if the increase is reasonable and justified.

7. Haiti Debt Burden (Discussion): The DAEC will discuss the current public debt burden of the GOH in light of recent discussion by the AG/OAS that care should be taken to avoid increasing Haiti's debt service requirements for non-self-liquidating projects.

Attachment:
Haiti Agricultural Feeder
Roads Project Paper

LA/DR:RFVenezia:bjb:3/16/76

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PROJECT PAPER

vb
Proposal and Recommendations
For the Review of the
Development Loan Committee

5210074

HAITI - Agricultural Feeder Roads
And Appendices

A.I.D.
Reference Center
Room 1656 NS

AID-DLC/P-2148

**DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20521**

**UNCLASSIFIED
AID-DLC/P-2148
March 23, 1976**

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: HAITI - Agricultural Feeder Roads

Attached for your review are the recommendations for authorization of a loan to the Government of Haiti of not to exceed Five Million United States dollars to assist in financing United States dollar and local currency costs to carry out a program of assistance to small farmers through agricultural feeder road construction ("Project").

The loan is scheduled for consideration by the Development Loan Staff Committee on March 29, 1976 at 2:30 p.m. in Room 3886 NS; please note your concurrence is requested at the end of the meeting. If you are a voting member a poll sheet has been enclosed for this purpose.

The Appendix to the Project Paper will be distributed at a later date.

Development Loan Committee
Office of Development Program Review

Attachments:
Summary & Recommendations
Project Analysis
Annexes I-VI

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT PAPER FACESHEET
 TO BE COMPLETED BY ORIGINATING OFFICE

TRANSACTION CODE
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PP
 DOCUMENT
 CODE
 3

2. COUNTRY/REGIONAL ENTITY/GRAANTEE
 HAITI

3. DOCUMENT REVISION NUMBER
 N/A

4. PROJECT NUMBER
 521-15-312-074
 (Loan 521-T-007)

5. BUREAU
 A. SYMBOL LA B. CODE 3

6. ESTIMATED FY OF PROJECT COMPLETION
 FY | 8 | 1

7. PROJECT TITLE - SHORT (STAY WITHIN BRACKETS)

Agricultural Feeder Roads

8. ESTIMATED FY OF AUTHORIZATION/OBLIGATION

A. INITIAL MO. YR. | 3 | 76 B. FINAL FY | 8 | 0

9. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH)

BR LAB

10. ESTIMATED TOTAL COST (\$000 OR EQUIVALENT, \$1 = _____)

A. PROGRAM FINANCING	FIRST YEAR (incl. TQ)			ALL YEARS		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL (GRANT)	(550)	(75)	(625)	(1,870)	(530)	(2,400)
(LOAN)	(3,200)	(1,800)	(5,000)	(3,200)	(1,800)	(5,000)
OTHER 1.						
U.S. 2.						
HOST GOVERNMENT	-	445	445	-	3,750	3,750
OTHER DONOR(S)						
TOTALS	3,750	2,320	6,070	5,070	6,080	11,150

11. ESTIMATED COSTS/AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION (ALPHA CODE)	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE	FY 76 (TQ)		FY 77		FY 78-80		ALL YEARS	
			D. GRANT	E. LOAN	F. GRANT	G. LOAN	H. GRANT	I. LOAN	J. GRANT	K. LOAN
FN	119	061	625	5,000	725	-	1,050	-	2,400	5,000
TOTALS			625	5,000	725	-	1,050	-	2,400	5,000

12. ESTIMATED EXPENDITURES 550 1,100 800 1,725 1,050 2,775

13. PROJECT PURPOSE(S) (STAY WITHIN BRACKETS) CHECK IF DIFFERENT FROM PID/PRP

To provide all weather access by small farmers to commercial markets for their agricultural surplus, facilitate delivery of agricultural inputs, and extend essential social services through improvement of the land transportation network in agricultural areas.

14. WERE CHANGES MADE IN THE PID/PRP FACESHEET DATA NOT INCLUDED ABOVE? IF YES, ATTACH CHANGED PID AND/OR PRP FACESHEET.

Yes No document issuance N/A as IRR (11/74) prior

SIGNATURE *Scott L. Behoteguy*
 TITLE Scott L. Behoteguy
 Director, USAID/Haiti

16. DATE RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

DATE SIGNED
 MO. DAY YR. | 0 | 3 | 12 | 76

MO. DAY YR. | 3 | 12 | 76

AID 1330-4 (5-75)

HAITI
AGRICULTURAL FEEDER ROADS

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* A. Checklist of Statutory Criteria.....	19	pages
* B. FAA 611 (e) Certification.....	1	"
* C. Draft Loan Authorization.....	3	"
* D. GOH Letter of Application (English).....	3	"
* GOH Letter of Application (French).....	3	"
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II. ENGINEERING EXHIBITS

* A. Candidate Roads.....	3	pages
* B. Map of Candidate Roads.....	1	"
* C. Representative Road Survey Report.....	1	"
* D. Average Road Cross Section.....	1	"
* E. Reconstruction Costs - Background Data.....	1	"
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* M. Leasing Service - Organization.....	1	"
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* O. Technical Assistance Schedule.....	1	"
* P. Technical Assistance - Cost Estimate.....	2	"
* Q. Project Execution Schedule.....	2	"

III. ECONOMIC EXHIBITS

* A. Marketing of Agricultural Production.....	3	pages
* B. Evaluation - Field Data Form.....	5	"
* C. Road Link Analysis.....	5	"
* D. The Computer Model.....	9	"

IV. * DAEC APPROVAL CABLE - STATE 276073, 12/17/74 UNCLASSIFIED 6 "

V. PPTS..... 2 "

VI. LOGICAL FRAMEWORK..... 1 "

VII.* PERT..... 1 "

* Published separately as appendix to Project Paper. On file in LA/DR, AID/W.

PART I - SUMMARY AND RECOMMENDATIONS

A. (PP Facesheet)

B. RECOMMENDATIONS

The following actions are hereby submitted for AID approval within the Project Paper:

- Grant	\$2,400,000
- Loan	<u>\$5,000,000</u>
(Loan Terms: 40 years, 10 year grace period, 2% during grace, 3% thereafter).	
- Total New AID Obligation	\$7,400,000

C. DESCRIPTION OF THE PROJECT

1. Borrower/Grantee

The Borrower/Grantee will be the Government of Haiti (GOH), acting through the Secretariat of Finance and Economic Affairs (SFEA), National Bank of the Republic of Haiti (BNRH), and the Secretariat of Public Works, Transport and Communications (TPTC).

2. Project Summary

The project will reconstruct approximately 940 kilometers of rural roads throughout Haiti over a five-year period. Reconstruction will be accomplished by GOH Force Account (620 km.) and private Haitian road contractors (320 km.). An Equipment Leasing Service will be established to facilitate private contractor participation, and a pilot project will be carried out to test various labor intensive methods of road reconstruction/maintenance. Approximately 24 work years of Grant-funded technical assistance will be provided TPTC to improve its capabilities to plan, design and execute road reconstruction work and procure goods and services.

TPTC will be the major implementing agency. The Equipment Leasing Service will be a semi-autonomous service within TPTC, which will hold title to the equipment to be leased, but which will be under a contract with a private consultant. All leasing funds will be managed through a separate account of the BNRH, and leasing rates will reflect the true cost of the equipment.

The pilot project in labor-intensive techniques will be supervised by TPTC, but will be executed jointly with the Permanent National Highway Maintenance Service (SEPRRN).

Loan funds will finance the purchase of road construction equipment and spare parts for the TPTC Construction Brigades (\$2.0 million) and the Equipment Leasing Service (\$1.0 million). Operating costs and materials totaling \$2.45 million will be shared on an approximate 50/50 basis by AID and the GOH. Construction by local contractors valued at \$2.55 million will be shared on an approximate 25/75 basis by AID and the GOH. Local contract engineering and the Equipment Leasing Service operating expenses will be borne by the GOH (\$0.55 million). The pilot project will be entirely funded by AID.

The project seeks to provide all-weather access to presently isolated Haitian farming communities. In the process, major improvements in TPTC and local private contractor capabilities are expected.

D. SUMMARY FINDINGS

On the basis of the analysis contained herein, the USAID Mission to Haiti concludes that the project is technically, economically, and financially sound, and recommends that a loan be authorized to the GOH in an amount not to exceed \$5.0 million. In addition, a \$2.4 million grant is recommended to assist the GOH in meeting the objectives of the project.

The project meets all applicable statutory criteria, (See Annex I, A). The USAID Mission Director in Haiti has certified that Haiti has the capability to effectively maintain and utilize the project (Annex I, B).

E. PROJECT ISSUES

The DAEC cable on the results of the IRR review (Annex IV) was written December 18, 1974. In the interim, several changes in design have occurred which have varied some of the program elements. Nevertheless, the following represents the major issues addressed in that message as they now relate to the final design:

1. Preliminary engineering assessment of the specific road links to be approved. See Part III, A, 2.
2. TPTC counterpart. See Part III, B, 1.
3. TPTC equipment requirements. See Part III, A, 5.
4. TPTC institutional capacity. See Part III, A, 4.
5. Other donor share of road activity. See Part III, B, 1.
6. Community work teams. This concept has been shifted into the proposed FY 77 Road Maintenance II loan/grant; however, a pilot project in labor intensive techniques will fully explore this concept under the program proposed herein. See Part III, A, 7.
7. Impact of rural roads. See Part IV, B.
8. Four-year disbursement period. Analysis of the project resulted in the recommendation to seek five-year funding authorization for this program. This is consistent with the previous two AID loans to Haiti which are currently five-year loans. See Part III, A, 1, e.
9. SEPRRN progress. See Part III, A, 9.
10. Role of women. See Part III, C.
11. Evaluation. See Part IV, B.
12. Grant funding amount. The technical assistance requirements for the project have been increased commensurate with the longer time-frame and the inclusion of additional

elements of leasing and the labor intensive pilot project. FY 76, TQ, and FY 77 funding levels identified in the FY 76 Congressional Presentation generally will be adequate; however, the overall amount required for the life of the project will increase from \$1,800,000 to \$2,400,000.

PROJECT COMMITTEES

USAID/Haiti

Raymond Douglass, Chief Engineer
Tibor Nagy, Deputy Engineer
James K. Burke, Assistant Program
Officer
Herbert Johnson, Area Controller
Pierre J. Brisson, Agricultural
Assistant
Frank Bettucci, Assistant Program
Officer

AID/W

Ronald F. Venezia, Capital
Resources Development Officer
Michael DeMetre, Economic
Analyst
Richard Braid, Economist, DOT
Charles Stevens, Engineer
Peter Thormann, Economist

PART II- PROJECT BACKGROUND AND DETAILED DESCRIPTION

A. BACKGROUND

AID strategy in Haiti has largely concentrated on the problems of the rural areas. The IBRD estimates the per capita GDP of the 3.5 million rural Haitians to be about \$80.00. If income distribution is considered to be roughly equal to land distribution in the rural areas, the per capita GDP for the poorest 2.6 million of the rural population may be no more than \$40 - \$50, which translates out to about \$200 per farm unit. With this level of income for over one-half of the population, it is not difficult to understand why the level of nutrition at 1,850 calories per day is one of the lowest in the world.

The areas of AID concentration, as approved in the FY 1976 Development Assistance Program (DAP), are agriculture, nutrition and health. The agriculture feeder road program proposed herein is thus an integral part of AID's overall assistance to rural Haiti, with special regard to increased agricultural productivity. Approximately 80 per cent of the population derives its livelihood from the agricultural sector, which contributes over 50 per cent of GDP, and accounts for about 60 per cent of merchandise exports. In response to the needs of this sector, and in recognition of the interdependence between production and movement of goods and services, transportation and agriculture are the two dominant areas of public investment in Haiti today.

1. Agricultural Sector

The 1973 Agricultural Sector Assessment described the uniqueness of Haitian agriculture in terms of the smallness of scale of its individual operations and the almost total absence of production inputs other than labor.

There are over 750,000 farm units in Haiti located on a total agricultural land area of about 1.6 million hectares, of which only about 870,000 hectares are cultivable. While some large-scale farming is employed in sugar and sisal production, land distribution is fairly even and only 25% of the farm units have more than four hectares. The total land availability is so limited, however, that the remaining 75% of the farm units may have only about 1.1 hectares each, and not all of that is cultivable. Further fractionization results from the system of multiple holdings as individual farmers will rent, sharecrop and own different plots at the

same time. Land tenure conditions are uncertain. While in the 1950 census 80% of the farmers said they were land owners, registered titles are reported to cover less than 50% of the agricultural land area. While ownership disputes have been infrequent, they might become more common if land productivity is increased.

Population pressures and low income levels inevitably affect the Haitian farmer's use of the land. Forests are cut for firewood and charcoal. Slopes are burnt for planting food crops. Livestock are forced to graze in areas which are not suitable as pastures. As a result, erosion is uncontrolled, reducing the effective agricultural land area in the mountainous regions. The erosion also reduces the productivity of the plains areas because of the floods and deposits of silt and stones which are its by-product.

The use of tools on the small farms is limited almost entirely to the hoe and the machete. Purchased inputs are rarely used, except under special programs of limited scope. Use of improved seeds and planting stocks is very limited because of a lack of research, a lack of access to agricultural credit, and neither the government, nor the private sector has undertaken to produce seeds of improved varieties. Planting stock of important tree crops is produced but on a grossly inadequate scale. Pesticides are little used other than for cotton. Fertilizer use is largely limited to a few hundred tons each on rice, sugar cane, coffee, cotton and vegetables. In 1973 only 3,000 tons of fertilizer were imported.

Agricultural productivity is low, the result of the above factors combined with low producer prices, and the long absence of concerted government programs and policies to induce agricultural investment and introduce improved agricultural practices.

While agricultural production has increased fairly steadily in recent years -- 1973 is the lone exception when it dropped an estimated 2 per cent -- it is obvious that under present conditions, the agricultural sector has not been capable of meeting the food needs of the Haitian population and maintaining its predominant share of total export earnings.

Currently, the average Haitian receives about two-thirds of the food that he should get to maintain a normal diet. If income increases so that people will be able to buy more food, the demands upon the agricultural sector will be increased correspondingly. If the food demands of the existing population increased by 4 per cent each year, which would permit the nutritional deficiency to be overcome

after ten years, and the new population were fed adequately, food production would have to increase by some 7 per cent each year to meet the demand. This is roughly double the increase in food production in recent years.

At the same time, aside from the increased bauxite earnings and possible development of copper deposits in the northern part of the country, the most favorable possibilities for increasing export revenues derive from the sale of traditional agricultural products. This will require a major turn-around from past trends, when agricultural exports stagnated. The need to increase exports has become increasingly important, however, given Haiti's rapidly deteriorating balance of payments position.

As a result of the agricultural sector analysis, the following major constraints have been identified as impeding progress in the agricultural sector:

- a. Poverty - The low absolute level of income constrains the Haitian farmer's ability to consume (and retain) sufficient foodstuffs, as well as limits his ability to risk new techniques in their production.
- b. Transport - The cost of motorized transport, which is principally a function of the condition of the roads, is currently the single largest cost element in the agricultural marketing (and input) system.
- c. Land Resources - The average farm unit of only 1.1 hectares for the poorest three-fourths of the rural population, of which up to 50 per cent may lie fallow, severely limits the level of improvement which may be expected per farmer.
- d. Irrigation - Up to 150,000 hectares are suitable for irrigation in Haiti. 70,000 hectares are presently served by irrigation; however, only 35,000 hectares is currently in use and the remainder is out-of-service due to inadequate maintenance, poor distribution of water, and poor drainage.
- e. Storage - An estimated 30-40 per cent of grains and beans are lost due to poor storage. Wide seasonal variations in price are common.
- f. Government Policies - Policies have tended to bias urban needs against agricultural incentives, and revenue from the agricultural sector has not been offset by compensatory investments.

AID programs are designed to complement GOH priority investments in attacking the above constraints. An on-going \$8.0 million Small Farmer Improvement program (Loan 521-T-006) is devoted to increasing small coffee farmer income and GOH investment in complementary services of credit, extension, etc. A \$3.1 million AID loan to establish a road maintenance capability was made in 1973 and has been influential in creating the conditions whereby Haiti's two major trunk routes north and south of Port-au-Prince will be kept serviceable and open to important agricultural development areas. A projected Interim Quarter \$12.0 million program will rehabilitate up to 15 small irrigation systems throughout rural Haiti (as well as promote dry-land farming techniques on the upper slopes). In FY 77, a projected grant/loan program to assist Small Farmer Marketing will begin the process of building rural storage facilities and the establishment of a marketing information system. A projected \$4.0 million road maintenance expansion loan will extend maintenance services throughout Haiti (stressing labor intensive techniques). For FY 78, a projected soil conservation program will begin.

These investments represent AID's comprehensive and mutually supportive agricultural development strategy for Haiti. Complementary inputs of research, policy studies, a proposed agriculturally-oriented Private Development Finance Corporation, nutrition improvement programs, and a public administration improvement project designed to impact largely upon rural development support services are intended to broaden and further support this effort.

Thus, the overall objective of the Ag Feeder Road program is to support the overall AID/GOH strategy and provide the physical access necessary to maximize the benefits of these programs (as well as from substantial on-going and projected assistance by other donors) to the rural populace of Haiti.

2. Rural Highways Sector

The basic road network of Haiti was built during the 1920's and from the mid-1940's to the mid-1950's. Of the 3,000 km. constructed during those periods, only 350 km. were paved. In the interim between the mid-1950's and early 1970's, no new road construction was undertaken and existing roads deteriorated to such an extent that communities which formerly had year-round communication with the main trading centers, now find themselves isolated during the rainy seasons.

It has been recognized by the GOH and international agencies that the reconstruction and development of roads is a prerequisite to Haitian development. As reported by the IBRD in its 1974 Economic Assessment for Haiti, "The decentralization of the economy and development of agriculture and tourism sectors is closely dependent on the improvement of the road network".

Accordingly, the IBRD and the IDB have approved a total of \$78.0 million for construction and reconstruction of the two main road axes--the "Southern" and "Northern" roads--for a total of 410 kms. This work is underway and expected to be completed by 1979. The French Government has also provided a \$8.3 million loan to connect the Southern Road to the city of Jacmel, a distance of 43 kms.

Given the magnitude of investment involved, plus the need to begin work on the remaining 2,500 kms., the GOH requested the IBRD to finance a National Transport Study which was completed by Louis Berger Assoc. in February 1976. This study inventoried the remaining 2,500 kms. of roads and made major recommendations regarding priorities of road construction, standards, GOH organization, etc. The completed study has provided the basis for AID to rationalize the Ag Feeder Road Program within the overall needs of the transportation sector.

Essentially, the Ag Feeder Road Program is part of the next logical step in a comprehensive road reconstruction program. The North and South highways are trunk lines providing primary access to the major growth centers at either end of the country. The GOH has now initiated discussions with all major donors with regard to "feeder" roads which will complement these primary highways. These discussions have established a preliminary allocation of road links to each potential donor.

The IBRD has indicated that it is prepared to consider financing the reconstruction of those feeder roads which complement its planned investment in the Plaine du Nord area, as well as the paving of additional sections of roads justified by the National Transport Study. This results in a total of 180.3 km. This figure includes 42.6 km. of paved portions of the so-called "central" road, which provides an alternative route between Port-au-Prince and Cap Haitien through the east-central part of the country, and which serves the country's main hydroelectric scheme (at Pelegre) and the agricultural area centered on the city of Hinche. The IBRD has recently begun the selection process of consultants to provide technical economic feasibility data, and a loan of up to \$13.0

million (which might also include improvements to intercoastal ports) is possible in late 1976.

The IDB is currently programming technical assistance funds to develop feasibility studies on possible future investments in area development schemes in the southern peninsula. This will include consideration of construction and/or reconstruction of up to 250 kms. of possible road links. This proposal, however, is still in a preliminary stage and no loan is contemplated prior to late 1978.

To date, AID's involvement in this sector has been a \$5.1 million loan/grant program to strengthen the Permanent National Highway Maintenance Service (SEPRRN), and plans for the reconstruction of 150 km. of penetration roads serving new coffee centers under the Small Farmer Improvement loan.

The SEPRRN program was designed to develop the organization, train personnel, rehabilitate an existing maintenance facility, construct three new shops, and procure highway maintenance equipment. The program includes \$2.0 million of grant funds for technical assistance. The loan was authorized in February 1973 and began execution in December 1973 (signing of a TA contract--a condition precedent--was delayed). The loan was divided into two phases, the second phase dependent upon a major review. This has been completed and all resulting recommendations have been acted upon by the GOH. Phase II funds have recently been authorized for release.

The small farmer "coffee" roads are in the planning stage, with 80 km. scheduled for improvement in 1976. These roads will extend from the coffee centers to the coffee growing areas. The objective of the program is to insure small isolated coffee farms year-round access for agricultural inputs and assembly of coffee for shipment to point of export.

The proposed AID Ag Feeder Road program will complement all of the above AID and other donor programs. Moreover, those elements of the AID program which stress labor-intensive road maintenance and reconstruction, and the creation of an equipment leasing pool for private contractors represent basic building blocks in the overall GOH road program which will serve future investments.

Finally, it should be noted that the nature of road construction to be accomplished under the program represents, in many cases, major maintenance. For example, of the total 940 km. to be done under the

program, the average cost per kilometer is \$7,742, with some road links estimated as low as \$2,000 per kilometer. Also, the road composition will vary according to the original 1960 standard which, per the Berger study, is estimated to be 22% earth, 67% stone and rock, and 9% gravel. (The only variations from 1960 surface standards will be that all roads will have at least 2 cm. of gravel wearing surface). This compares with major reconstruction work by foreign contractors on the North and South Highways which have, in some cases, exceeded \$200,000 a km. Thus, the Ag Feeder Road program offers a low-cost alternative to resolving one of the most critical constraints to improved conditions in the rural areas.

B. DETAILED DESCRIPTION OF THE PROJECT

1. Goal

Consistent with the DAP, the program aims at improving the standard of living of the rural poor by addressing constraints to increased agricultural production. As poverty itself is a factor impeding progress in the rural areas, raising the absolute level of rural income should be the measure of goal achievement. This will be accomplished by either raising income received from greater agricultural productivity derived from all-weather access (and the resultant decrease in transportation costs), and the direct employment generated by investment in rural infrastructure improvement.

For the former, it is estimated that two years after each road is converted to all-weather status, rural farm income will increase at least 20 per cent. For the latter, estimates of expenditures for unskilled labor indicate that the program itself will account for approximately one million work days.

2. Purpose

The project seeks to provide all-weather access by small farmers to commercial markets for their agricultural surplus, facilitate delivery of agricultural inputs, and extend essential social services through improvement of the land transportation network in agricultural areas. A related sub-purpose is to increase TPTC and private Haitian road contractors' capabilities to upgrade rural roads.

3. End of Project Status

Once all-weather access roads are available, certain benefits are predicted to occur in the road's area of influence. The road itself will represent a psychological link to a regional and national entity now perceived as distinct at best. Most importantly, the road will facilitate the success of complementary GOH/AID programs of agricultural credit, extension, irrigation, soil conservation and marketing now underway or soon to start.

Assuming increased agricultural productivity results from these programs, the most immediate savings for farmers will be a reduction in the cost and time of transporting agricultural products and inputs by no less than 50 per cent. Agricultural productivity will be substantially increased by:

- (a) Increased marketing opportunities which permit farmers to increase production beyond the volumes required for on-farm and local consumption, in accordance with demand existing in more distant but now inaccessible markets;
- (b) Greater efficiencies in the use of local transport (economies of volume, reduced transit time) which should be reflected in lower transportation costs. Such benefits may be passed along in the form of lower prices of agricultural inputs to farmers and lower food prices to urban consumers;
- (c) Increased likelihood of receiving agricultural services from government agencies and the private sector, including agricultural extension services, veterinary coverage, assistance from marketing cooperatives, credit agencies, equipment repairs and others;
- (d) More ready access to storage and processing facilities, providing farmers with marketing outlets for seasonal crops and tending to stabilize prices;
- (e) Stimulation of production of perishable crops, e.g., fruits, vegetables, milk products, eggs, etc., which depend on rapid access to markets to avoid spoilage; or livestock production, where truck transportation greatly reduces weight losses among animals;
- (f) Promotion of direct social benefits, including improved access to health, education, public utilities and other social services.

Indirect economic, social and political benefits are also likely to accrue to project beneficiaries in varying degrees. The overall objective, however, is that of facilitating the entry of an increasing number of now almost completely isolated farming communities into the economic mainstream of the country.

At the sub-purpose level, the five-year program should result in a major expansion of TPTC capability to plan, organize and execute road reconstruction in rural Haiti. The recommendations of the National Transport Study will have been adopted. A highway equipment leasing pool will have been established. Private Haitian

contractor capacity will have been strengthened to the point where 40 per cent of road reconstruction will be built by private contractors in the fifth year.

4. Important Assumptions

In a country prone to natural disasters (three major hurricanes in the 1960's, several localized floods each year and a major drought in 1975), the absence of natural calamities is critical to project success. In the same vein, the presence of political stability and the continued desire of the GOH to expand rural investment and services will greatly facilitate project implementation. Current high prices for the major cash crop of the small farmer - coffee - will have an important effect. No major drop in price is expected prior to 1979, and then its effect, if it occurs, will hopefully be mitigated by the soon to be renewed International Coffee Agreement. It is further assumed that rural off-the-farm labor is available when required.

Government tax policies will continue to influence farmer decisions. Recent GOH actions to eliminate interior transfer taxes and reform the coffee tax to insure at least a 50 per cent return of the export price to the small farmer have had positive effect and it is assumed that such policies will not be reversed.

Increases in the truck fleet are estimated at 8 per cent per year and increased competition among truck owners is assumed to be a contributing factor to transport savings. In a similar view, conversion to trucks from relatively more expensive human and animal traffic from 15 per cent of all cargo in 1975 to 9.3 per cent in 1991 is assumed to result in lower transport costs.

At the sub-purpose level, it is assumed that the projected construction schedule will not be seriously affected by abnormal weather or prolonged labor disputes, and that the road maintenance program remains effective.

5. Planned Outputs

The program projects the reconstruction of 940 km of rural roads throughout Haiti. Work will be accomplished by GOH Force Account (620 km) and local Haitian contractors (320 km). To assist in the strengthening of the local contracting industry, an equipment leasing pool will be established. A pilot project to test various labor/equipment mixes for road reconstruction/maintenance will be

done during the first year of the project. TPTC staff will design contract packages and supervise reconstruction of 24 road sections by contract.

6. Planned Inputs

AID funding will cover 34 per cent of local construction, materials and operating costs of the program. AID will also provide 100 per cent funding for foreign exchange costs of Code 941 materials and equipment and approximately 25 work-years of technical assistance over the five-year program.

The GOH will provide 66 per cent of local construction, materials and operating costs. Administrative support to operate the program and maintenance on the completed roads are expected, but not quantified for purposes of this program. (A proposed FY 78 AID loan/grant to expand GOH road maintenance capability will specify the latter program element).

PART III - PROJECT ANALYSIS

A. TECHNICAL ANALYSIS

1. Technical Description

a. Road Reconstruction Program

This AID project will assist the Ministry of Public Works, Transportation and Communications (TPTC) in a five year program for reconstruction of approximately 940 kilometers of Agricultural Feeder Roads which have been determined to have a high economic priority to an all-weather standard.

The reconstruction program will be managed by TPTC, with financial inputs of \$5.0 million of AID loan funds to complement GOH funds of \$3.75 million. Technical assistance will also be provided to TPTC under an associated AID grant of \$2.4 million.

b. Selection of Road Sections

Selection of the priority road links which make up the program was made primarily on the basis of the findings of a study of the transport sector, recently completed by the U.S. firm of Louis Berger International, Inc. under UNDP funding. Other road sections serving areas where AID has other projects in the agricultural field (e.g., coffee centers, irrigation system rehabilitation), and those identified by the GOH as selected for socio-economic development under another program were included where found economically feasible.

Annex II, Exhibit A provides a complete list of the candidate roads, location, average weekly traffic, road strata conditions, proposed widths, and estimated cost. Annex II, Exhibit B is a map of Haiti showing the location and breakdown of roads, by construction category.

The project envisions that about 2/3 of the feeder road sections will be reconstructed by TPTC's own construction brigades and 1/3 by local private contractors. Following is the planned breakdown between TPTC and contract work:

TPTC Brigade #1	309.9 km.	(16 links)
TPTC Brigade #2	303.8 km.	(14 links)

Public Sector Total (TPTC)	613.7 km.	(30 links)
Private Sector Total	322.1 km.	(22 links)
	<hr/>	<hr/>
Project Total	935.8 km.	(52 links)

The AID loan will finance the purchase of construction equipment and materials and assist in payment of operating costs of the TPTC construction brigades and a portion of the costs of work by private contractors.

c. Equipment Leasing

The AID loan will also provide assistance to TPTC and the Haitian private contracting industry in developing a capability to participate in road construction, reconstruction and repair work. AID loan funds will be used to procure highway and support equipment for the establishment of an Equipment Leasing Service whereby small local contractors may lease equipment required for performing road work rather than be forced to make heavy capital investments which are outside of their present capabilities. The rental rates will include all operating costs, including operators, depreciation, maintenance and repair, spare parts support, overhead and profit. Although some financial assistance will be provided by the program for the two years of operation, it is anticipated that the leasing operation will be self supporting by the end of the second year. The service will be a semi-autonomous entity within the TPTC, but will be managed privately under contract. Part III, A, Sections 6 and 7 provide an analysis of private contractors in Haiti and the proposed structure of the Service.

d. Labor Intensive Pilot Project

A nine month program of labor intensive road maintenance will be carried out in the early part of the project to develop operational expertise in expanding the utilization of hand labor in road work. Up to 200 kilometers of road will be affected and cost data will be gathered and analyzed. Part III, A, 8 provides a more detailed description of the program.

e. Technical Assistance

The overall engineering technical management of the project will be handled by TPTC. To support TPTC in this task, a U.S. technical assistance team will work with various sections of the TPTC organization, both at the headquarters level and in the field.

The planning and the design of the individual sub-projects (links) will be done by:

- TPTC's "Autonomous Transport Service" (ATS),
- TPTC's Departmental Engineers or
- Local consulting engineers under contract with TPTC.

The U.S. technical assistance team will be involved in this process at all levels. Part III, A, 10 provides a detailed description of the technical assistance package.

Since almost all road sections to be reconstructed follow existing horizontal and vertical alignments, the design process is simplified and tentatively will include:

- The average cross-sections in fill cut sections and rocky areas;
- The typical culvert section and details;
- The schematic "straight line" layout of the road, indicating the "station to station" location and type of work to be done;
- An estimate of material requirements; and
- A schedule of work.

For the TPTC brigades, these simplified design plans will serve as working documents. The ATS will prepare the bid packages for those projects to be constructed by local contractors.

f. Schedule of Activities

Table 1 provides an estimate of project expenditures, by category, over the five year period. The schedule demonstrates the major reason for the requirement of a five year disbursement period. The majority of the equipment purchases will take place in the first three years of the program; however, the administrative improvements within TPTC and the strengthening of the private contracting sector will require at least two years to have a significant impact upon road construction activity. As shown in Table 2 the rate of kilometers to be accomplished annually rises slowly the first two years, reaching its peak between years three and four. To ensure effective utilization of the proceeds of the program, TPTC must be assured that program inputs are available on a timely and regular schedule over a time frame sufficient to institutionalize the expected improvements. Moreover, it is estimated that the crucial element of technical assistance, involving a major restructuring of TPTC, will require up to five years to be effective.

Thus, while almost 85 percent of the AID loan will be disbursed by the end of year four, the remaining amount will be required to provide the dollar and local currency costs of spare parts, materials, and operating costs necessary for the program to then realize its increased capacity.

These considerations led to the conclusion that a five-year program was required and justified.

g. TPTC Management of Project

Under the reorganization of TPTC the Chief Engineer is directly responsible for the overall management and direction of all aspects of TPTC's objectives of a technical nature. This includes the operational activities of the Autonomous Transport Service (ATS), Construction Service, TPTC Construction Brigades and Departmental Engineers. The Executive Engineer is directly responsible for all aspects of TPTC's activities of an internal administrative/accounting nature, i.e., establishment of personnel policies and positions, administrative support functions, etc.

A Project Manager will be appointed to handle all aspects of the AID program. He will be a Senior Engineer of the TPTC staff and will report directly to the Chief Engineer. The Project Manager will be the principal contact with TPTC and will manage the TA Consultant contract for the GOH. He will serve as a coordinator of the various elements of the program.

AGRICULTURAL FEEDER ROAD PROGRAM
SCHEDULED PROJECT EXPENDITURES

Table _____

INPUTS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<u>Brigade Equipment</u>						
GOH	-	-	-	-	-	-
AID	400	800	600	100	100	2,000
<u>Materials</u>						
GOH (Budget)	50	50	50	50	50	250
AID	50	100	100	100	100	450
<u>Operating Costs</u>						
GOH (budget)	200	200	200	200	200	1,000
AID	50	100	200	200	200	750
<u>Pilot Project</u>						
GOH	-	-	-	-	-	-
AID	150	50	-	-	-	200
<u>Leasing Equipment</u>						
GOH	-	-	-	-	-	-
AID	400	600	-	-	-	1,000
<u>Equipment Pool Overhead</u>						
GOH (PL 480)	100	170	Self-supporting -----			270
AID	-	-	-	-	-	-
<u>Contract Work</u>						
GOH (PL 480)	75	175	400	600	700	1,950
AID	50	75	100	150	225	600
<u>Contract Engineering</u>						
GOH (PL 480)	20	50	50	80	80	280
AID	-	-	-	-	-	-
Total Loan Package	1,545	2,370	1,700	1,480	1,655	8,750
GOH	445	645	700	920	1,030	3,750
AID	1,100	1,725	1,000	550	625	5,000
Technical Assistance (GOH)	-	-	-	-	-	-
AID	550	800	450	400	200	2,400
Total Grant	550	800	450	400	200	2,400
Total Program	2,095	3,170	2,150	1,880	1,855	11,150

TABLE 2

AGRICULTURAL FEEDER ROAD PROGRAM
COSTS OF CONSTRUCTION
5 YEARS

(Assume 15% increase per year for inflation/contingency)

	Year 1		2		3		4		5		TOTAL	
	Km	\$	Km	\$ + 15%	Km	\$ 15+15%	km	\$ 15+15+15	Km	\$ 15+15+15+15	Km	\$
TPTC	70	* 1/ 329,000	100	540,500	150	938,362	150	1,072,216	150	1,233,049	620	4,107,127
Priv. Cont.	20	94,000	40	216,200	70	435,102	90	643,340	100	822,030	320	2,210,672
TOTAL	90		140		220		240		250		940	6,317,799

<u>TPTC Construction</u> including 15% inflation -----	\$4,107,127		<u>Prvt. Contr. Construction costs</u> including 15% inflation -----	\$2,210,672
Plus: Engineering Costs -----	291,400	2/	Plus Engineering Design (10% of un-inflated cost) -----	150,400
(10% of Un-inflated Const. Costs)			Contract Mng. (3% of un-inflated cost)-----	45,120
Mobilization (1500 x 34 jobs)-----	51,000	2/	Inspection (6% of un-inflated cost)-----	96,240
			Profit (15% of total cost)-----	331,600
TOTAL TPTC	\$4,449,527		TOTAL PE	\$2,834,032
	(\$7,176 per km)			(\$8837 per km)
			TOTAL TPTC + PC -----	\$7,283,559

Notes: 1/ Average un-inflated cost per km. assumed to be approximately \$4,700 (Total un-inflated cost of construction \$4,406,799 = \$4,700 (rounded) / Total km to be reconstructed 940)

2/ These costs are assumed to be included in TPTC overhead and general support for the program. Accordingly, they are not included as a cash contribution by the GOH to the program; but rather are included to reflect the true per km. Cost of TPTC construction

2. Engineering Analysis

a. Reconstruction Standards

Development of the reconstruction standards for the Agricultural Feeder Roads Program was based on:

- The findings of the Berger Transport Sector Study;
- Highway Research Board Report No. 63 ("Economics of Design Standards for Low-Volume Rural Roads") and
- The Government of Haiti's (TPTC) recommendations.

It was assumed that the expected service life of the roads will be:

- | | |
|--|----------|
| - Wearing surface (gravel or crushed rock) | 5 years |
| - Embankments | 20 years |
| - Drainage Structures | 30 years |
| - Bridges | 40 years |

The projected value for the year 1986 was accepted as "average daily traffic" (ADT). (Louis Berger International's traffic count in 1975 did not incorporate the number of "local" vehicular trips; therefore, the actual traffic count will be somewhat higher than shown in ADT-1986).

For planning and design purposes, it was assumed that trucks with 9 ST (short ton) single axle load will be the heaviest vehicles on the proposed feeder roads.

Individual road sections were surveyed in the Berger International transport survey, which on the basis of 1/10-km. increments analyzed strata conditions along each road. Annex II, Exhibit C represents the nature of data collected for each section surveyed. In aggregate, the 52 candidate road links, totaling approximately 940 kilometers have been classified by strata. Table 3 reflects the totals of each stratum.

TABLE 3
 TECHNOLOGY APPLICATION AND RESULT AND UNSKILLED LABOR UTILIZATION
 APPROPRIATE FOR EXPECTED ROADBED AND ROAD SURFACE CONDITIONS^{1/}

	TECHNOLOGY A		TECHNOLOGY B		TECHNOLOGIES A & B
	(1)	(2)	(3)	(4)	(5)
	% of Tech A Application (2)	Unskilled Labor As a % of Total Improvement Cost (3)	% of Tech B Application (4)	Unskilled Labor As a % of Total Improvement Cost (5)	Unskilled Labor As a % of Total Road Improvement Cost (6)
Stone and Rock Strata	75	9	25	22	31
Earth Strata	25	3	75	64	67
Gravel and Other Strata	50	6	50	43	49

TABLE 3

^{1/} Showing the % of unskilled labor utilized under various strata conditions.

TABLE 4
CANDIDATE ROADS - STRATA COMPOSITION

	<u>KM</u>	<u>% OF TOTAL</u>
Rock and Stone	620	66
Earth	210	23
Gravel	90	9
Other	<u>22</u>	<u>2</u>
	940	100

Some 71% of the proposed feeder roads originally had a road width of between 3.0 to 5.9 meters. However, with the anticipated ADT's, it is not feasible to restore the roads to the previous width: An average of 4.0 M wide traveled-way will be adequate in most cases. Exceptions will be made where traffic considerations or construction constraints warrant, for example:

- (1) On sections with ADT of more than 100 (only 12% of all roads), a traveled-way of 6.0 M will be built;
- (2) In rocky cut areas where minimum sight distance requirements permit, the traveled-way could be limited to 3.0 M for short distances.

Table 5 presents a comparison between the existing and proposed road widths.

TABLE 5
PRESENT AND PROPOSED ROAD WIDTHS

PROPOSED WIDTH: 4.0 M

<u>PRESENT WIDTH (M)</u>	<u>KMS</u>	<u>% OF TOTAL CANDIDATE ROADS</u>
2.0 - 2.9	84.8	8
3.0 - 3.9	237.8	26
4.0 - 4.9	162.5	18
5.0 - 5.9	220.8	24
6.0 - 6.9	84.0	9
7.0 - 7.9	-	-
8.0 - 8.9	-	-
9.0 - 9.9	40.5	4
Sub-Total (KM)	<u>830.4</u>	<u>89</u>

PROPOSED WIDTH: 6.0 M

<u>PRESENT WIDTH (M)</u>	<u>KMS</u>	<u>% OF TOTAL CANDIDATE ROADS</u>
4.0 - 4.9	26.9	2
5.0 - 5.9	-	-
6.0 - 6.9	10.2	1
7.0 - 7.9	70.5	8
Sub-Total (KM)	107.6	100%

Total Kilometers Proposed Width 4.0 and 6.0 M - 938.0

Because of the low ADT on the proposed feeder roads - except on a few links - this project does not plan any unwarranted improvements beyond the following basic restorative work:

- Repair of base and sub-base failures (removal of unsuitable base/sub-base, placement of select material).
- Repair of slopes.
- Repair of damaged drainage structures.
- Restoration of lateral ditches.
- Repair of surface failures and placement of 5 cm (average) layer of crushed rock surfacing.
- Widening of the traveled way in some sections, where limited sight distances or traffic considerations make this mandatory (turn outs).
- Clearing of ditches and embankments.

Following are the recommended geometric design parameters:

	<u>FLAT</u>	<u>ROLLING</u>	<u>MOUNTAINOUS</u>
Design Speed	60 km/hr	40 km/hr	20 km/hr
Roadway width	4 M	4 M	4 M
Exceptional width	6 M	6 M	3 M
Minimum Horizontal curve	140 M	60 M	30 M
Maximum Grade	6%	8%	12%
Exceptional Grade	-	-	15%
Traverse Slope	3%	3%	3%
Design load	9 T/axle	9 T/axle	9 T/axle

ANNEX II, Exhibit D shows typical cross-sections of the proposed roads.

b. Reconstruction Costs

Unit costs for reconstructing the road sections were developed by Berger as part of the Transport Study. While the basic unit costs are shown in the following table, the supporting background data is attached as ANNEX II, Exhibit E.

UNIT COSTS

Cost Items for Unpaved Road Sections

- Surface crew ("unpaved")	\$ 24.00/day
- Hand Ditch	168.00/KM
- Machine Ditch	102.00/KM
- Reconstruct Sub-grade	0.62/CM
- Scarify Surface & Reshape	0.22/SM
- Place Additional Select Surface	0.56/CM
- Furnish Select Surface Material	1.67/CM
- Bridge Repair	200.00/EA
- Dalle Repair (Fords)	100.00/EA
- Miscellaneous Drainage Repair	Lump Sum
- Brush Cutting	11.00/KM

Cost Items for Paved Road Sections

- Surface crew ("paved")	\$208.00/day
- Asphalt	0.21/liter
- Chip-stone	9.20/CM
- SBST	0.62/SM
- Machine Shape Shoulders	0.03/SM
- Furnish Base Material	0.40/CM

These basic unit costs do not include contingencies, overhead, profit, inflation, etc. (indirect costs).

The estimated reconstruction cost for each section consists of:

- Direct costs
- Indirect costs

The direct cost was calculated by using the Berger field team's assessment of the road sections. This assessment describes in detail the roads' present condition and also the work necessary for the restoration of the sections to original condition. The field assessments were analyzed and reviewed by AID Engineering/

Economic personnel, and field trips were made to several of the selected road sections to collect additional engineering/economic data. On the basis of this review the direct cost estimates were upgraded to the proposed reconstruction standards.

The indirect cost items were identified as:

- Contingencies (25% of the direct cost).
- Overhead (70% for private contractors and 30% for TPTC). (For planning purposes an average of 50% of the direct cost was used).
- Profit (15% of total cost for private contractors).
- Inflation (a yearly inflation of 15% was assumed).
- Engineering design (10% of the un-inflated cost).
- Contract management (3% of the un-inflated cost).
- Inspection (6% of the un-inflated cost).
- Mobilization (\$1,500 per job for TPTC).

The adjusted reconstruction costs of the various sections are shown in Annex II, Exhibit A.

Annex II, Exhibit F contains information on road maintenance costs.

The costs of construction for the five year period are summarized on Table 2 Part III, A, 1. They reflect average per kilometer cost of \$7,176 for TPTC and \$8,837 for private contractors.

c. Participation and Cost of Unskilled Labor in the Construction Activity

Road improvements will be carried on under two technologies, reflecting a capital-intensive and a labor-intensive approach. Table 5 shows the relative costs of skilled and unskilled labor, equipment and materials as percentages of total road improvement costs under the two technologies. Unskilled labor costs vary from 12 percent of total road construction costs in the capital-intensive technology to 76 percent in the labor-intensive approach.

TABLE 5
LABOR AND EQUIPMENT AS PERCENTAGES OF TOTAL ROAD IMPROVEMENT COSTS

TECHNOLOGY	(1) EQUIPMENT COST	L A B O R				(6) CONSTRUCTION MATERIALS	(7) TOTAL % (1+2+5+6)
		(2) SKILLED OPERATORS AND FOREMEN	U N S K I L L E D				
			(3) UNSKILLED WITH MACHINES	(4) UNSKILLED OTHERS	(5) UNSKILLED TOTAL (3 + 4)		
Capital-Intensive (Technology A)	68	11 ^{1/}	2	10	12	9	100
Labor-Intensive (Technology B)	8.5	1.2 ^{1/}	0.3	76	76.3	9	100

1/ Equipment Operators
2/ Labor Gang Foremen

TABLE 5

In view of the varied composition of road surfaces and roadbeds, both technologies will be employed simultaneously on most road section improvements.

Applying the ratios prescribed in Table 5 , Column 6, to these road section strata conditions, the ratio of unskilled labor costs to total road link improvement costs was determined. In the case of section 85, for example, this was found to be 40 percent. (The percentage varied from a low of 31 on several sections to a high of 67 on section 207).

These ratios were applied to the adjusted Berger road improvement costs to arrive at the estimated financial cost of unskilled labor for the improvement of each road section.

The shadow price of unskilled labor on road improvement was estimated to be 10 percent of its financial cost. The cost of the unskilled labor element of road improvement was, therefore, reduced by 90 percent to arrive at its economic cost.

Table 3 shows the application mixes of Technologies A and B under alternative road strata conditions. In nearly every case a mix of Technologies A and B will be used. Rock roadbed calls for a high proportion of capital-intensive Technology A because capital equipment is more efficient in this stratum. Under rock conditions 31 percent of road improvement costs is expended for unskilled labor. In contrast, where an earth roadbed is encountered, a labor-intensive approach can be effectively employed. In earth sections, an estimated 67 percent of improvement costs are attributable to unskilled labor. Where gravel and similar strata are encountered, unskilled labor amounts to an average of 49 percent of total road improvement costs.

3. Responsibilities in the Road Transport Sector

a. General

At present, two organizations share the direct responsibility for road and bridge infrastructure in Haiti. These are the Secretariat of Public Works, Transportation and Communications (TPTC), which has overall responsibility and fulfills the role of a highway department; and the Permanent National Highway Maintenance Service (SEPRRN), an autonomous agency responsible for maintenance of the national highway system. There are no municipal or departmental authorities responsible for road work. Even in Port-au-Prince, TPTC handles street improvement and maintenance. Traffic regulation, vehicle inspection and licensing is the responsibility of the Police Force, while the General Tax Office cooperates in the collection of revenue from these sources.

b. TPTC

TPTC has undergone a number of changes since the law of June 2, 1920, which organized the Ministry of Public Works, to the present law of June 17, 1971, which reorganized the Ministry of Public Works, Transportation and Communications. Under this present law, the Minister of TPTC is responsible for the overall control and operations and, as a member of the Cabinet, he answers to the government for TPTC activities. In general terms, the role of TPTC includes the following major elements:

- Planning and programming of road improvements,
- Accomplishing project studies and designs,
- Supervising road construction and/or improvements,
- General coordination on supervision of SEPRRN activities,
- Parallel functions with respect to maritime and air transport,
- Planning the development and improvement of urban areas and rural population centers,
- Design and maintenance of public buildings and public works

c. SEPRRN

SEPRRN was created by a decree dated March 3, 1972 and given the responsibility of maintaining the national highway system. It is controlled by a five man administrative council whose chairman is the Minister of Public Works. Three of the other council members are also connected to the TPTC; therefore, SEPRRN is actually controlled by TPTC. Their resources come from earmarked funds from gasoline and diesel oil taxes and some inputs from the National Counterpart Fund.

d. Police

The police are part of the Ministry of Interior and National Defense and are a part of the Haitian Armed Forces. Their duties with respect to the transport sector include traffic control, issuance of drivers licenses, inspection and registration of vehicles and enforcement of traffic regulations.

e. Finance Services

Three financial services of the GOH have a direct relationship to the transport sector. These are:

- (1) The General Tax Administration collects taxes and deposits them in funds for the various government agencies as allocated by decree or law.
- (2) The Office of the Budget of the Ministry of Finance collects budget data prepared by each branch of the government and develops a recommended national budget, which when approved by a Supreme Council of Ministers becomes a law.
- (3) The National Bank of the Republic of Haiti acts as treasurer to all sections of the government and autonomous agencies.

4. Reorganization of the Transport Sector

a. General

The recently completed study of the transportation sector by Louis Berger International, Inc. included an in-depth analysis of the present TPTC organization. Berger found that the present functions of the various services are not clearly defined as a result of ad hoc changes since the 1971 law. Other problems identified are a shortage of well qualified staff to fill key positions and deficiencies in the economic and physical planning capabilities needed to support and manage the National Development Plan. The Berger study presents detailed recommendations on a reorganization of TPTC as an element of an overall National Transportation Council and Transport Boards.

ANNEX II, Exhibit G shows the proposed structure of this new sector body. In establishing the transport sector organization an attempt was made to assign each branch and/or agency complete responsibility, without duplication, for their sphere of activity, with liaison to be provided by functions links between agencies. Most of these organizational units presently exist but without the coordinating element.

The Minister of Public Works has indicated that he intends to implement the recommendations of the Berger study and he would welcome technical assistance in accomplishing these goals as part of the AID program.

b. Reorganization of TPTC

Within the framework of the Transport Council, TPTC's mission will be expanded to include responsibility for all transportation infrastructure, working to the maximum possible extent toward management of outside services, (i.e., use of private consulting engineers and contractors rather than through increases in TPTC staff). ANNEX II, Exhibit H shows the recommended organization of TPTC, describes the activities of the principal elements and their present organizational capabilities. The primary functions of TPTC will include:

- Plan, manage, and report on the maintenance of civil engineering works; specifically, roads, bridges, port and airport installations and related works.
- Investigate, survey, plan, design and report upon projects such as the construction of civil engineering works and buildings of all kinds.
- Execute projects, employing ministerial resources, consultants or contractors, as appropriate.
- Control the execution of projects to assure that the limitations of time, cost and quality are respected.
- Advise all levels and all departments of government upon matters within the Service's competence, in particular upon the cost, timing and technical nature of works.
- Regulate the technical standards that shall apply to private construction.

5. TPTC Force Account Capabilities

Concurrent with the international bidding for the reconstruction of the Northern and Southern highways, TPTC elaborated a six-year plan for the reconstruction of the remaining road network. Given the urgency of the task, the lack of capacity within the private Haitian contracting community (See Part III, A, 6), and the relatively low-cost nature of the work involved, it was decided to do the work by force account. Using GOH budget funds, TPTC purchased \$1.0 million of equipment and mobilized two construction brigades in late 1974 to begin the reconstruction of the secondary road network.

Each of the two brigades was equipped with a D-8 bulldozer, a D-6 bulldozer, a D-4 bulldozer, a motorgrader, loader, a roller, five dump trucks, a flatbed truck, a water truck and a jeep. The brigades were staffed with an engineer, a foreman, five surveyors, seven operators, nine drivers, two crew chiefs, five mechanics and 80 laborers.

The brigades began work in October 1974; one on the road between Mirebalais and Hinche in the Central Plateau; the other on the road between Cavailon and Barraderes in the Southern Peninsula. During the past 16 months the two brigades have reconstructed a total of approximately 50 kilometers of road, or 25 kilometers each, for an average output of 1.5 kilometers per month.

This low output is due to several reasons, i.e.,

a. Each brigade has an operating budget of \$10,000 per month to cover the cost of salaries, fuel, equipment repairs and supplies and construction materials. The \$10,000 is usually expended by the 20th of each month, causing a shut down of the job until the next month's allotment is available.

b. The standard used for roads built to date is too high for the expected traffic. Time, money and effort has been wasted to build an eight meter wide roadbed where only a four meter wide road is justified.

c. Institutional weaknesses were apparent. Execution of the work was not planned in advance and use of equipment was not scheduled. Maintenance is uneven and equipment breaks down frequently. When replacement parts are required, they are requested from Port-au-Prince. Frequently, the part must be

ordered from the U.S., during which period the equipment is not working. Finally, many of the equipment operators have not been properly trained on the equipment they are using, so they do not know how to get the best production from it.

d. The brigades lack proper equipment for rock excavation (i.e., compressors, rock drills), for field maintenance equipment (i.e., lubrication units, welders), for transporting heavy equipment (i.e., lowboys and tractors), for constructing culverts and drainage structures (i.e., forms, concrete mixers, culvert pipe, small compactors).

e. The brigades also lack sufficient heavy equipment for serious reconstruction effort, such as dump trucks, loaders, and complementary smaller tractors and graders.

f. The brigades lack the capability to produce properly graded road materials and segregation of the gravel road surface has taken place.

Deficiencies were further documented by a small Mission effort to assist TPTC brigades. As a result of discussions with TPTC during early 1975, the USAID arranged for and financed a team of U.S. Navy Seabees to come to Haiti to assist the TPTC construction brigade on blasting of rock along the Cavillon-Barraderes section of road. The Team, consisting of an Engineer Officer, two Equipment operators, two Demolition Experts, a Mechanic and a Medical Corpsman, worked with the brigade for a three month period in late 1975. Upon their arrival they found 80 percent of the equipment deadlined and work at a standstill. After assisting the TPTC mechanics to make the equipment operational, the Seabees team members worked closely with the brigade engineer, foremen, equipment operators and mechanics to develop their operations and achieve a smoother running operation, while also directing the drilling and blasting of about two kilometers of rock. This exercise provided an excellent opportunity to determine the scope and extent of technical assistance required to significantly improve brigade productivity, and identified additional equipment required to increase the output of completed roads.

The purpose of the proposed equipment and technical assistance to TPTC is to assist in the expansion of the construction brigades' capabilities to meet the requirements of the GOH road reconstruction program and permit them to achieve an average rate of construction of 5.0 kilometers of road per month per brigade. TPTC

has reviewed the equipment and personnel requirements for the various operations of the brigades and developed a plan of operation as shown in ANNEX II, Exhibit 1. In developing these requirements care was taken to plan on utilization of labor-intensive methods to a maximum extent on those phases of the work which can be accomplished by labor.

In addition to the basic road construction equipment required for excavation, filling and compacting of the roadway, provisions have been included for each brigade to have the capability of producing high quality aggregates for the road surface and for use in concrete structures. Small mobile rock crusher-screening plants and associated handling equipment will be provided for this purpose. Another feature of the brigades' operations will be a capability to produce prefabricated concrete drainage pipe of various diameters through the use of steel forms. Equipment to maintain, support and transport the basic road construction equipment will also be provided. Table 7 lists the total equipment required for the two brigades, subtracts those items presently available to them and indicates the items to be procured under the loan.

ANNEX II, Exhibit J lists the items to be procured with estimated costs for the equipment, spare parts and operating supplies required to support the equipment and related shipping costs. The total cost of these items is estimated at \$1,970,375, rounded to \$2,000,000.

Current funding for the two brigades will be significantly increased under the proposed program. Present GOH budget support will be complemented by loan resources to provide the brigades, in the first year, with double the amount they now receive for materials and a 25% increase in operating funds. As the new equipment arrives, and as the brigades' capacity increases, the annual AID resources for materials double again to \$200,000 and resources for annual operating costs increase to \$200,000, double the amount of the brigades' original budgetary allotment.

In addition, as a part of the technical assistance program to be provided TPTC under an associated AID grant, U.S. Field Engineers will assist each construction brigade engineer to prepare work programs, and to schedule and otherwise improve his operations. An Equipment Specialist and a Heavy Equipment Mechanic will assist in developing equipment utilization and maintenance procedures and in training TPTC personnel to assure the continued effectiveness and operation of the equipment. Administration and Accounting

AGRICULTURAL FEEDER ROAD LOANEQUIPMENT REQUIREMENTS FOR 2 BRIGADES

	Required for 2 Brigades	Available to T.P.T.C.	To Be Procured
D-8 Bulldozer	2	2	-
D-6 Bulldozer	4	2	2
Cat 951 C Track Loader	2	2	-
Cat 920 Wheel Loader	2	2	-
8 CY Dump Trucks	20	10	10
Cat 140 G Graders	2	-	2
Cat 12 G Graders	2	2	-
1500 Gal Water Trucks	4	2	2
Sheepsfoot Rollers	2	-	2
10-15 T Steel Drum Rollers	2	2	-
Rubber tired Vibrating Rollers	2	-	2
Wacker Flat Bottom Vibrating Rollers	4	-	4
600 cfm Air Compressors/w/accessories	1	-	1
Rock Drills	1	-	1
315 cfm Air Compressors	2	1	1
125 cf Air Compressors w/accessories	4	-	4
16 cf Cement Mixers	2	-	2
6 cf Cement Mixers	4	-	4
Loader/Backhoes	2	-	2
2 T Mobile Cranes	2	-	2
30 T/hr Rock Crusher/Screening Plants	2	-	2
75 Kw Generators	2	-	2
15 Kw Generators	2	-	2
2 ½ T Flatbed Trucks	2	2	-
1000 gal Water Trailers	2	-	2
20 T Highboy	1	-	1
5 T Semi-Tractor	1	-	1
10 T Tilt Top Trailers	2	-	2
20 T Semi-Vans	2	-	2
400 Gal Water Trailers	4	-	4
Jeeps	4	2	2
¾ T Pick up trucks	6	-	6
2½ T Field Maintenance Trucks	2	-	2
1500 Gal Fuel truck	2	-	2
300 Amp Welder	1	-	1
10 T Mobile Crane	1	-	1
Prefab Culvert Forms	2	-	2
Mobile Office/Shop/Warehouse	2	-	2
Stock of Hand tools	1	-	1

Advisors will also be available to help set up and maintain administrative and cost systems.

With the additional equipment and materials and increased operating budget provided for in the loan program, and the injection of the technical assistance element as provided for under the AID grant, it is felt that the TPTC construction brigades will be able to meet their targets of an average of five kilometers/month each for the total 620 kilometers assigned to them over the five year period of the program.

6. Private Contracting Capability

The National Transport Study made a major evaluation of the Haitian contracting industry. The results and recommendations are summarized in Annex II, Exhibit K.

(a) General

According to the study, the domestic construction industry is the fastest growing sector of the economy and is of prime importance to the future economic development of Haiti. Construction's contribution to the GDP in 1973-74 has tripled since 1968.

In spite of its dramatic growth, the domestic construction industry has not been successful in securing any substantial share of the very sizeable infrastructure development program presently being executed in Haiti. Two international contractors working on the construction of the northern road, from Port-au-Prince to Cap Haitien, have sub-contracted only about 5% of their work to local firms. On the lots No. 2 and 1 for construction of the southern road to Les Cayes, and on the road connection to Jacmel, the percentage is even lower. On the wharf construction of the Port-au-Prince harbor the situation is better. A local contractor has subcontracted about 20% of the value of the project. The report estimates that during 1974-1977, heavy construction work worth a total of \$79.8 million will be undertaken. Of this, only \$9.9 million or 8% has been awarded to local contractors (Table 7a.).

However, in spite of this apparently bleak showing, investigation of local contractor operations indicated that the local contracting industry was in fact far stronger than it initially appeared to be.

TABLE 7a.

COST OF ONGOING PROJECTS IN US \$ 1 000

DESCRIPTION	TOTAL VALUE			ANNUAL VALUE					
	Contract	Local Contractor	Foreign Contractor	LOCAL CONTRACTOR			FOREIGN CONTRACTOR		
				1974-1975	1976	1977	1975	1976	1977
Installation of water system P.A.P (CAMEP)	9 200	2 000 21.7%	7 200 78.3%	1 000	1 000	-	3 600	3 600	-
Construction of Industrial Park P.A.P	2 000	2 000 100%	-	2 000	-	-	-	-	-
Wharf construction of P.A.P Habor	14 400	3 000 21%	11 400 79%	1 500	1 500	-	2 900	8 500	-
Improvement of the Jeremie Airport	250	250 100%	-	250	-	-	-	-	-
Construction of sections #1-#2-#3 of the Northern Road	22 500	1 125 5%	21 375 95%	562.5	562.5	-	7 600	13 775	-
Construction of lots #1-#2 of the Southern Road	22 000	-	22 000 100%	-	-	-	8 100	6 950	6 950
Construction of Carrefour Dufort-Jacmel Road	8 000	30 0.3%	7 970 99.6%	15	15	-	4 900	3 070	-
National Highway Rehabilitation and Maintenance Program	1 500	1 500	-	1 500	-	-	-	-	-
TOTAL	79 850	9 905	69 945	6 827.5	3 077.5	-	27 100	35 895	6 950

TABLE 7 a:

7. Leasing Service Analysis

a. Advantages of a Leasing Service

During recent years in the United States and elsewhere there has been a definite trend in the construction industry for contractors to lease or rent certain specialized or high-cost items of equipment rather than buy them.

A lease is a contract by which one party (lessor) gives another party (lessee) the use and possession of property for a specific time for fixed payments. Ownership remains vested in the lessor but the lessee has possession and full use of the equipment. Leasing has often been described as making a profit with the capital of others.

In the construction industry, short term rental is quite common when a special machine is required for a limited time. Other reasons for rental are:

- (1) To take advantage of using newer, more productive machines.
- (2) No major capital investment required.
- (3) If found unsatisfactory for the job, the machine can be returned to the lessor.
- (4) No down payment required as contrasted with normal equipment financing.
- (5) Maintenance costs are reduced by use of newer machines.

It is the desire of the GOH to assist the private contracting industry to develop a capability to do road construction work. Building contractors usually own less equipment than a highway or heavy construction contractor, because building construction needs vary widely from one project to another. Building contractors usually own trucks, mixers, pumps, etc. Front end loaders, tractor dozers, graders are not in their inventory and prior to purchase, a careful research of cost must be undertaken. Leasing is the ideal alternate and will provide needed equipment when required for a specific job.

b. Recommendations

The creation of a government service, in direct competition with private industry, should occur only when a lack of investment capital or private management skills dictates such an action by a government. Today in Haiti there is an acute lack of private investment capital. In creating a leasing service, the Government of Haiti is acting to eliminate the deficit in the nation's equipment inventory until private investors and businessmen are in a position to provide investment funds. The ultimate aim of the Haitian Government in establishing this leasing service is to pave the way for private construction contractors to become a viable force in road construction.

c. Equipment Requirements

The development of a private road construction contract industry consisting of Haitian contractors must be undertaken in reasonable steps. ^{1/} The provision of "too much-too soon" would cause a severe glut on the rental market. Each step must be programmed into the governmental funding system to produce an orderly formation of the inventory of the Leasing Service. A minimum selection of road construction equipment for leasing should consist of those machines required to move, shape, load and compact earth in large quantities and provide a wearing surface. The proposed equipment rental service must commence business in a small way--learning, developing, and training as it grows. The service should commence its operations initially in one centralized location, relatively close to its maintenance component, SEPRRN. This restriction indicates that the service should initially be located in the Port-au-Prince area, with plans for future development in both the north and southern parts of the country.

Table 10 lists items of equipment recommended for implementation of an operation for building agriculture feeder roads.

d. Determining Equipment Owning and Operating Cost

The total cost of owning and operating equipment may be used as a basis for determining rental rates. This determination involves six basic factors, and a seventh must be added to make sure capitali-

^{1/} ANNEX II, Exhibit K provides guidelines for the selection, bidding and contract award for private contract work.

TABLE 10

EQUIPMENT FOR LEASING POOL
(Preliminary)

Quantity	Item Description	<u>Estimated FOBCost</u>	
		Price	Total
2 ea	D-6 Angle Dozers	65,000	130,000
2 ea	CAT 920 C Track Loader/Backhoe	48,000	96,000
3 ea	CAT 12 G Grader	56,000	168,000
2 ea	315 Air Compressor w/Accessories	20,000	40,000
2 ea	Rubber Tired Vibrating Roller	18,000	36,000
3 ea	10-15 T Steel Drum Roller	18,000	54,000
1 ea	5 T Semi Tractor	20,000	20,000
1 ea	20 T Highboy	12,000	12,000
1 ea	10 T Tilt Top Trailer	8,000	8,000
1 ea	10 T Mobile Crane	80,000	80,000
1 ea	1500 Gal Fuel Truck	20,000	20,000
1 ea	1500 Gal Bituminous Spreader	25,000	25,000
2 ea	Industrial (agriculture) wheel tractors 67 H.P.	10,000	20,000
4 ea	4 x 4 F250 pick-up 3/4 T Truck	5,200	20,800
4 ea	Slip-in Bed Type Lubrication Units	6,100	<u>24,400</u>
		SUB-TOTAL	754,200
	TOTAL EQUIPMENT	\$754,200	
	20% Spare Parts	150,840	
	TOTAL EQUIPMENT & PARTS	<u>\$905,040</u>	
	10% Shipping Costs	90,504	
	TOTAL COST	\$995,544	

Rounded to \$\$1,000,000 - Total

TABLE 10

zation, replacement and capital investment for facilities is provided. These factors are: ^{1/}

- (1) Annual net loss in machine value.
- (2) Investment and, as applicable in Haiti, insurance and taxes.
- (3) Maintenance and repair costs.
- (4) Operating costs (less fuel, but including lubrication).
- (5) Downtime.
- (6) Productivity differential.
- (7) Profit, replacement and capital investment.

e. General Analysis of Profitability of Leasing Service

(1) Factors considered

- (a) GOH will fund Leasing Service operating expenses for first two years, in amount of \$170,000 for year two.
- (b) Capital investment sinking fund requires minimum of 20% for capital reserve.
- (c) Assume total of 20 pieces of equipment available for rental (does not include small items).
- (d) Leasing Service inventory amounts to \$1,000,000.
- (e) Consider 50% replacement to commence year five.
- (f) Balance on last 50% replacement year 10.

^{1/} (See ANNEX II, Exhibit L for full discussion of each factor, including illustrative cost figures).

(2) Depreciation

(a) Straight-line depreciation 50% - five yrs.

Assume original cost of \$500,000 with useful life of 2,000 hours per year for five years and a salvage value of \$85,000.
Total depreciation $\$500,000 - 85,000 = \$415,000$.
Annual cost of depreciation $\$415,000 \div 5 = \$83,000$.

(b) Straight-line depreciation 50% at 10 years.

Assume original cost of \$500,000 with useful life of 2,000 hours per year for 10 years and a salvage value of \$10,000.
Total depreciation $\$500,000 - 10,000 = 490,000$
Annual cost of depreciation $\$490,000 \div 10 = \$49,000$.

(3) Annual operating cost	\$170,000
5 year depreciation 1978	83,000
10 year depreciation 1979	<u>49,000</u>
Sub-Total	\$302,000
Capital paid (20% reserve fund)	<u>60,400</u>
Income Total	\$362,400

Average cost per unit $\$362,400 \div 20 = \$18,120$
 $\$18,120 \div 12 = \$1,510$ average per month.

Use of straight line depreciation methods would provide a lower rental rate per month versus the declining balance. Inasmuch as this service is a public entity, owned and controlled by the government and is tax free, no benefit would accrue by using a larger depreciation set-aside in the sinking fund as this fund would grow at \$132,000/year in depreciation off-sets and the capital sinking fund at \$60,400/year.

A further consideration must be made in establishing the profitability of the leasing service. Normally in the United States equipment dealers and those in the rental business set a 2,000 hour per year as the optimum and accordingly their rates are based on this premise.

ESTIMATED RENTAL RATES

TABLE 11

TYPE OF EQUIPMENT	Est. Cost	5-yr. salvage value	RAC	Denrec. 5-yr/yr	% Share 7/11	Yearly Oper. Cost	Est. Maint. Cost	Total year cost, MTC Depr.	8 mth. cost/ MO	12 mth. cost/ MO	20% Sink. Fund 8 mo.	20% Sink. Fund 12 mo.	Est. Rate 8 mo.	Est. Rate 12 mo. US&S
Crawler Tractor Angle Dozer 165 H.P. MIN.	\$71,500	\$10,000	\$61,500	\$12,300	\$15,300	\$4,200	\$ 800	\$32,600	\$4,075	\$2,716	\$815	\$543	\$4,890	\$3,260
Wheel Tractor-Loader Backhoe-Min.130 H.P.	\$52,800	5,000	47,800	9,560	11,900	4,200	800	26,460	3,308	2,205	662	441	3,970	2,646
Grader-Self Propelled Pneumatic Tired Min 26,000 lbs.	\$61,600	5,000	51,600	10,320	13,600	4,200	700	28,820	3,603	2,402	721	480	4,324	2,882
Wheel Tractor-Without Attachments Min 60 HP	\$11,000	1,500	9,500	1,900	3,400	3,600	500	9,400	1,175	783	235	157	1,410	940
4 x 4 - 3/4 Ton Pickup Truck /Slide Lubrication Unit	\$ 5,720 \$ 6,710	500 * 500	5,220 6,210	522 * 621	3,400	3,600	500	8,643	1,080	720	216	144	1,296	864
Air Compressor, Portable 315 CFM-Gas with accessories	\$22,000	*1,000	21,000	*21,000	5,100	—	300	7,500	938	625	188	125	1,126	750
Roller-Pneumatic Tired Towed Vibrating - 10 T	\$19,800	*2,000	17,800	* 1,780	5,100	—	200	7,080	885	590	177	118	1,062	708
Roller-Steel Drum Towed 10-15 Ton	\$19,800	*2,000	17,800	* 1,780	5,100	—	200	7,080	885	590	177	118	1,062	708
5-Ton Semi Tractor	\$22,000	3,000	19,000	1,920	5,100	3,600	500	11,120	1,390	927	278	185	1,668	1,112
20 Ton-High Bow Trailer	\$13,200	*1,000	12,200	*1,220	3,400	—	200	4,820	603	402	121	80	724	482
10-Ton Tilting Trailer	\$ 8,800	*1,000	7,800	* 780	1,700	—	200	2,680	335	223	67	45	402	268
10-Ton Mobile Crane	\$88,000	*5,000	83,000	8,300	20,400	4,200	800	33,700	4,213	2,808	843	562	5,056	3,370
1500-Gal 4 x 4 Fuel Truck-Tanker	\$22,000	*1,000	21,000	*2,100	5,100	3,600	500	11,300	1,413	942	282	188	1,696	1,130
1500 Gal. 4x4 Bituminous Spreader	\$27,500	*2,000	25,500	*2,550	6,800	3,600	500	13,450	1,681	1,121	336	224	2,017	1,345

NOTE: * 10 yr. Depreciation

TABLE 11

For Haiti this figure must be reduced considerably due to seasonal rains, inefficiencies, holidays, etc. A figure of four (4) months has been provided as a reasonable downtime. Using this concept would provide $\$18,120 \div 8 = \$2,268$ average per month. It would be expected that the leasing service would be free to charge stand-by rental time at one-half ($\frac{1}{2}$) the monthly rate for those months the contractor would retain equipment, and one-half the rental rate value for transit time.

The sinking fund would then provide the following for a five year replacement.

<u>Year</u>	<u>One-Half Profit</u>	<u>Depreciation</u>	<u>Total</u>
1978	\$30,200	83,000	\$113,200
1979	30,200	83,000	226,400
1980	30,200	83,000	339,600
1981	30,200	83,000	452,800
1982	30,200	83,000	566,000

It is assumed that similar projections would apply to 10 year replacement. Accordingly, the service should under normal conditions and proper management be considered a self-supporting viable service able to meet all of its costs, including replacement.

Using the above assumptions, Table 11 provides estimated leasing rates for the Leasing Service equipment.

Table 12 then demonstrates a proforma 10 year cash flow of the Leasing Service. The result is that the proposed rates provide sufficient income to enable the Leasing Service to become self-sufficient within two years.

f. Organization

The Leasing Service will be a semi-autonomous government entity within TPTC. A three-person Board of Directors (two GOH, one private sector) will be responsible for overall policy direction. The Board will contract with a private Haitian management firm to provide day-to-day management of the Service. The Administrative Decree establishing the Leasing Service will provide authority to the Service to manage its own funds through the BNRH. The BNRH will act as fiscal agent to the Service. The chart (Exhibit M) indicates the proposed location and staffing of the Leasing Service within the TPTC organization, and Tables 13 and 14 provide further details as to budget requirements. It is anticipated that maintenance of pool equipment will be performed by SEPRRN under contract. The Service will rent space from SEPRRN at a pre-determined cost. Rental of equipment will be with operators.

TABLE 12

EQUIPMENT LEASING SERVICEESTIMATED TEN (10) YEAR CASH FLOW

<u>SOURCE</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
<u>INCOME</u>										
Govt. Haiti Subsidy	\$ 95,000	\$170,000	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Rental Equipment	13,538	108,060	\$423,297	\$423,297	\$507,956	\$507,956	\$558,752	\$558,752	\$558,752	\$782,253
Salvage Value	-0-	-0-	-0-	-0-	-0-	-0-	65,000	-0-	-0-	-0-
Transfer from Reserve	-0-	-0-	-0-	-0-	-0-	-0-	645,220	-0-	-0-	-0-
Sub Total	\$108,538	\$278,060	\$423,297	\$423,297	\$507,956	\$507,956	1,268,972	\$558,752	\$558,752	\$782,253
<u>EXPENSES</u>										
Overhead	95,000	170,000	195,500	195,500	195,500	224,894	224,894	258,628	258,628	297,422
Operating Labor	1,400	34,800	34,800	41,760	41,760	48,024	48,024	55,228	55,228	63,512
Maintenance Labor	2,100	33,600	33,600	40,320	40,320	46,368	46,368	53,323	53,323	60,321
Spare Parts	-0-	6,700	25,000	40,000	95,000	75,000	75,000	75,000	75,000	115,000
Depreciation	-0-	-0-	113,022	113,022	113,022	113,022	113,022	32,454	32,454	190,685
Procurement Equipment	-0-	-0-	-0-	-0-	-0-	-0-	669,529	-0-	-0-	-0-
Sub Total	98,500	245,100	401,922	430,602	465,602	507,308	1,176,837	474,633	474,633	727,940
<u>RESERVE</u>										
Sinking Fund	10,038	33,000	21,375	(-7,305)	22,354	648	-0-	84,119	84,119	54,313
Depreciation	-0-	-0-	113,022	113,022	113,022	113,022	113,022	32,454	32,454	190,685
Accumulation	\$ 10,038	\$ 43,038	\$117,435	\$283,152	\$418,528	\$532,198	\$ 92,135	\$208,708	\$325,281	\$570,279

NOTE: SEE Annex II, Exhibit for assumptions on Estimated Cash Flow.

TABLE 12

TABLE 13

PRELIMINARY BUDGET
GENERAL REQUIREMENTS

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>1977</u>	<u>1978</u>
Board of Directors	YEAR	\$ 3,600	\$ 3,600
General Manager	YEAR	28,800	28,800
Office Administration	YEAR	7,600	14,400
Commercial Administration	YEAR	21,350	46,800
Operations	YEAR	21,350	63,600
Building Rental	YEAR	1,000	1,000
Utilities	YEAR	8,880	8,880
Telephones	YEAR	600	600
Oils/Grease	YEAR	600	1,200
Consumable Supplies	YEAR	900	900
		<u>\$94,680</u>	<u>\$169,780</u>

Total Budget \$264,460
=====

Building Rental (30 year life)

Cost building (SEPRRN) 20' x 50' = 1,000 # ft. @ \$15/# ft. = \$15,000
 Maintenance Cost (SEPRRN) \$500/yr @ 30 years = \$15,000
\$30,000
 \$30,000 + 30 = \$1,000/yr

Utilities

Air Conditioning \$30/mo. x 8 x 12 = \$ 2,880/yr
 Electricity \$50/mo. x 12 = \$ 6,000/yr
 TOTAL \$ 8,880/yr

Telephones

Phones \$10/mo. x 5 x 12 = \$ 600/yr

Oils and Grease

1978 - Material \$100/mo. x 12 = \$ 1,200/yr
 1977 \$100 mo. x 6 = 600/yr

Consumable Supplies

Material \$75/mo. x 12 = \$ 900/yr

TABLE 14

	<u>1977</u>		<u>1978</u>	
<u>GENERAL MANAGER</u>				
1 - Manager	@ \$2400/mo. x 12	= \$28,800	@ \$2400/mo. x 12	= \$28,800
<u>BOARD OF DIRECTORS</u>				
3 @ \$100/mo. x 12		= \$ 3,600	3 @ \$100/mo. x 12	= \$ 3,600
<u>OFFICE ADMINISTRATION</u>				
1 - Personnel	@ \$400/mo. x 10	= \$ 4,000	@ \$400/mo. x 12	= \$ 4,800
2 - Secretaries	@ \$300/mo. x 1 x 12	= \$ 3,600	\$300 x 2 x 12	= \$ 7,200
1 - Clerk/Typist	@ \$200/mo.	-	\$200 x 12	= \$ 2,400
	TOTAL	\$ 7,600	TOTAL	\$14,400
<u>COMMERCIAL ADMINISTRATION</u>				
1 - Chief Accountant	@ \$500/mo. x 10	= \$ 5,000	\$500 x 12	= \$ 6,000
3 - Accountants	@ \$350/mo. x 3 x 6	= \$ 6,300	\$350 x 3 x 12	= \$12,600
2 - Rental Collection	@ \$250/mo. x 1 x 5	= \$ 1,250	\$250 x 2 x 12	= \$ 6,000
2 - Budget Control	@ \$250/mo. x 1 x 10	= \$ 2,500	\$250 x 2 x 12	= \$ 6,000
3 - Secretaries	@ \$300/mo. x 1 x 12	= \$ 3,600	\$300 x 3 x 12	= \$10,800
2 - Clerk/Typists	@ \$225/mo. x 1 x 12	= \$ 2,700	\$225 x 2 x 12	= \$ 5,400
	TOTAL	\$21,350	TOTAL	\$46,800
<u>OPERATIONS</u>				
1 - Chief Technical Operations	@ \$1000/mo. x 7	= \$ 7,000	\$1000 x 12	= \$12,000
1 - Planning and Allocations	@ \$600/mo. x 7	= \$ 4,200	\$600 x 12	= \$ 7,200
1 - Master Equipment Mechanic	@ \$400/mo. x 7	= \$ 2,800	\$400 x 12	= \$ 4,800
1 - Training	@ \$400/mo.	-	\$400 x 12	= \$ 4,800
1 - Master Equipment Operator	@ \$400/mo. x 7	= \$ 2,800	\$400 x 12	= \$ 4,800
4 - Lubrication Men	@ \$350/mo. x 6 x 1	= \$ 2,100	\$350 x 4 x 12	= \$16,800
3 - Secretaries	@ \$300/mo. x 1 x 7	= \$ 2,100	\$300 x 3 x 12	= \$10,800
4 - Laborers/Messengers	@ \$50/mo. x 1 x 7	= \$ 350	\$50 x 4 x 12	= \$ 2,400
	TOTAL	\$21,350	TOTAL	\$63,600

TABLE 14

8. Labor Intensive Methods - Pilot Project

- (a) Haiti, like many developing countries suffers from the underutilization of its labor force. This underutilization, particularly in rural areas, not only represents a loss of production to the country, but also creates immense hardship on workers and their families. Productive paid work is a sure and desirable means of placing income in the hands of workers.

It is widely recognized that a major possibility in the short term for providing productive work for large numbers of persons is in the construction sector, especially in operations or tasks in which earthmoving is an important feature. It is also recognized, however, that employing large numbers of men, particularly those who are untrained, in road construction or maintenance is not without its own particular set of problems and possible costs.

A pilot project on the use of intensive labor techniques in road construction/maintenance and how use of labor intensive methods may be increased is a part of this Feeder Road Program. The pilot project should provide operational answers to the following problems:

- (1) Efficiency: While employment creation is an objective, it is clear that unless workers are employed as productively as possible the end result may be a drain on resources rather than an addition to them. The possibilities for labor-intensive (LI) maintenance of roads at a cost that is not excessive in relation to alternatives need to be explored.
- (2) Administration: Critical to the success of an extensive rural road maintenance/construction program are sound administrative procedures. Problem areas requiring consideration include questions relating to finance, choice of work tasks, training of supervisors and work force, recruitment of work force, storage and movement of equipment and materials, methods of payment, and interaction between the different levels of the organization engaged in road maintenance. Development of training materials for road-gang supervisors is an additional purpose of the project because of the critical role of the team leaders in overall worker productivity.
- (3) Organizational Framework: This is an issue of critical

importance in the relation between the central government and local institutions. An LI road maintenance/construction program requires a significant degree of decentralization if it is to be effective. In Haiti at the village level, Community Councils have been active by themselves and also with assistance from private voluntary agencies in undertaking a variety of local activities such as feeder road construction and maintenance. The question of determining an effective working arrangement between central government agencies responsible for road maintenance/construction and local institutions which can execute the work requires intensive investigation.

- (b) In order to clarify the types of questions raised above and preparatory to a possibly expanded LI road construction/maintenance program, the pilot project will consist of two parts: one part will aim at providing experience for development of a larger LI road maintenance program by performing road reconstruction and maintenance activities such as cleaning drainage ditches and filling pot holes on approximately 100 kms of rural roads using labor-intensive methods over a 9-month period. In addition, a separate program of LI excavation of drainage ditches and construction of hand-laid masonry head-walls will be undertaken. The work will be coordinated by TPTC, with the work to be undertaken with SEPRRN as part of its maintenance activities, and/or with the TPTC Construction Brigades. The analytical element of the pilot project will develop data on worker productivity for a variety of road maintenance tasks and total costs for the different activities to be performed. Specifically, productivity and cost data will be collected on both equipment and labor-intensive technologies for similar tasks and environmental conditions for purposes of cost comparison. The study will also include preparation of administrative procedures and plans for organizational changes required to carry out a large scale labor-intensive road maintenance program. On certain roads, maintenance will be carried out with force account workers hired directly by TPTC or SEPRRN; on others, an effort will be made to work through Community Councils to hire local personnel. (A draft scope-of-work for the study is attached as Annex II, Exhibit N _____).

(c) Selection of Project Roads: Three road maintenance/construction situations in Haiti present the best opportunities for employment of LI techniques -- in terms of the needs of the Haitian economy. These are:

Criterion 1. Conventional manual maintenance only, on a completed road. The road may be on any system: main, secondary or feeder.

Criterion 2. Ditching and/or completion of stone headwalls and lateral drains to bring to completion an otherwise completed road. The road may be on any system: main, secondary or feeder.

Criterion 3. Maintenance/construction on feeder or secondary roads, using personnel who have a direct personal stake in completion and maintaining the road.

Current estimates are that the pilot project will cover the following tasks:

Criterion 1. 40 km.

Criterion 2. 100 km

Criterion 3. 60 km (to be selected by the project team)

Total kilometers of road presently selected for the LI maintenance/construction project thus number 200. Based on the present cost of labor in Haiti estimates are that the costs for the type of work involved will be approximately \$700 per km for criterion 1 and 3. The number of drainage structures per km make it difficult to give a figure for criterion 2 but should not exceed \$1500/km.

9. Road Maintenance

The Permanent National Road Maintenance Service (SEPRRN) was established as a semi-autonomous agency by the GOH in March 1972. Its initial scope was to provide the organization and resources necessary to maintain the "backbone" of the national road system, that is the North and South roads being built under IBRD and IDB financing.

An ongoing Highway Maintenance Program financed by AID under a loan/grant package of a \$3,150,000 loan and \$1,950,000 grant has as its objective the developing and equipping of the SEPRRN central organization and four district offices capable of maintaining the North and South highways upon their completion. This "pilot project" will have a capability for eventual expansion to include maintenance of the entire national highway system. This first phase program is now scheduled to terminate on September 30, 1977.

In view of the anticipated further assistance of international donor agencies for new road construction (this proposed AID feeder road program and possible IBRD and IDB efforts in the north plain and southern peninsula regions, respectively) and certain requirements for road betterment and maintenance to complement Haiti's agricultural development efforts over the next five years, an early expansion of SEPRRN's capacity appears warranted and is a logical follow-on to the first phase.

During 1975 SEPRRN and their AID financed consultant have developed a five year program and associated budget based on the expansion of the original pilot project from its present nucleus to a country-wide organization with 12 districts capable of maintaining the entire national road system.

In order to assure the continued development of the SEPRRN organization and permit it to meet its increasing road maintenance responsibilities, AID has programmed a new loan/grant package in Fiscal Year 1977 to assist in the accomplishment of the following:

- a. Four principal district organizations would be created and strategically placed at Les Cayes, Port-au-Prince, Cap-Haitien and Hinche. In the case of the first three, nucleus organizations being established under the first phase will be strengthened; Hinche district would be all-new. These principal districts would be unique in that they would operate SEPRRN periodic and emergency rehabilitation brigades capable altogether of im-

proving up to 240 kilometers per year by 1980 and maintaining their assigned equipment through the fourth echelon servicing level.

b. Eight sub-districts would be created throughout the country and be centered in important towns. These districts as well as the four principal districts would be capable of routine regrading, ditching, and paved road pothole repair. The objective is to make a rapid pass for regrading purposes approximately every three months for a serviced road total of 2,900 kilometers per annum by 1980. Ditching (essentially a one-time affair) and potholing operations would vary widely from district to district depending upon local conditions and road types. Sub-districts will be capable of servicing their equipment through the third echelon level.

c. Four bridge maintenance brigades will have been established by 1980 capable of maintaining 48 bridges per annum.

d. Suitable administrative facilities for SEPRRN will be constructed in Port-au-Prince.

e. Local communities will be involved in the regular maintenance effort.

f. A final output which the GOH is considering is development of the local Haitian contracting industry to assume some of the road rehabilitation and betterment operations under SEPRRN direction.

The technical parameters of the project, as they are reflected in the SEPRRN 1975-1980 Plan, appear to be reasonable. The productivity rates--e.g., six kms/month for periodic rehabilitation and 60 kms/month for routine regrading, assuming properly capitalized and managed SEPRRN brigades, are comparable to those of other developing countries. It has been noted from the SEPRRN report that some routine maintenance districts may be hard put to service the assigned road maintenance inventory, although temporary detachment of elements of the larger rehabilitation brigades could close this gap. These questions and possible solutions such as district realignment will be discussed further with SEPRRN.

The GOH finances the operating costs of SEPRRN from two principal sources: a) share of the five percent allocation from general

tax revenues for transport sector development program and b) one-half of the revenues from the fuel taxes. These resources will be allocated to SEPRRN pursuant to its five year plan for operating expenses as approved in principle by the GOH Ministry of Finance and CONADEP (the planning agency). The magnitudes are as follows:

<u>FY 75/76</u>	<u>FY 76/77</u>	<u>FY 77/78</u>	<u>FY 78/79</u>	<u>FY 79/80</u>
\$1,174	\$1,750	\$2,523	\$2,798	\$3,412

Complementing the GOH contribution, AID will finance the bulk of SEPRRN's capital investment over the 1975-80 period through a \$4.0 million loan. The Phase II project would finance: a) highway maintenance equipment, augmenting that already on hand or due to be delivered under AID Loan 521-L-005, to meet minimal needs of rehabilitation, regrading, and paving repair brigades; b) construction of a central administration facility at Port-au-Prince for SEPRRN headquarters staff and training; c) construction of a fourth principal district garage/office facility at Hinche in the central plateau region; and d) eight additional sub-district facilities beyond those established under Phase I to give country-wide coverage to SEPRRN operations.

Limited continued technical assistance from a U.S. consultant firm is anticipated under Phase II through a \$770,000 grant. Seven man/years of assistance would encompass a supervisory highway engineer as team leader, whose counterpart would be the director general of SEPRRN and the various district engineers, an equipment specialist, expert in garage and equipment operation, repair, and resupply, and an administration/accounting advisor to assist SEPRRN achieve full in-house financial management capability. Some short-term participant training would likely fall under the aegis of the consultant contract.

It is planned to have the Phase II loan/grant agreements signed by late 1976 to permit any loan conditions precedent to be met and disbursement of loan funds to be made immediately upon completion of the Phase I program.

10. Technical Assistance

Immediately upon authorization of the loan/grant project a ProAg will be signed to provide short term assistance under IQ Contracts to TPTC pending arrival of long-term consultants, as follows:

- a. An equipment procurement Specialist who will adopt equipment procurement specifications and IFB documents under the Highway Maintenance loan/grant to permit early procurement of a part of the equipment required by TPTC and the Leasing Pool (3 months).
- b. An expert in Equipment Leasing Operations to assist in the establishing of the Leasing Service (3 months).
- c. A highway engineer with experience in design and contracting operations to assist TPTC to initiate development of their contract activities (3 months).

To assist TPTC in implementing the AID loan a team of expert consultants will be provided under an associated AID grant. Members of this team will assist in the management, design, contracting and supervision aspects of the feeder road program. These AID financed experts will complement assistance being provided to TPTC under ongoing AID, IDB and IBRD projects. The team will be composed as follows:

Long Term Specialists

- a. A Senior Transportation Engineer will be the team leader and advisor to the Minister and Chief Engineer in the management, coordination and implementation of the AID financed program (48 months).
- b. A Transport Engineer will assist in training ATS engineering staff on selected projects to be conducted in-house and in supervising and reviewing results obtained from outside consultants. He will assist in setting road design standards, in preparing or adapting standard specifications and contract forms, in preparing simplified bidding systems for use by small local contractors, in establishing survey, traffic counting, and soil sampling requirements for projects of different complexity and magnitude and in developing procedures for qualifying and selecting consultant (36 months).

c. A Transport Economist will assist ATS in establishing uniform guidelines and procedures for feasibility studies, in preparing terms of reference, consultant pre-qualification and selection procedures, and in training the ATS staff on selected in-house projects, including updating feasibility calculations when refined cost estimates are completed. He will also supervise the Labor Intensive Pilot Project (24 months).

d. An Administrative Advisor will assist ATS, Construction Services and Department Engineers in establishing administrative and personnel procedures (24 months).

e. A Budget and Accounting Advisor will assist ATS, Construction Services and Department Engineers in setting up and maintaining cost data collection and reporting systems (24 months).

f. Two Field Engineers will assist the Construction Service in developing the operations of the TPTC construction brigades and will assist department engineers in preparing work programs, training of personnel and in managing work performed by private contractors (24 months each).

g. An Equipment Specialist will assist and train TPTC construction brigade personnel in development of equipment scheduling, operation and maintenance procedures. He will also advise the Equipment Leasing Service during its formative period (24 months).

h. A Heavy Equipment Mechanic will assist TPTC construction brigade mechanics to maintain and repair their road equipment. He will also advise and assist the Equipment Leasing Service during its formative period (24 months).

i. An Equipment Leasing Pool Advisor will assist in developing and placing into operation the proposed Equipment Leasing Service (12 months). He will be assisted during the first year by an Accountant/Administration Specialist (7 months).

Short Term Assistance

a. A Cost Analysis Specialist will work on the labor intensive pilot project and the collection and evaluation of production and cost data which will result (9 months). He will be assisted by a Haitian Construction Engineer (9 months) and an Anthropologist/Sociologist (9 months).

b. Additional specialized short term assistance will be provided as found necessary (12 months).

Annex II, Exhibit D shows the time phased period of service for the various advisors. Annex II, Exhibit P is a cost estimate for this program.

Preliminary Counterpart Utilization Plan

During the period that the initial three Requirement Contract advisors are working, they will assist TPTC to set up a schedule and implementation plan for staffing of key positions with qualified counterpart personnel to assure that when the long tour advisors arrive they will have someone on hand to work with and train. The plan will also indicate at what point in time the TPTC personnel will assume their full duties without further need for assistance from the consultant experts.

11. Environmental Assessment

The proposed project involves a mix of capital-intensive and labor-intensive road reconstruction/upgrading efforts most responsive to the physical/site conditions and the social/cultural patterns for achieving the program goals and objectives within the area of project influence. The various sections of roads in the program are already existing and will be reconstructed to their original standards, with appropriate drainage and gravel surfacing adequate to assure all-weather access to selected and isolated rural areas. Disturbances to established sociological patterns will be minimal, because all reconstruction will be done within the present right-of-way limits. Except for birds very little wildlife remains in Haiti. Therefore, the environmental impact on wildlife is negligible. By contrast, the restoration of drainage ditches and structures (culverts) will improve the natural drainage. Prevention of standing water in pot-holes, road subsidences and clogged ditches also yields obvious benefits in control of disease vectors, especially malaria which, in Haiti, is still a serious problem.

A list of road improvement projects is given as ANNEX II, Exhibit A. The environmental consequences and impact on each road section, both during reconstruction and after completion, are expected to be the following:

a. Physical Aspects

Limited environmental degradation should occur principally during and immediately following construction. During construction, earth movement operations will temporarily disturb natural drainage patterns with some resultant air and sediment pollution. In the rolling hills and mountainous zones, possible land slides, as a result of earth movement, could also create temporary silt and sediment pollution conditions which could affect and upset natural drainage flows.

In developing the plans, it is proposed to minimize earth movement and to maintain the natural drainage flow pattern. Following the temporary disturbances during construction, side slopes should eventually become stabilized and natural drainage patterns will be reestablished.

Although during planning every effort will be made to minimize earth work operations, the borrow and waste of such materials cannot be avoided. Thus, during implementation, studies will be made on a

sub-project by sub-project basis to overcome its environmental impact, practicably and consistent with the ambience of the area of influence.

b. Resource Linkage

The improved access routes should provide the incentive for bringing new lands into cultivation. Here again, as during construction, minor silt and sediment problems could be initially experienced. However, after the lands have been cleared and cultivation is underway, with appropriate soil and land conservation guidance, these problems should become minimized.

The routes will generally follow existing rights of way, and only minor relocations are anticipated which may result during the technical review for improving proposed route alignments. Earth movement operations may encroach on some land holdings, but this also is expected to be minimal.

c. Public Health Aspects

With the improved accessibility and the inducement for increased productivity, an increased use of pesticides and fertilizers can be anticipated.

At this time, this potential environmental influence cannot be appropriately identified or quantified. However, its control will require surveillance by the appropriate government authorities, and this will be brought to the attention of the agricultural agency administering the use of these chemicals.

12. Summary Conclusions

Upon review of the technical and engineering analysis, and the capacity of the GOH to administer the program, the project is determined to be technically sound. The certification necessary to meet 611 (a) and (b) of the FAA is attached as ANNEX I, Exhibit B.

B. FINANCIAL ANALYSIS AND PLAN

1. Financial Rate of Return/Viability

Each road link to be included in the program was analyzed to determine its benefit/cost ratio. A complete description of the methodology used and results is contained in Part III, D (Economic Analyses) of this paper.

2. Recurrent Budget Analysis (TPTC)

The financing of the transportation budget comes from both the general and development budgets, the latter comprised of special accounts that are managed separately and intended to insure the availability of the necessary local counterpart resources for road construction financed by international agencies.

The operating budget for TPTC has steadily increased by an average of 20 percent per year, from \$1.8 million in 1972/73 to \$2.6 million for 1975/76. The execution of the operating budget has averaged over 90 percent since 1972, demonstrating an increasing capacity to program and implement an expanding program.

In 1972, the GOH established a National Counterpart Fund for Highway Construction, and assigned it five percent of the total tax revenues of the country. This fund, by law, is solely intended for financing counterpart funds to external highway loans.

In addition, in 1972 the GOH earmarked a portion of gasoline taxes (\$0.22 per gallon) to the Fund, and in 1975 made a special transfer of \$2.0 million from general revenues to the Fund. In late 1975, the GOH assigned the Fund an annual increase of \$2.0 million from the bauxite tax for a period of five years. Finally, a special allocation has been made for 1976/77 and 1977/78 for "coffee roads" under AID Loan 521-T-006.

The National Transportation Study reviewed the estimated resources and current commitments for transport projects over the 1976/81 period (Table 14). Using already established revenue sources (with the exception of a \$600,000 requirement in 1976), the Study concluded that present commitments total \$21.9 million compared with \$31.7 million of total resources. Deducting \$1.1 million for estimated technical assistance requirements, there remains approximately \$8.7 million available local counterpart for future commitments to the transport sector. Thus, while the transport sector will remain a high priority investment category, it appears

TABLE 15

GOVERNMENT OF HAITI TRANSPORT PROJECT RESOURCES AND COMMITMENTS - 1976-81
(\$000 US)

RESOURCES	1976-77	1977-78	1978-79	1979-1980	1980-81	1976-81 TOTAL
Road Construction Fund ¹⁾	2,200	2,300	2,400	2,500	2,600	12,000
Matching Funds for Roads ²⁾	1,100	1,100	1,200	1,200	1,300	5,900
Coffee Project Special Allo- ³⁾ cation	135	135	-	-	-	270
Bauxite Allocation ⁴⁾	<u>2,000</u>	<u>2,000</u>	<u>2,000</u>	<u>2,400</u>	<u>2,700</u>	<u>11,100</u>
Total New Resources	5,435	5,535	5,600	6,100	6,600	29,270
Accumulated Resource ⁵⁾	1,800	-	-	-	-	1,800
Other Resources	<u>600</u>	-	-	-	-	<u>600</u>
<u>Total Resources</u>	<u>7,835</u>	<u>5,535</u>	<u>5,600</u>	<u>6,100</u>	<u>6,600</u>	<u>31,670</u>
<u>COMMITMENTS</u>						
Southern Road-Phase I	1,000	-	-	-	-	1,000
Southern Road-Phase II ⁶⁾	1,600	1,000	-	-	-	2,600
Northern Road IV	3,100	800	-	-	-	3,900
Coffee Project Roads	135	135	-	-	-	270
Road Maintenance (SEPRRN) ⁷⁾	<u>1,750</u>	<u>2,500</u>	<u>2,800</u>	<u>3,400</u>	<u>3,700</u>	<u>14,150</u>
<u>Total Commitments</u>	<u>7,585</u>	<u>4,435</u>	<u>2,800</u>	<u>3,400</u>	<u>3,700</u>	<u>21,920</u>
Technical Assistance ⁸⁾	100	300	300	200	200	1,100
Available Local Funds	150	800	2,500	2,500	2,700	8,650
<u>Total Available Project Funds⁹⁾</u>	<u>600</u>	<u>3,200</u>	<u>10,000</u>	<u>10,000</u>	<u>10,800</u>	<u>34,600</u>

- 1) Gasoline sales tax (\$0.22 US per gallon).
2) 50% for roads is shown.
3) From the matching fund for general development.
4) The bauxite allocation for roads is assumed to increase in 1979-81 to provide adequate transport sector development funds.
5) Special agreement between the Ministry of Finance and Ministry of Public Works and USAID.
6) Assuming an external loan of \$24.0 million and a 13% government contribution.
7) From the SEPRRN 5-year maintenance budget, extrapolated at 10% increase after 1979-80.
8) 40% of estimated total assistance.
9) Assuming that local funds will make up 25% of the total (i.e., 4 times preceding line).

that the GOH will continue to demonstrate the capacity to provide counterpart funds in a timely manner.

3. Financial Plan/Budget Tables

The total cost of this five-year project is estimated at \$11,150,000 of which \$5,000,000 will be financed with AID loan funds and \$2.4 million with grant funds. The GOH will contribute the equivalent of \$3,750,000 during the life of the project, of which \$2,500,000 will be new budgetary inputs. Repayments of the loan will be from general revenues.

The following three tables illustrate the financial aspects of the project.

Table 16 is a summary cost estimate and financial plan for the project. As indicated, AID will finance 100 percent of foreign exchange costs and 66 percent of total project costs. The GOH will contribute the remaining 34 percent.

Table 17 is an annually time-phased presentation of project expenditures by source and application. As indicated in this table, approximately 75 percent of project expenditures will take place during the first three years. This reflects relatively large purchases of equipment during the first three years of the project, with remaining years necessary to meet the construction schedule.

Table 18 presents the financing plan for the project by major output elements as a function of the input activities which contribute to their generation. Reference should be made to the Logical Framework attached as Annex VI.

4. Summary of Current Economic Trends

Haiti's economic growth trend of recent years continued during 1974, but at a lower rate. Growth was also spotty, with some sectors performing better than others. The output of the light manufacturing industry increased by a large margin, while little growth was registered in the agricultural sector, still handicapped by a lack of infrastructure and organization. Some overall growth is foreseen for the economy in 1975 and 1976, but at rates only slightly higher than in 1974. Faced by the rising cost of petroleum products and other essential imports, the Haitian Government took steps in 1975 to conserve its foreign exchange reserves, partly by controlling imports. Adverse weather conditions in late

TABLE 16
Summary Cost Estimate and Financial Plan
(US \$000)

<u>Source</u>	A I D		G O H		Total
	FX	LC	FX	LC	
<u>Use: (Loan)</u>					
<u>TPTC Brigades:</u>					
Equipment	2,000				2,000
Materials	200	250		250	700
Operating Costs		750	1,000		1,750
Pilot Project		200			200
<u>Private Contractors</u>					
Equipment Lease	1,000				1,000
Lease Over-head				270	270
Contract Const.		600	1,950		2,550
Contract Eng.	-	-		280	280
Loan Sub-Total	3,200	1,800	3,750		8,750
<u>Grant</u>					
Consultants					
LT	1,500	264			1,764
ST	200	45			245
Commodities	80	20			100
Part. Training	36				36
Other Costs	55	200			255
Grant Sub-Total	1,871	529			2,400
INFLATION FACTOR	(see note 1)				
CONTINGENCY (see note 2)					
TOTAL	5,071	2,329	-	3,750	11,150

Note 1: Inflation treated in computation of road construction costs per km, per year. As shown in Table 2 (Costs of Construction), an inflation factor of 15% per year was used for both TPTC and private contractor costs. This resulted, over a five-year period, in a total inflation factor of approximately \$1.9 million.

Note 2: Contingency treated in computation of road construction costs per km. Given diverse nature of roads and small size of individual sub-projects (Average cost per job is \$140,000), a contingency factor of 25% was used, resulting in a total of \$1,104,500 in contingency costs for the 940 km., or approximately \$1,175 per km.

AGRICULTURAL FEEDER ROAD PROGRAM
SCHEDULED PROJECT EXPENDITURES

Table 17

INPUTS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<u>Brigade Equipment</u>						
GOH	-	-	-	-	-	-
AID	400	800	600	100	100	2,000
<u>Materials</u>						
GOH (Budget)	50	50	50	50	50	250
AID	50	100	100	100	100	450
<u>Operating Costs</u>						
GOH (budget)	200	200	200	200	200	1,000
AID	50	100	200	200	200	750
<u>Pilot Project</u>						
GOH	-	-	-	-	-	-
AID	150	50	-	-	-	200
<u>Leasing Equipment</u>						
GOH	-	-	-	-	-	-
AID	400	600	-	-	-	1,000
<u>Equipment Pool Overhead</u>						
GOH (PL 480)	100	170	Self-supporting	-----	-----	270
AID	-	-	-	-	-	-
<u>Contract Work</u>						
GOH (PL 480)	75	175	400	600	700	1,950
AID	50	75	100	150	225	600
<u>Contract Engineering</u>						
GOH (PL 480)	20	50	50	80	80	280
AID	-	-	-	-	-	-
<u>Total Loan Package</u>	1,545	2,370	1,700	1,480	1,655	8,750
GOH	445	645	700	930	1,030	3,750
AID	1,100	1,725	1,000	550	625	5,000
<u>Technical Assistance (GOH)</u>						
AID	550	800	450	400	200	2,400
<u>Total Grant</u>	550	800	450	400	200	2,400
<u>Total Program</u>	2,095	3,170	2,150	1,880	1,855	11,150

TABLE 17

TABLE 18
COSTING OF PROJECT OUTPUTS/INPUTS
(US \$000)

New

Rev. #

Project #521-T-007

Title: Agricultural Feeder Roads

Project Inputs	Project Outputs				TOTAL
	#1 Roads	#2 Equip. Pool	#3 Pilot Project	#4 TPTC Improv.	
AID Appropriated					
1. a) Materials	250	-	100	-	350
b) Operating Costs	750	-	100	-	850
c) Contract Construction	600	-	-	-	600
2. a) TPTC Equipment	2000	-	-	-	2000
b) Leasing Tool Equip.	-	1000	-	-	1000
c) #41 Materials	200	-	-	-	200
3. a) Technical Assistance	1100	200	100	1000	2400
Government of Haiti:					
1. a) Materials	250	-	-	-	250
b) Operating Costs	1000	270	-	-	1270
c) Contract Construction	1950	-	-	-	1950
d) Contract Engineering	280	-	-	-	280
2. - Not quantified (See note 1)	-	-	-	-	-
3. - Not quantified (See note 2)	-	-	-	-	-
Total	8380	1470	300	1000	11150

Note 1. It is estimated that the GOH will provide approximately 30 work years of counterpart assistance to the program, over and above that already included in 1. (b). The figure has not been computed as it is almost impossible to place a real value upon these services.

Note 2. Maintenance has not been computed as a contribution as the GOH and AID are preparing a proposed FY 1977 loan/grant for extending road maintenance capability throughout the country.

1974, however, produced a drought in the Northwest that necessitated extraordinary food imports. As part of the Haitian Government's effort to redress the country's deteriorating balance of payments, monetary policy will restrict domestic bank credit during 1975 and 1976, and this will depress the economy unless foreign investment increases. The high rate of inflation that characterized 1973 abated somewhat in 1974. The official cost of living index, which is weighted to reflect the purchasing patterns of lower income consumers, averaged 206.4 in 1974 (1948-100) compared with 178.6 in 1973, an increase of 15.6 percent. This compared with an average rate of inflation in 1973 of 19.3 percent. The price index for food increased 10 percent during 1974.

The total value of Haitian exports in 1974 (including products assembled from imported components) increased 96 percent, although the increase was due much more to increased prices than to expanded production. The largest increases were registered by raw sisal (143 percent) and essential oils (179 percent). The value of light manufactured products exported to the U.S., most of which were assembled from imported components, increased 101 percent. Total imports jumped from \$65.8 million in 1973 to \$119.9 million in 1974, an increase of 82.7 percent (these figures include the value of components imported for assembly and re-export, as well as a growing volume of shipments financed by foreign aid). Despite the increase in exports and in remittances from Haitians abroad, the greatly increased import bill caused Haitian foreign exchange reserves to fall by over \$20 million during 1974.

The money supply increased at a slightly faster rate than in past years (30 percent), largely because of a rapid expansion of commercial bank lending to the private sector to finance imports.

Despite a 10.2 percent increase in Haitian Government revenues, expenditures increased 25.3 percent, resulting in a deficit of \$10.9 million.

The Haitian Government's development budget for FY 1976 shows an increase of 80 percent over the amount budgeted for the previous year and stresses transport, telecommunications, energy, potable water, and agriculture. This is the final year of the Haitian Government's current five-year plan.

Haiti's external debt burden is not regarded as a constraint. According to the IMF the debt service ratio for Haiti, i.e., the ratio of public loan amortization plus interest to exports of goods and non-factor services, declined from 11 percent in 1973 to 9.9 percent in 1974. These debt service levels are regarded as relatively modest and that with proper fiscal management additional medium and long-term loans can be served. Particularly given the probability of increased exports as a consequence of current infrastructural investments, a debt service ratio of from 15 percent to 20 percent should be within the capability of the Haitian economy.

Debt outstanding as a percentage of GNP at market prices amounted to 7.9 percent in 1973 and 10.3 percent in 1974. By December 1973, Haiti's external debt outstanding (including undisbursed) repayable in foreign currencies is estimated to have reached \$71.6 million.

Debt service as a percentage of total government revenue amounted to nine percent in 1973 and 10.9 percent in 1974. Government revenue during these years was 304 million gourds (\$60.8 million) in 1973, and 335 million gourds (\$67 million) in 1974.

5. Summary Option

Based on the analysis set forth in this section, the USAID Mission to Haiti concludes that the financial plan is adequate and firm, and that the overall financial soundness of the project and the Borrower warrant favorable consideration by AID.

C. SOCIAL ANALYSIS

1. Beneficiaries

a. Peasant Farmers

The primary long term beneficiaries of the project will be small rural peasant farmers who will for the first time become users of an economical farm to market feeder road system, and who will in the limited labor intensive pilot activity participate directly in the construction/maintenance of roads. For the purpose of this project the target beneficiary could be described as a farmer who:

- has land holdings of from 1.1 to 6 hectares (with an extended family);
- uses almost exclusively subsistence technology with a principal input of labor;
- has a family cash income of less than \$70 per annum in rural areas;
- has little or no accessibility at all to markets for his produce because of the lack of or extremely poor roads;
- has had little or no contact with farmer credit or new agricultural techniques because of the inaccessibility of his locality;
- has had little if any social, education, or health services from the central Government;
- has little if any opportunity to buy commercial goods or manufactured household and clothing items since transportation costs to bring them from the urban industrial capital is excessive.

Rural farmers in Haiti for an almost endless period have traditionally occupied the bottom rung of the socio-economic ladder. The lack of secondary roads has been a massive hindrance to the peasants economically, politically, and socially. Due to the absence of a practical road network, the peasant farmer has been restricted to traditional dress, an indigenous language, and a system of beliefs and customs one might typically expect of an isolated mini-agricultural land holder. To date, no concerted effort has been made to integrate the rural population within the fiber of the entire economy. This project attempts a physical unification of the country beyond the national road network.

b. Indigenous Enterprises

Ancillary beneficiaries will be indigenous enterprises. It has been well noted over the years that private contractors have been somewhat more successful than Government Forces in the maintenance and operation of equipment. Repair facilities and parts warehouses operated by the Government traditionally have been extremely inefficient. By contrast every vehicle operator in Haiti maintains his own vehicle and obtain parts and merchandise almost mysteriously in instances where the Government would fail. Contractors have also been able to avoid many of the cumbersome problems of administration and overhead so often associated with activities that are directly managed by the Government. For these reasons, a maximum effort will again be provided within the context of this project to build and utilize private contractor capability for upgrading the rural feeder roads on a contract and subcontract basis.

c. Community Councils

The final group of beneficiaries will be the Community Councils, which are entrenched local institutions located throughout Haiti. Previous AID activities, such as HACHO and the coffee project give reason to believe that both their numbers and their activities could be significantly expanded. In the same sense, as noted above for indigenous enterprises, community councils might be assigned various responsibilities (given subcontracts) and tasks as may be related to road construction/maintenance. In certain areas, the income that they would derive from "subcontract" type responsibilities related to this project will serve to provide additional sources of income for redistribution to members within the community. Also the income derived from such an activity would enhance the councils standing in the eyes of its own community members. The capital base realized from its involvement in the area of road maintenance and construction would assist them in bettering their social conditions locally. Access to an independent revenue would better or create new medical, educational, and other social services in communities where the central government has as yet been unable to provide them.

If given the opportunity, there is reason to believe that these local institutions will actively participate and effectively contribute to the role of road maintenance and reconstruction. Likewise, such institutions, as in the case of indigenous enterprises minimize the administration and management responsibilities that would ordinarily be assumed by the Ministry of Public Works. The Community Councils have proven their capability in this area over the years in projects conducted with the use of PL-480 food provided thru HACHO, CARE, CRS and CWS. Most recently, the penetration road to Jacmel offers a good example.

Women:

There are certain significant implications for the traditional peasants economy that are envisaged as a result of this project. Some 22% of the gainfully employed women (compared to only 2% of the men) were engaged in some form of trade in 1970. The number of women in trade increased from 53,000 in 1950 (6½% of the gainfully employed women) to 169,000 in 1970. The increase of women in commerce over the past 20 years, accompanied by a decrease in women employed in agriculture from 82% to 60% of the total (an absolute decline from 684,000 to 454,000 at a time when the population was increasing) suggests that trade provided both economic and social functions.* Techniques of women-managed marketing will be somewhat altered. While women to a large extent are largely in control of the rural marketing, the system has demanded a substitution of labor for capital. Commodities have been sold in very small units, i.e. kerosene by tiny bottle and matches by the stick, because consumers were willing to make extra trips to market at higher unit prices in order to avoid tying up scarce capital in a subsistence economy. With the increase in commerce projected because of these new roads, there will be a quantum jump in the amount of goods and income available. It is, therefore, possible that the increased availability of goods and income will make a proportionate increase in the amount of sales and earnings for the average women engaged in marketing.

* Over 100,000 women left the labor force altogether. The number of men gainfully employed rose by 56,000, but the number of men employed in agriculture remained unchanged at 775,000.

Better transportation will provide women in the adult rural community with increased mobility for better health, educational and other services. For goods not marketed locally, feeder roads will provide access to cash economy markets for agricultural and possible cottage industry products. Better transportation will encourage more parents in Haiti's matriarchal society to send their children, particularly girls, to the better educational schools in the Capital. As in many societies education is considered by most Haitians to be the principal tool for social mobility. The profitability of small gardens primarily tended to by women will be increased since in the absence of roads they only planted that amount that would ordinarily be consumed by the family. With the availability of new markets, there appears to be motivation for the women to cultivate more than the subsistent needs of the family. To the extent that community councils will be engaged in the administration of intensive labor undertakings male and female office holders will be afforded development and leadership potentials.

2. Social Impediments:

a. Urban Migration:

Rural urban migration is considered to be a primary problem with statistical population projections for Port-au-Prince-hitting shocking proportions by the 1990's. This should not be considered an impediment, however, to the initiation of this road project. The projections are already so high that it is hardly imaginable that they could be accelerated to any further degree by the betterment or rehabilitation of a bad but existent road network. Rural migration in Haiti has been accelerated in pace to a near maximum level by the extremely "subsistent level" of the farmer, and the relative ease with which he can patiently conserve, over extended periods of time, sufficient capital with which to initiate his travel away from his indigenous area into the capital city. Little or no cash is expended for day-to-day existence, and any and all income derived for any goods or services marketed can be conserved indefinitely. Conversely, the new road facilities and ease of transport that will evolve within the context of the national and feeder road improvement may create a greater outward migration of people and capital from Port-au-Prince to the rural urban as well as agricultural areas. With Port-au-Prince's population already in the neighbourhood of 600,000, the link up of rural areas

with secondary cities will create ancillary development centers to relieve the pressure from the capital. At present these centers, secondary cities, are non-existent in the strict sense. The largest cities in Haiti outside of Port-au-Prince are still less than 10-30,000 people maximum. These secondary cities are focal points for development in their radius of influence. Because of the long absence of road communications, their development has been hindered.

b. Land Tenure

Accurate knowledge of the agricultural situation is precluded by the form of landholding. Few farmers possess clear titles to land, and holdings are frequently sold or divided on the death of the farmer. There are over 616,000 properties, each of which may include several scattered plots, on which three different crops may be grown at various times of the year.

TABLE 19

DISTRIBUTION OF AGRICULTURAL PROPERTY */

<u>Farm Size</u> (has.)	<u>No. of Properties</u>	<u>% Total No.</u>	<u>Total Area</u> (has.)	<u>% Total Area</u>	<u>Cumulative %</u>
0.0-0.9	361,900	59	184,800	21	21
1.0-1.99	141,930	23	211,900	25	46
2.0-2.99	53,600	9	137,400	16	62
3.0-3.99	27,400	4	96,800	11	73
4.0-4.99	8,500	1	38,800	5	78
5.0 - +	23,400	4	193,800	22	100
TOTAL.	616,700	100	863,500	100	

*1/ Source: IICA, Documents 05 LM/73, table 1-2

71 percent of the farms are less than 5.0 hectares in area.

The willingness of peasants to risk investments in new techniques has been influenced by the security of their tenure in land. While one census report indicated that 85% of the cultivation were land "owners", the remainder were classified as settlers of state lands, renters, share croppers, or cultivators of unknown tenure. However, in few instances among those categorized as "owners", could individuals produce documents attesting to registered title to land. Accordingly, it is not unexpected that improved feeder roads to remote agricultural areas will encounter some uncertainty in this area. The new value attached to land made accessible by roads in this project may serve to provide motivation for better land tenure policy by the Government. While the problem is foreseen, it is not considered appropriate to attempt to influence policy in this area with this loan.

3. Role of Women in Project Implementation:

The nature of the project, i.e., road reconstruction of an already established road network, and the implementing agencies and contractors, does not provide an immediate or easy vehicle to encourage or promote the participation of women in the planning and execution of the project. TPTC and the private contractors are male-dominated institutions; however, community council action will involve women in leadership positions, and to the extent that Community Councils will participate, efforts will be made to encourage leadership roles for women.

D. ECONOMIC ANALYSIS

1. Economic Overview of the Road Transport Sector

Roads are the predominant transport mode in Haiti. They constitute some 88 percent of the gross domestic product attributable to transportation. In 1972, of 45.6 million gourdes value stemming from transportation, 39.9 million gourdes were generated by road transport. The nature of the economy, the configuration of the land, and the terrain suggest that this paramount position will continue. Table 20 indicates this modal relationship.

2. Transport Modes

a) Vehicles

(i) General

The growth in the economy that has taken place in the past few years is reflected in the rise in vehicle imports that has taken place. The number of passenger cars imported increased between 1973 and 1974, reflecting the continuing growth of the middle class with access to consumer credit. Mid-year statistics show that the number of imported commercial vehicles declined slightly, due entirely to a drop in the number of station wagons imported. As Table 21 indicates, in the first half of 1975 imports show a sharp rise in commercial vehicles and an equally sharp drop in the number of passenger cars imported as compared to the previous year.

Table 21 shows the number of vehicles in circulation at the end of each calendar year, from 1970 to 1974. Current vehicle composition is roughly one-third commercial and two-thirds private passenger cars.

Road transport is still virtually unregulated in Haiti, but there are import restrictions on source, value, weight and dimensions of new vehicles. Because of the near absence of regulation, trucks and buses are free to operate; their tariffs are set by bargaining and as a result, tariffs are generally competitive. As regards vehicle weight and dimensions, recommendations based on standards of the American Association of State Highway Officials were made in a UNDP study in 1971-1973.

TABLE 20

Transportation Sector Modal Development
(1966-1972)
(Values in 1955 Gdes. 000's) 1/

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>%</u>
Transportation Total	29 709	34 864	40 282	39 321	36 626	42 172	45 589	100
<u>Roads</u>	25 678	30 491	36 302	34 096	32 119	36 814	39 933	88
Taxis, Publiques	8 069	10 924	16 278	16 335	13 449	13 094	14 578	
Large Trucks	13 235	14 166	15 999	15 184	15 452	18 906	19 966	
Small Trucks	3 696	4 629	2 439	2 132	2 366	4 293	4 556	
Bus	678	772	586	445	852	521	833	
<u>Rail</u> <u>2/</u>	1 999	2 235	2 713	2 776	2 445	2 736	2 745	6
<u>Maritime</u>	1 490	1 607	1 724	1 840	1 464	1 808	1 857	4
<u>Air</u>	542	531	543	609	598	814	1 054	2
International	240	317	831	418	416	526	640	
Domestic	302	214	162	191	182	288	414	
Passengers	249	158	112	1600	147	336	324	
Freight	53	56	50	31	35	52	89	

1/ IHS, Guide Economique, Table XIV-2-06

2/ National Railway Company (Freight)

TABLE 21

VEHICLES IN CIRCULATION AT END OF CALENDAR YEAR (1970-1974)

	1970		1971		1972		1974	
	Total	%	Total	%	Total	%	Total	%
Passenger	10601	76	10321	69	11490	70	11746	66
Commercial	(3328)	(24)	(4565)	(31)	(4975)	(30)	(5938)	(34)
Jeep	1030	7	1378	9	1528	9	1456	9
Pick-up	864	6	1568	11	1664	10	2613	15
Truck	1213	9	1484	10	1567	10	1656	9
Bus	221	2	135	1	216	1	213	1
TOTAL	13,929	100	14,886	100	16,465	100	17,684	100

1/ Source: FADH, excludes hearses, ambulances and motorcycles

VEHICLES IMPORTS 2/
(1973-1975)

	1973			1974			1975
	1st Half	2nd Half	Total	1st Half	2nd Half	Total	1st Half
Passenger Cars	481 3/	576	1057	1124	995	2119	653
Commercial	(550)	(438)	(988)	(352)	(561)	(913)	(801)
Jeeps	62	125	187	121	142	263	135
Station Wagons	301	138	439	81	101	182	149
Pick-Ups	42	13	55	31	49	80	115
Trucks	139	156	295	104	262	366	354
Buses	6	6	12	15	7	22	48
	1581	1014	2045	1476	1556	3032	1454

2/ Source: Thezan & Sassine Co., Port-au-Prince

3/ Data not available for January, 1973

Vehicles must be inspected regularly and must carry third party liability insurance. Judging from official accident statistics, inspection is lenient and insurance rates high. Approximately one vehicle in four is involved in a reported accident every year.

Accident reduction is included among the benefits attributed to the improvement of feeder roads in this project.

(ii) Commercial Vehicles

Little information is available on the road industry from other than official sources. Much of it is concentrated in Port-au-Prince in the form of taxis, small buses and large buses which provide the capital with a much more efficient public transportation system than is enjoyed by many major world cities. The number of trucks and buses engaged in long distance transport is much smaller - probably no more than several hundred. Access to the industry is typically obtained by investing funds obtained from the sale of land. Public transport is a highly speculative but also potentially remunerative occupation.

For the most part, the owner-driver prevails as the form of ownership, but some individuals have amassed small truck fleets. Long distance haulers often have regular clients and carry out their own maintenance and repairs. They employ family members as co-drivers, freight movers and conductors. A recent survey showed that of 131 trucks 89 individuals owned one, 27 owned two, 11 owned 3, and one each owned four, five, six and seven respectively.

All commercial vehicles are imported, with most bus bodies being made locally. Purchase terms, financed by vehicle dealers, are 33% downpayment, with the balance paid over 24 months, including interest.

Trucks transporting agricultural commodities are usually either 10 tons or 7 tons in capacity. The larger size trucks operate over long distances on the major trunklines, by the North and South Roads - while seven-ton trucks serve as local collectors and distributors over shorter distances on the feeder road network. Berger consultants estimated that a 50 per cent payload was usual for the smaller trucks.

The road improvement programs currently underway will encourage entry into the field and the competitive nature of the industry should keep prices from rising. In other words, under Haitian conditions the cost of road improvement is likely to be passed on to the consumer, since the carriers will benefit from lower operating costs. With the expansion in road transport implied by the highway investment program, the Government will have to play a greater role in regulating the industry than has been necessary or advisable in the past.

(iii) Passenger Cars

While passenger vehicles represent about two-thirds of the total vehicle fleet they operate largely in the environs of cities and towns and do not constitute a proportionate part of traffic on the feeder road network, where trucks predominate. As roads are improved and economic growth continues more passenger vehicles will be seen on the feeder roads. By 1975, there were over 11,700 passenger vehicles in circulation in Haiti, constituting 66 per cent of all vehicles in the country.

(iv) Human and Animal Transport

Currently, about 277,000 metric tons of merchandise are annually carried to market by people or animals. This economic activity has been virtually unstudied in the past.

The prevalence of this form of transportation is due not only to the poor state of roads, which results in high freight charges, but to other economic, demographic and social factors as well. Because population centers are often very small, goods are produced in small quantities, and nearby markets are open only one or two days a week. The increase in women in commerce over the past two decades, accompanied by a decrease in women employed in agriculture from 82% to 60% of the total (an absolute decline from 684,000 to 454,000 at a time when the population was increasing) suggests that trade provides both economic and social benefits.

The women engaged in trade often transport their own commodities. At one extreme, the case is cited of women who headload up to 60 pounds on each market day. The average is probably much lower, but there are many women who spend most of their time carrying goods from one market to another, from Port-au-Prince to a village. These women walk, or load, their merchandise on public transport. A recent survey noted that no less than 29%

of the goods entering Cap Haitien were carried on the human head.

The same survey found that 14% of the goods were carried by animals.

There were an estimated 444,000 horses, mules and donkeys in Haiti in 1970, as indicated in Table 22

TABLE 22 1/
Transport Animals - 1970

	<u>Horses</u>	<u>Mules</u>	<u>Donkeys</u>	<u>Total</u>
North	59,474	1,737	27,822	89,033
Northwest	11,957	5,056	16,631	33,644
Artibonite	36,333	8,993	26,312	71,638
West	71,580	28,131	72,439	172,150
South	38,789	32,238	21,250	92,277
Total	218,133	76,155	164,454	444,742

1/ Source: IHS, Enquete Socio-Economique 1970, Table V-1

In 1975 about 277,000 tons of merchandise were carried to market by head-loads or animal transport. Table 23 indicates the nature and respective tonnages of commodities moved by this mode. While human and animal transport on the average presently represent 14.5 per cent of total tonnage carried by 1991 the amount is expected to decline both absolutely and relatively, to 8.5 per cent by 1991. Table illustrates this projection.

The use of humans and animals in transport will remain attractive as long as there is severe underemployment in both rural and urban areas.

Human and animal transport probably plays a complementary rather than a competitive role with vehicle transportation. As the marginal product of agricultural workers increases, a further conversion to bus and truck transport of agricultural commodities is expected.

It is also likely that the network of roads which will be improved during the next few years will serve as collecting points for off-the-road trails and will encourage more agricultural activity in the hinterland.

TABLE 23
COMMODITY TONNAGES MOVED BY HUMAN & ANIMAL TRANSPORT^{1/}
 (1975-1991)

	1975 (MT)	1981 (MT)	1991 (MT)
<u>Agricultural Commodities Transported</u>			
1. Sugar Cane & Derivatives	15,000	25,000	25,000
2. Sisal & Derivatives	-	-	-
3. Staple Food Crops	200,000	220,000	180,000
4. Firewood & Charcoal	36,000	40,000	25,000
5. Rice	4,000	5,000	6,000
6. Meat ^{2/}	11,000	5,000	7,000
7. Coffee	11,000	11,000	16,000
8. Cacao	-	-	-
9. Cotton Fiber	-	-	-
10. Garden Vegetables	-	-	-
Sub Total	277,000	306,000	259,000
<u>Non-Agricultural Commodities Transported</u>			
	-	Insignificant	-
Total This Mode	277,000	306,000	259,000
<u>Total Agricultural and Non-Agricultural Commodities Transported, All Modes</u>			
	1,909	2,264	3,050
Human and Animal Transport As a % of Total Transport	14.5%	13.5%	8.5%

^{1/} Defined as goods which at no stage of transportation are carried by vehicle except those carried by market women on public transport.

^{2/} Does not include meat driven on foot to urban markets for slaughter.

Methods of agricultural marketing in Haiti are described in Annex III. Exhibit A.

(v) Coastal Shipping

As a supplement to feeder road construction coastal shipping improvements were considered in the national transport survey conducted by the Berger International consultants. The consultants found that over \$1.0 million in port improvements and \$0.5 million for 10 motorboats were warranted investments with an attractive rate of return. It is reported that IBRD is interested in funding these improvements.

There are 605 vessels registered in coastal shipping: 26 motorboats, with an average of 123 tons and 579 sailboats with an average of 25 tons which play a modest but useful role in the Haitian economy. In 1972 they carried 23,859 passengers, 29,000 tons of charcoal, 33,000 tons of sisal, 4,000 tons of coffee, 9,000 head of cattle and varying tonnages of other products. About 83 percent service Port-au-Prince. Most boats are individually owned.

Though coastal shipping is appropriate for bulky low value commodities such as firewood, charcoal and salt, the volume of this traffic has been declining at a rate in excess of 3 percent per annum over the past 20 years. See Table 24. This trade is principally from ports along the northern shore of the southern peninsula to Port-au-Prince, and from Port-au-Prince along the southern shore of the northern peninsula.

The nature of commodities moved is indicated in Table 25, while Table 26 shows the composition of the coastal shipping fleet. In the absence of physical improvements, coastal traffic continues, because the lack of roads and the poor condition of the existing road network do not permit economical road traffic into certain coastal areas. The low level of individual income in the country fosters the use of cheap, slow sailboats with no need for motor fuel, lubricant purchases, or engine maintenance. Further, these boats are well adapted to the low levels of port infrastructure.

The highway construction program will not present significant competition to coastal shipping within the next five years. It may be presumed that coastal shipping will continue to play a continuing though minor role in the economy.

(vi) Railways

There is no public railroad in Haiti. The only functioning railway

MAGNITUDE OF COASTAL SHIP TRAFFICIN HAITIAN HARBORS OPEN TOFOREIGN TRADE

(1952 - 1970)

YEAR	INBOUND SAILINGS	OUTBOUND SAILINGS	TOTAL
1952	15,779	16,400	32,179
1953	17,605	17,849	35,454
1954	16,695	17,300	33,995
1955	15,607	15,779	31,386
1956	14,758	14,646	29,404
1957	11,637	12,375	24,012
1958	10,402	10,852	21,254
1959	8,129	8,636	16,765
1960	7,370	7,867	15,237
1961	7,880	8,604	16,484
1962	9,218	9,529	18,747
1963	8,219	8,674	16,893
1964	7,707	8,119	15,826
1965	7,812	7,787	15,599
1966	6,502	6,610	13,112
1967	7,302	7,261	14,563
1968	6,939	6,852	13,791
1969	8,101	7,912	16,013
1970	5,865	5,916	11,781

Source: General Administration of Customs

COMMODITIES MOVED INCOASTAL SHIPPING

(M T)

	<u>1972</u>	<u>1973</u>	<u>1974</u>
Charcoal	29,786	24,586	9,207
Firewood			
Sisal	33,591	14,137	4,580
Coffee	4,453	3,027	3,279
Cacao	1,703	964	1,456
Cattle (Head)	9,304	2,129	5,531
Corn and Castor Beans	N/A	N/A	N/A
Salt	N/A	N/A	N/A
Lumber	N/A	N/A	N/A
Wax	N/A	N/A	N/A
Honey	N/A	N/A	N/A
Cowhides and Goatskins	N/A	N/A	N/A

Source:

Unpublished data of Administration Portuaire

TABLE 2.6
VESSELS ENGAGED IN COASTAL SHIPPING, OCTOBER,
1974

		Port-au-Prince Registry	Provincial Serve	Registry Serve	Average Tonnage
			Port-au- Prince	Other H/Ports	
<u>Motor Boats</u>	26	14	4	8	123
<u>Sail</u>	579	323	188	68	525
60 Tons +	10	3	7	-	67
46-60	41	7	25	9	51
31-45	137	48	71	18	39
16-30	236	140	73	23	22
1-15	155	125	12	18	12
TOTAL	605	337	192	76	

Source: Service des Douanes

is a narrow-gauged, single-track line extending from Leogane to Manneville, a distance of 82 kms.

Owned by the Haitian-American Sugar Company, it is in poor condition but is still used for the shipment of cane to a refinery in Port-au-Prince.

3. Assumptions and Methodology for Appraising the Technical and Economic Feasibility of Feeder Road Link Improvements

(i) General

A total of 3434 km of road segments constituting the national road network were physically surveyed in 0.1 km increments by the Berger consultants. Out of this came an inventory of roads and bridges throughout the country with detailed information on the present design, dimensions, subbase and surface conditions of each road. See Exhibit C, Annex II, which illustrates a typical road survey report. For purposes of their analysis the Berger consultants assumed that restoration of all road links to their respective 1960 design standards would be adequate. Consequently the technical improvements proposed by Berger reflected relatively modest improvement standards averaging less than \$1,500 per km in cost. However, with this level of improvement the feeder roads would not be restored to satisfactory all weather standards.

A ranking of the roads was made by Berger in the order of expected rate of return on investment. The IBRD expressed an interest in funding the engineering studies for the paving of 6 of these roads. A further group of 3 feeder road sections in the Southern Peninsula were selected by IDB for improvement.

Netting out the road links in which IBRD and IDB had expressed an interest, there remained a substantial catalog of roads attractive for investment, by Berger standards. But in view that road standards proposed by Berger were not all-weather nor were proposed road widths at least 4.0 meters, it was necessary to supplement Berger road improvement costs with additional input costs reflecting the higher quality of feeder road design proposed by AID. Accordingly, improvement costs were adjusted upward for road links on the "shopping list" for which initial IRR's were 10 percent or over. Concurrently, the user cost savings estimated by Berger for each road link reflecting restoration to 1960 standards were increased to encompass the additional user cost

savings commensurate with raising the roads to all-weather standards with a gravel surface.

To facilitate the detailed appraisal of an extensive list of roads a computer program which would perform, for each road link, a comprehensive benefit/cost analysis, was designed.

Assumptions and algorithms upon which the analysis was based are given in Annex III, Exhibit C.

4. The Computer Model

The intensive review was characterized by an innovative approach to field analysis of economic and technical feasibility of the proposed road links. A portable computer terminal was brought to Haiti and connected to the INFONET computer network in the U.S. via international telephone. A computer program was developed previous to the final visit to Haiti by the AID/W Project Team and the road links were analyzed in Haiti. To our knowledge, this represented a technological innovation with regard to Haiti, which presently does not have access to computer services. Recognition is due Mr. Michael Demetre, Chief, Economic Analysis Division, LA/DR, for this valuable and innovative work. The computer analysis is fully described in Annex III, Exhibit D.

5. Conclusion

The above analysis, which indicates an average benefit/cost ratio of 1.91 on the road reconstruction element, demonstrates that improvement of the 52 candidate road links to the all weather standards specified, is both technically and economically feasible. It will generate substantial economic and social benefits accruing to the rural sector.

PART IV - PROGRAM IMPLEMENTATION

A. IMPLEMENTATION

1. Schedule of Major Events

Annex II, Exhibit Q is an Execution Schedule for the project showing in graphic form the major actions to be taken, with their timing. The plan is as follows:

a. During the latter part of March 1976 the Project Paper will be reviewed by the DAEC and, hopefully, approved. This FY 76 project should be authorized in the Third Quarter, or by March 31, 1976.

b. Immediately upon project authorization, a Project Agreement will be issued against the grant funds to cover the cost of three months each of consultants in equipment procurement, equipment leasing operations and highway design and contracting. These services will be obtained under an AID/W Indefinite Quantity Contract.

c. It is planned that the loan/grant agreement will be prepared and negotiated during April 1976 and signed during May. The GOH, with the assistance of the IQC consultants, should be working during this period on the following aspects of the program:

- (1) Legally establishing the Equipment Leasing Service.
- (2) Staffing the ATS and Construction Service sections through transfer of their present personnel and recruitment where necessary.
- (3) Initiating field survey work required for the design of the first 20 kilometer section of road to be done by contract.
- (4) Preparing bidding documents for the first contract work.
- (5) Selecting the items of equipment most urgently required by the TPTC Construction Brigades and Leasing Service and preparing specifications and IFB documents.
- (6) Establishing a special bank account for the project and depositing the initial GOH contribution. A request should also be made

to AID for an advance of \$100,000 of loan funds as provided for in the agreement.

- (7) Procuring necessary local materials, spare parts, etc. required to expand work of the TPTC Construction Brigades, with GOH funds.

d. As soon as the loan/grant agreements are signed (May 1976) USAID will assist in preparing an announcement for the Commerce Business Daily advising interested engineering firms to provide qualification data to TPTC for furnishing consulting services. TPTC will establish a committee to evaluate the responses and select about four firms from which to request technical proposals.

e. In July 1976 the IFB should be issued for the first group of equipment, followed closely by the issuance of the IFB for construction of the first 20 kilometers of road by local contract.

f. By September 1, 1976 the GOH should have met the conditions precedent to disbursement of loan funds, and start procuring local materials for the Construction Brigades with loan funds. Contracts for procurement of the first increment of equipment then can be signed, as well as the contract for construction of the first 20 kilometers of road.

g. Also by September 1, a consulting firm should have been selected, with negotiations and signing of the contract taking place during September-October. Mobilization of the consulting team should take place during November-December, 1976.

h. Staffing of the Leasing Service is scheduled to take place during the period September-December, 1976, with training of staff to start with the arrival of the advisors in December. The advisors will work with the Leasing Service until December, 1977, with some short term follow-up visits during 1978. This Service should be self-sufficient by October 1978.

i. The first orders of equipment should arrive during the period November 1976 - November 1977.

j. By December 1976 the advisory team should be in Haiti and assistance will be provided to various sections of TPTC, i.e., management level (Minister and Chief Engineer), Design and

Contract Section (ATS), Construction Services, the TPTC Construction Brigades and Department Engineers.

TPTC design staff will have continued to prepare designs and IFB documents for contract work during the period June-December 1976 and with the advisors' arrival, this work will intensify. Collection of field data, design and preparation of contract packages will be stepped-up, with a target of at least one project each month ready for IFB.

k. Preparation of the IFB for the remaining equipment and materials and spare parts will also take place during the first half of 1977, with IFB's and contract awards following at four or five month intervals and all contracts awarded by December 1977. Delivery of equipment should take place from November 1977 through December 1978.

l. Construction of the first 20 kilometers of road by contract is scheduled to be accomplished during the period December 1976 to December 1977. Additional contracts should be awarded as IFB's are issued, with construction of other sections starting about May 1977 and continuing through the end of the program, or May 1981.

m. Administrative and accounting staffs of ATS, Construction Services and Department Engineer will receive training from advisors in 1977 and 1978, during which period personnel systems will be established and the TPTC organization will be staffed, administrative procedures developed and cost accounting systems implemented.

n. About March 1977 the advisors for the labor-intensive pilot project will arrive and during a nine month period conduct their program.

o. By the time the AID project is over in May 1981, the two TPTC Construction Brigades should have developed a capacity to reconstruct an average of five kilometers of road per month, for a total of 620 kilometers, and private contractors should have reconstructed a total of 320 kilometers.

2. Disbursement Procedures

The use of the Exact-Cost-Reimbursement method (FAR) was investigated; however, while the cost estimates used are based upon the best information available, they still represent best estimates only. Furthermore, the GOH is already providing 33 percent of total program costs, 75 percent of operating costs and materials for Force Account work, and 50 percent of the contract work cost. AID's annual contribution to the program will be a fixed amount. Accordingly, the strict use of FAR whereby AID's contribution to each road link would be fixed in advance, was viewed as partially met by the above procedure. Furthermore, TPTC capacity to exactly fix road reconstruction costs per road link is still not fully established. The extensive technical assistance to be provided by the project will, in large measure, aim at instilling such capacity over the life of the program. Therefore, the use of FAR is not recommended for this program at this time. Instead, the procedures to be used are as outlined below:

Funds for disbursements of local costs related to the Agricultural Feeder Road Program will be drawn from a special Road Improvement Revolving Fund to be established in the "Banque Nationale de la Republique d'Haiti" (BNRH) for the Ministry of Public Works. As shown in the Financial Plan, the GOH will contribute approximately \$3.75 million to the Fund and AID will allocate approximately \$1.8 million of loan funds. The actual amount of AID contribution to the Fund will be the residual amount of the total \$5.0 million loan less the direct dollar costs of 941 country equipment and material procurement.

Table 1 (Part III, A, 1) provides current estimates of scheduled project expenditures. AID disbursements to the fund will approximate the annual amounts shown for AID contribution to "materials", "operating costs", "pilot project", and "Contract Work". AID will transfer local currency to the fund account only when the request for disbursement is accompanied by evidence that the GOH has previously deposited its indicated share in the account.

Timing of AID disbursements to the fund will be based upon quarterly estimates. The Minister, or his designee, responsible for reviewing project payment requests and approving disbursement from the fund, will prepare a schedule of aggregate fund disbursement requirements over three month periods. (Such estimates will be compiled from construction chronograms and disbursement schedules included in the engineering plans and construction contracts for

approved sub-projects). AID will advance local currency to the fund account in an amount equal to its share of the estimated fund disbursements during the first three months. Thereafter, the Minister of Public Works or his designee will prepare a report to AID upon completion of each three month disbursement period. The report will reconcile advances and expenditures during the period covered and will re-estimate disbursement needs for the next three month period. AID will advance the fund a net amount based on the previous three month estimate, less actual disbursements, plus estimated disbursement requirements for the subsequent three months.

The consolidated GOH quarterly report will be sent to the USAID Mission/Haiti. The Mission in turn will instruct the U.S. Treasury to send a US\$ check for local currency to the designated GOH agency, the BNRH.

The proposed method of disbursement has the following merits:

- a. It provides for prompt payment to contractors for approved work without processing delay, while at the same time minimizing the amount of funds advanced by AID.
- b. Funds can be disbursed as fast as, but not faster than, a need for them is demonstrated.
- c. The three-month disbursement estimates and subsequent reconciliation to actual needs provides a ready indicator of progress in meeting implementation goals.

Other Loan Costs

U.S. Dollar disbursements under the loan will be under the Letter of Commitment procedure. The GOH will, from time to time, request AID to issue Letters of Commitment for specified amounts to a United States bank, which will commit AID to reimburse such bank for payments made by them for dollar costs of goods and services provided for the project to suppliers through the use of Letters of Credit. Banking charges incurred in connection with the Letters of Commitment and Letters of Credit may be charged to the loan.

Grant - Technical Assistance

AID will finance technical assistance under the Agricultural Feeder Road Project from grant funds. After the selection and approval of a U. S. engineering firm to furnish the technical assistance under the project the GOH will request AID to issue a Letter of Commitment to a U.S. bank for the dollar amount of the contract. Upon issuance of the Letter of Commitment the GOH will further request that a Letter of Credit be issued to the U. S. bank, so designated by the contractor, for the dollar amount of the contract. Instructions to the U.S. bank holding the Letter of Credit should provide for a Mobilization Payment, with monthly draw-downs supported by Government of Haiti approval and certification that the work has been performed satisfactorily and should be paid for. Procedure will be detailed in the Project Agreement. Reimbursement of local currency costs involved in the technical assistance contract will be made by AID on a monthly basis on the presentation of the consultant's invoice with appropriate supporting documentation, duly certified by the GOH that the work has been performed satisfactorily and should be paid for.

3. Procurement Procedures

a. General Application

Dollar cost equipment, materials and services will be purchased under the general guidelines contained in AID Handbook 11, Country Contracting.

Local currency procurement will be for goods and services readily available in Haiti such as cement, reinforcing steel, form lumber, and other miscellaneous off-the-shelf construction items.

4. USAID Monitoring Requirements

The USAID Mission is staffed with two U.S. and one Haitian engineer. Under the direction of the Mission Director or his designee, the Engineering staff will manage the project for AID and provide day-to-day monitoring of project implementation.

The USAID Mission to Haiti has recently been converted to full Mission status; however, staffing of a Capital Development Office has not yet been accomplished. Accordingly, it is recommended that the present delegation of authority under Loan Agreements, whereby AID's authorized representative is the Associate Assistant Administrator, Development Resources, remain in effect for major implementation actions under the loan portion of this program. A change in this authority should be accomplished for the entire portfolio when USAID staffing for Capital Development is complete.

The grant portion of the program will be under the authority of the Mission Director, or his designee.

5. Reports

AID will require the GOH to provide monthly progress reports, annual reports of program accomplishments, audits of program expenditures each year, and a final report on program completion.

Reports on disbursements, deposit of GOH funds and requirements for use of loan funds to meet local currency needs must be provided as outlined in Part IV, A, 2.

B. EVALUATION

Evaluation and project monitoring will be conducted on continuing basis by the USAID/Haiti Engineering Office in liaison with the Program Office. The first annual review will commence 12 months from the day of the signing of this loan agreement. The mid-term review and audit will be conducted in the third year as this is projected to be a five year program.

The initial review of the project will focus primarily on the implementation phases for the start up of the project. This will involve recommendations and actions to be assigned in the event that conditions precedent have not been met, or that other pre-conditions for the project may need to be settled. To the extent that physical construction will have been undertaken in the first year, the engineering inspection and/or PERT chart revisions, etc. will be undertaken. Close attention in this project will be paid, however, to the need to keep from exceeding specifications; e.g., of four meter widths so that a maximum number of feeder road kilometers can be built.

This initial phase of the review will also assist in providing recommendations and actions necessary to initiate the pilot project. An active review of guidelines for indigenous entrepreneurs contracting and subcontracting will need to be looked at in detail, as well as the consultants' capability and suitability to initiate the pilot project for intensive labor. The first year will have been largely devoted to the organization of manpower, materials, and such things as bidding required to undertake the project.

The end of the second year of project implementation will afford the earliest opportunity for broad evaluation of project objectives in social and economic terms of achievement. Those verifiable indicators and means of verification as outlined in the project design summary will provide the basic framework for evaluation. However, as noted elsewhere, base line data is scarce in Haiti in all sectors of the economy. The only reliable base line data for existing traffic/freight levels over the roads covered in this project have been taken from the recent Louis Berger study and it has been tabulated within a context of this Project Paper. Outside of this data, little other measurement indicators data are available. Accordingly in the initial 12 months of the project implementation phase, time ordinarily devoted to evaluation, per se, will be devoted to the collection of further base line data

upon which the impact in progress of this project may be evaluated at a later date. A simple form which will be utilized in the gathering of this field data is attached as Annex III, Exhibit B. Field data will be gathered on these forms and tabulated to establish base line information relevant to the following areas:

Employment

- Number unskilled vs. skilled workers on average kilometers under construction in both labor-intensive and non labor-intensive segments of this project.
- Wage and net income effect on laborer and family.

Technology

- Extent to which hand tools used on roads are utilized for other purposes, such as farming.
- Extent to which new tools in technology introduced with road construction (hand tools) have been adopted for use on the farm.
- Disposition and final depository of tools and equipment initially used for road construction.

Standard of Living

- Extent to which new, different, and better foods are introduced into rural areas.
- Extent to which employment/marketing generated by roads increases nutritional level.

Production

- Average farm size
- Average hectarage devoted to various crops
- Percentage for consumption by farm family, percentage for animal consumption, percentage available for commercial sale.

Transport Costs

- Extent to which vehicle road use has increased.
- Increase, decrease vehicle registration in small rural communities.
- Change in cost of transport per unit of agricultural produce.
- Average count of trucks, small buses, and other modes of transport per day inclusive of animal transport.

Marketing

- Conversions of headloads to trucks.
- Increase, decrease, creation of new collection points for agricultural produce along roads.
- Change in demand for market space in city and rural markets.
- Number, kinds and total value of new and old crops.
- Conversion to higher value crops.
- Crops expanded in production; incremental tonnages.
- Relationship of rural market prices before and after road improvement.

Accessibility of Social, Educational, Health Services

- Number of visits of agricultural extension workers.
- Number of teachers assigned to rural areas.
- Number of doctors, other medical personnel, or access of supplies to rural areas.
- Number of other social services available.

The base line data outlined above will need to be collected in and around selected areas where the feeder roads are to be constructed. Individual areas will be selected to provide a sampling of the overall

effect. However, outside the given project activity, similar roads will be selected to obtain unprejudiced controlled data. This will afford a comparative study as to what would normally be the expectation if the feeder road project had not been undertaken.

This base line data will be collected from the outset of the project with the assistance of local contract personnel qualified in this type of data collection. This phase of data collection will be initiated within six months from the initiation of the project and completed within the first year.

The second phase of data collection will commence immediately prior to the evaluation that will be conducted in the second year of project implementation. In each succeeding year the annual review will evaluate the success and progress of the project in light of the sampling base line data on hand and in view of the revised information that will be compared and revised from year to year.

It is envisaged that outside evaluators, a contractor team, will assist in this evaluation and will be provided grant funding from AID's ongoing program.

C. CONDITIONS, COVENANTS, AND NEGOTIATING STATUS

1. Conditions

Previous international loans to Haiti from AID, IBRD and IDB have all established policy, procedural, and financial conditions prior to their execution. The net effect has been that major changes in TPTC and the transport sector over the past several years have taken place. For example:

a. AID loan 521-L-005 established a separate, semi-autonomous maintenance agency.

b. IBRD loan negotiations have resulted in a National Transport Study; establishment of a transport sector planning unit; instituted regular highway counts and origin/destination surveys; and agreement to adopt, no later than December 31, 1976, regulations and take measures to ensure that limits for dimensions and axle loads of vehicles will not exceed those consistent with structural and geometric design of roads, and install weighing scales not later than June 30, 1978.

c. IDB has negotiated a \$2.0 million a year transfer from the proceeds of the tax on bauxite for a period of five years to the National Counterpart Fund.

Accordingly, and in view of the relatively high GOH counterpart requirement to the loan (37%), conditions and covenants contained herein will relate primarily to the needs of the project as described.

In addition to the normal AID conditions and covenants, AID will include the following conditions and covenants in the Loan Agreement:

a. Conditions Precedent to Initial Disbursement

Prior to the issuance of any commitment document under the loan, TPTC will provide evidence that TPTC:

- (1) Has appointed a full-time project manager for the Agriculture Feeder Roads Program;
- (2) Has established a separate account in the BNRH for deposit of both AID and GOH resources.

b. Conditions Precedent to Disbursement for Road Reconstruction in Excess of \$100,000

Prior to the issuance of any commitment document under the loan in excess of \$100,000, TPTC will provide evidence:

- (1) That it has instituted cost accounting procedures and records satisfactory to AID,
- (2) That it has established and issued guidelines to TPTC construction brigades for construction standards which are satisfactory to AID.

c. Conditions Precedent to Disbursement for Equipment Leasing

Prior to issuance of any commitment document under the loan, TPTC will provide evidence:

- (1) That a Leasing Service has been legally established;
- (2) That formal procedures have been initiated to procure private management services to administer the operation.

d. Conditions Precedent to Disbursement for the Labor Intensive Pilot Project

Prior to issuance of any commitment document under the loan, TPTC will provide AID with a proposed list of roads to be included in the pilot project, and a time schedule for implementation. In addition, the GOH will be requested to covenant the following:

- (1) TPTC will assign qualified engineers, managers, technicians and operators, as well as other support as necessary, to the TPTC construction brigades in an amount appropriate to the increasing work load.
- (2) To carry out an evaluation of the Equipment Leasing Service within two years of its initiation, to determine its degree of effectiveness and possibilities of continued self-sufficiency, with a view towards developing recommendations as to the necessity of continuing an annual borrower subsidy for operating costs if required.

- (3) TPTC will take such necessary action as required to ensure that road maintenance will be provided to the roads reconstructed under the program.
- (4) Unless AID agrees otherwise in writing, TPTC will ensure that at least two fully equipped TPTC construction brigades, as well as any contract road work done under the program, will for the period of disbursement of the loan give first priority to reconstruction of those roads which have been established as candidate roads in the Project Paper.

No special conditions or covenants will be required prior to the issuance of any commitment document under the grant portion of the program.

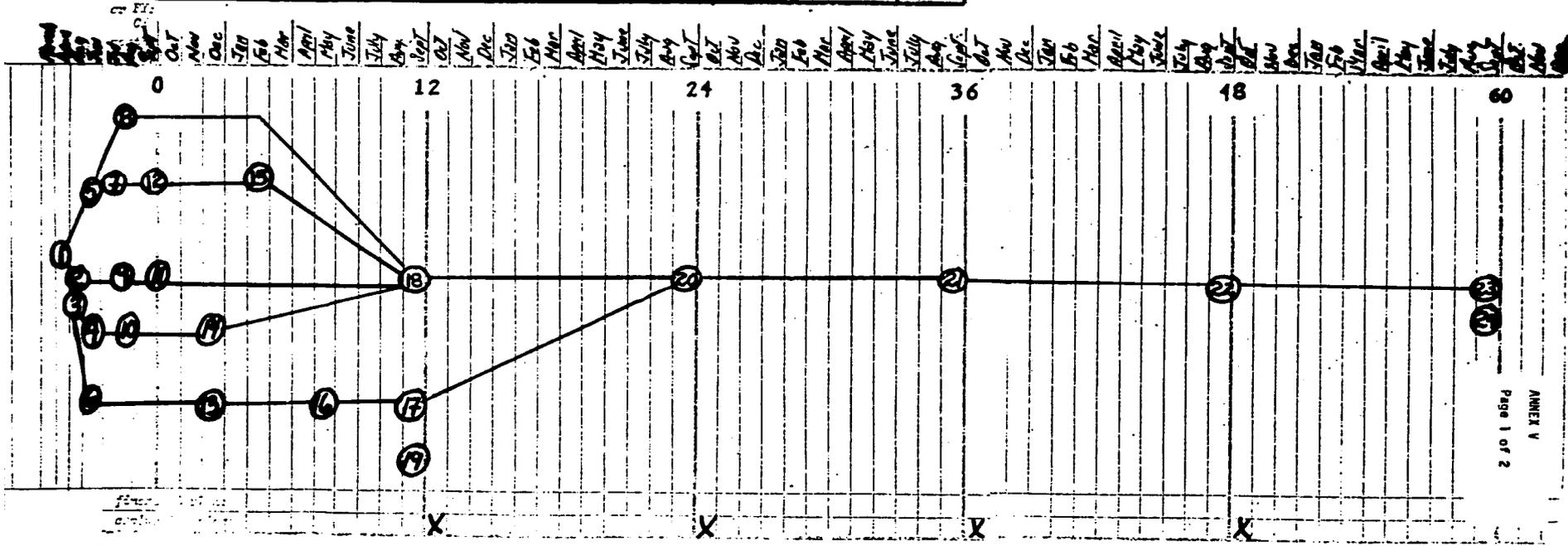
2. Negotiating Status

The program was reviewed by and discussed with the Minister of Transport and the Minister of Finance and Economic Affairs. Attached as Annex I, Exhibit D is a Loan Application Letter from the Ministry of Finance. The PP reflects the understandings and agreements reached during this discussion. No problems are foreseen in negotiating a Loan Agreement.

Discussions with TPTC have established that AID will begin disbursing grant funds immediately after signature of the Loan Authorization in order to facilitate early arrival of short-term consultants necessary to begin implementation of the program. As planned, a Project Agreement for \$100,000 will be signed and IQC contractors sought immediately after Loan Authorization.

AID has also tentatively agreed to provide up to \$100,000 for road reconstruction activities upon meeting of initial legal conditions precedent, the establishment of a separate BNRH account, and the appointment of a full-time project manager. A review of TPTC cost and accounting procedures indicates that present methods are adequate to ensure proper use of these funds.

country: Haiti	project no: 52-T-007	project title: AGRICULTURE FEEDER ROADS	date: 3/76	<input checked="" type="checkbox"/> original <input type="checkbox"/> revision	PET appr: 9/76
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PROJECT PERFORMANCE NETWORK

country:	project no:	project title:	date:	/ X/ original	approved:
Haiti	521-T-007	Agriculture Feeder Roads	3/76	/ / revision #	

CPI NARRATIVE

<u>CPI</u>	<u>DATE</u>
1. Loan Authorized by AID/W	March 1976
2. \$100,000 ProAg signed by GOH	April
3. IQC Consultants Arrive	April
4. GOH establishes Leasing Service	May
5. GOH signs Loan/Grant Agreements	May
6. IFB's finished for first year equipment	June
7. Advertise for TA Consultant	June
8. Engineering design for first private contractor road link completed.	July
9. GOH meets initial CPs for disburs.	August
10. Leasing Service staffing starts	August
11. First Disbursement for road reconstruction.	Sept.
12. Sign Consultant Contract	Sept.
13. Equipment arrives	Dec.
14. Leasing Operations begin	Dec.
15. Pilot Project begins	Feb. 1977
16. IFB finished for second year equipment	June
17. Delivery of second year equipment	Sept.
18. Completion of 90 km.	Sept.
19. Mid-Project audit	Sept.
20. Completion of 250 km.	Sept. 1978
21. Completion of 470 km.	Sept. 1979
22. Completion of 710 km.	Sept. 1980
23. Completion of 940 km.	Sept. 1981
24. Loan Completion	Sept. 1981

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

Life of Project:
From FY 1976 to FY 1980
Total U. S. Funding 7,400,000
Date Prepared: March 1976

Project Title & Number: Agricultural Feeder Roads 521-T-007

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																										
<p>Program or Sector Goal: The broader objective to which this project contributes: To improve the standard of living, and economic and social integration of the rural poor, by stimulating rural employment and small farmer agricultural productivity.</p>	<p>Measures of Goal Achievement:</p> <ol style="list-style-type: none"> 1) Income increases of small farmers in affected areas by 20 per cent after two years of access. 2) Increase in rural employment, including temporary employment as a result of sub-project construction by approximately one million work days. 	<ol style="list-style-type: none"> 1) Increases in total tonnage of agricultural production shipped from affected area, as measured by IHPCADE and Ministry of Agriculture. 2) Sales of fertilizer by private suppliers and IHPCADE. 3) BCA statistics on rural credit. 4) Employment records of TPTC. 	<p>Assumptions for achieving goal targets:</p> <ol style="list-style-type: none"> 1) Natural calamities do not occur. 2) Prices to small farmers remain favorable to producers. 3) Massive rural-urban migration does not occur and rural labor available when needed. 4) GOH pursues consistent agricultural development strategy. 																																										
<p>Project Purpose: To provide all-weather access by small farmers to commercial markets for their agricultural surplus, facilitate delivery of agricultural inputs, and extend essential social services through improvement of the land transportation network in agricultural areas.</p> <p>Sub-Project Purpose: To increase TPTC and private contractor capability to upgrade rural roads.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> 1) Reduction ton/km cost from \$0.15 to \$0.07 for average cargo transportation (50% load factor). 2) Increase of sales and transport of perishable foods such as vegetables, fruits, plaintain, & bananas will increase 25% over 1975. 3) TPTC capable of reconstructing 150 km. per year. 4) Private contractors capable of reconstructing 100 km. per year. 	<ol style="list-style-type: none"> 1) Survey of local truckers. 2) Records of MOH Marketing Information Service. 3) TPTC records. 4) TPTC records. 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1) Complementary AID and other donor programs to increase agricultural productivity remain on schedule. 2) Internal tax on movement of goods will not be reinstated. 3) Truck fleet will increase at 8% per year. 4) Road maintenance program remains effective. 																																										
<p>Outputs:</p> <ol style="list-style-type: none"> 1) Reconstruction of 940 km. of agricultural feeder roads in rural areas. 2) Establishment of an equipment leasing pool. 3) Pilot project on labor-intensive road reconstruction/maintenance. 4) Institutional capacity of TPTC to plan, organize, and execute feeder road program improved. 	<p>Magnitude of Outputs:</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Year 1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>1) KM</td> <td>90</td> <td>140</td> <td>220</td> <td>240</td> <td>250</td> </tr> <tr> <td>2) Pool equipment rented an average of 1,080 hours per year.</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3) Up to 120 km. of roads improved using varying techniques of labor intensive methods.</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4) Road design packages prepared for 24 road sections.</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Year 1	2	3	4	5	1) KM	90	140	220	240	250	2) Pool equipment rented an average of 1,080 hours per year.						3) Up to 120 km. of roads improved using varying techniques of labor intensive methods.						4) Road design packages prepared for 24 road sections.						<ol style="list-style-type: none"> 1) TPTC records. 2) Leasing operation records. 3) Results of pilot project. 4) TPTC records. 	<p>Assumptions for achieving outputs:</p> <ol style="list-style-type: none"> 1) Berger recommendations on TPTC reorganization given full consideration and, where appropriate, adopted. 2) Normal weather and absence of labor disputes. 												
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<p>Inputs:</p> <p>AID:</p> <ol style="list-style-type: none"> 1) 34% of local construction, materials, and operating costs. 2) Code 941 materials & equipment. 3) Engineering advisory services. <p>GOH:</p> <ol style="list-style-type: none"> 1) 66% of local construction, materials, and operating costs. 2) Administrative support. 3) Maintenance. 	<p>Implementation Target (Type and Quantity)</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>AID:</th> <th>Year 1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>1)</td> <td>300</td> <td>325</td> <td>400</td> <td>450</td> <td>625</td> </tr> <tr> <td>2)</td> <td>400</td> <td>1400</td> <td>600</td> <td>100</td> <td>100</td> </tr> <tr> <td>3)</td> <td>550</td> <td>800</td> <td>450</td> <td>400</td> <td>200</td> </tr> </tbody> </table> <p>GOH:</p> <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>1)</td> <td>420</td> <td>620</td> <td>650</td> <td>830</td> <td>930</td> </tr> <tr> <td>2)</td> <td colspan="5">Not quantified for program. Included as general overhead.</td> </tr> <tr> <td>3)</td> <td colspan="5">Not quantified for program.</td> </tr> </tbody> </table>	AID:	Year 1	2	3	4	5	1)	300	325	400	450	625	2)	400	1400	600	100	100	3)	550	800	450	400	200	1)	420	620	650	830	930	2)	Not quantified for program. Included as general overhead.					3)	Not quantified for program.					<ol style="list-style-type: none"> 1) AID Loan Records. 	<p>Assumptions for providing inputs:</p> <ol style="list-style-type: none"> 1/ Berger Assoc. estimate for 1975.
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**APPENDIX
TO
HAITI - AGRICULTURAL FEEDER ROADS PROJECT PAPER**

ANNEXES:

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* GOH Letter of Application (French).....	3 "
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* Published separately as appendix to Project Paper. On file in LA/DR, AID/W.

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CHECKLIST OF STATUTORY CRITERIA

(Alliance for Progress)

In the right-hand margin, for each item, write answer or, as appropriate, a summary of required discussion. As necessary, reference the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is further discussed. This form may be made a part of the Capital Assistance Paper.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

FAA, 1973 - Foreign Assistance Act of 1973.

App. - Foreign Assistance and Related Programs Appropriation Act, 1974.

MMA - Merchant Marine Act of 1936, as amended.

BASIC AUTHORITY

1. FAA § 103; § 104; § 105;
§ 106; § 107. Is loan being made

a. for agriculture, rural development or nutrition; Yes, Directly

b. for population planning or health; N/A

c. for education, public administration; or human resources development; N/A

d. to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development;

This loan will support the DAP strategy for Haiti and will open presently isolated agricultural areas by construction of a transportation ("feeder road") system with a tie into the national road system. This reconstruction program will stimulate agricultural production, facilitate marketing of agricultural products, provide access for government and private technical assistance and

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e. in support of the general economy of the recipient country or for development programs conducted by private or international organizations.

permit distribution of fertilizer & other physical inputs. An improved transportation network will increase small farmer income and permit transport of perishable and traditional produce to export distribution points which are not now accessible.

N/A

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. FAA § 208; §.252(b).

A. Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

Within its limited resources and with external assistance the GOH is providing extension and credit services to farmers and is undertaking research to improve production. The GOH has assigned a high priority to agricultural development.

The GOH has created a favorable investment climate by passing suitable legislation to provide incentives for foreign and domestic investment, has established a special office to facilitate investment, has ratified an investment guaranty agreement with the US and otherwise encourages and cooperates with private enterprise.

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(3) Increasing the public's role in the developmental process.

The GOH has an official community development program to encourage the formation of community councils, cooperatives, farmers associations, etc., and is actively engaged in community development projects.

(4) (a) Allocating available budgetary resources to development.

The GOH's development budget for 1975-76 is \$37.5 million. This is 114% larger than the amount allocated for 1974-75, which was 22% more than the preceding year. The GOH had agreed to provide \$73 million over a five year period (1974-79) for development purposes. The GOH is currently working on a new 1976-81 five year plan which is expected to be at a higher level than the previous five year plan.

(b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 11)

The budget for the Department of Interior and National Defense is the largest of the operating ministries. However, included in this total are legislative, national palace, administrative, police, fire protection and other non-military costs. There has been no intervention in affairs of other nations.

(5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.

The GOH has established its intent to undertake reforms in public administration and fiscal management. Through its Administrative Commission, the GOH took several steps in 1975 toward reform of the Haitian administrative system. The GOH is receiving or has requested assistance from external sources in these areas, and in the social areas. Haiti has a much more open society now than it had several years ago, as evidenced by the recent return of many citizens to the country. Its new investment laws encourage foreign and domestic investment.

(6) Adhering to the principles of the Act of Bogota and Charter of Punta del Este.

GOH performance in this regard is encouraging.

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(7) Attempting to repatriate capital invested in other countries by its own citizens.

(8) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

Due to the increased economic development in Haiti capital flight is not a problem at this time. With the return of many Haitians to the country after long absences, capital is also being returned. Increased domestic industrial development and prospects of increased foreign investment foster greater opportunities for its citizens.

The present regime has expressed on numerous occasions its concern for improving the welfare of the people and has taken various measures to this end.

B. Are above factors taken into account in the furnishing of the subject assistance?

Yes

Treatment of U.S. Citizens by Recipient Country

3. FAA § 620(a). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

There is no evidence that Haiti is so indebted.

4. FAA § 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

There is no evidence that the GOH has taken such actions. Several disputes between the GOH and US private companies are under discussion between the parties.

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5. FAA § 620(o); Fishermen's Protective Act, § 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,
- Haiti has not taken any such action against U.S. fishing vessels.

a. has any deduction required by Fishermen's Protective Act been made? Not applicable.

b. has complete denial of assistance been considered by A.I.D. Administrator? Not applicable.

Relations with U.S. Government and Other Nations

6. FAA § 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba? No.

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7. FAA § 620(b). *If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?* The Secretary of State has determined that Haiti is not controlled by the international Communist movement.
8. FAA § 620(d). *If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan?* Not applicable.
9. FAA § 620(f). *Is recipient country a Communist country?* No
10. FAA § 620(i). *Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?* No
11. FAA § 620(j). *Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?* There have been no incidents of mob action in Haiti in recent years.

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13. FAA § 620(l). *If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. administration within the past year considered denying assistance to such government for this reason?* An investment guaranty agreement with Haiti is in effect.
14. FAA § 620(n). *Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam?* No
14. FAA § 620(q). *Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country?* Since rescheduling its debts with the U. S. in 1970, the GOH has been current in its payments.
15. FAA § 620(t). *Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?* No
16. FAA § 620(u). *What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget?* The U.N. treasurer informed the U.S. delegation to the U.N. on August 29, 1975 that Haiti had made payments which removed the possibility that the country might lose its vote in the General Assembly because of arrears in its contributions. Haiti is continuing its voting rights and is being granted continued U.N. assistance.

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17. FAA § 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?
- The GOH has cooperated with the U.S. with regard to international control of narcotics trafficking. Haiti has not been designated as a priority action country as regards narcotics. Haiti's new law regulating the use and control of narcotic drugs was signed on December 18, 1975 and provides stiffer penalties for the use and distribution of illegal drugs.
18. FAA, 1973 § 29. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?
- Not applicable.

Military Expenditures

19. FAA § 680(a). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)
- The total of the FY 75-76 operations and development budget is about \$81 million of which \$8.8 million, or about 10.9% of the total, is budgeted for the armed forces. No detailed breakdown is available but most of this sum is for administration. Sophisticated weapons are not being procured.

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CONDITIONS OF THE LOAN

General Soundness

20. FAA § 201(d). Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.

Terms are legal and reasonable under both U.S. and Haitian law.

21. FAA § 251(b)(2); § 251(e).

Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

The activity to be financed has been determined as economically and technically sound and the borrower has assured that the funds will be used in a sound manner. A letter of application has been received.

22. FAA § 251(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.

The prospects for loan repayment are considered good.

23. FAA § 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.

It has been determined that financing for this project is not available from other free world or U.S. public and private sources (e.g., IDB, IBRD, IDA, ExIm Bank).

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24. FAA § 811(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance?

Preliminary engineering, financial and other plans are included in the PP. The cost estimate of the project is considered sound.

25. FAA § 811(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of loan?

No legislative action is required to permit accomplishment of the loan. The establishment of a leasing operation will be accomplished by administrative decree and the GOH has agreed to issue such an order shortly after loan approval.

26. FAA § 811(e). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

The certification prescribed by this section is included as an annex in this PP.

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA § 207; § 251(a); § 113. Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs;

One purpose of the loan is to strengthen administrative and technical capabilities of the GOH (TPTC) and develop community councils working through TPTC. Self-help is a feature of this road construction program involving local communities in actual road construction, providing access to food producing areas. The project fosters labor intensive methods for the lowest social & income groups providing financial & technical assistance to the food producing communities. An important aspect of this program is manpower development by training & improving GOH's (TPTC) capacity to handle road improvement work & increase their ability to

AID 1240-2 (5-74)

(e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or
(f) integrating women into the recipient country's national economy.

maintain & repair them. Health and social benefits will be realized by improvement of a rural transportation network providing additional cash income to small farmers enabling them to improve their diets and medical services.

The newly constructed roads will also permit greater exposure & communications with agricultural communities & low income populations to trained GOH health, education, family planning & agriculture advisors circulating to isolated areas for improved economic & social development & better health standards. Women currently share a large portion & participate actively in the country's national economy especially in agricultural production & marketing of produce. Freer access to women in these isolated areas will permit training in new technologies (i.e., family planning, home economics and marketing).

No.

28. FAA § 209. Is project susceptible of execution as part of regional project? If so why is project not so executed?

29. FAA § 251(b)(3). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.

GOH has assigned highest priority to the agricultural and rural development fields and improvement of the nation's highway network to facilitate movement of agricultural products. This program supports both activities, will increase the principle export product and improve the country's balance of payments.

30. FAA § 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

The project will contribute to self-sustaining growth.

31. FAA § 209; § 251(b)(8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America.

Not applicable. The project will, however, contribute toward national integration within Haiti.

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32. FAA § 252(a); § 253. Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.
33. FAA § 252(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its annual review of national development activities.
34. FAA § 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.
35. FAA § 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

Formation of agricultural & credit cooperatives is one of the features of the Small Farmer Development Loan 521-T-006 and Irrigation Systems Program. The success of the coffee cooperatives, other agricultural community development & increased agricultural production is directly related to a tie in from some of the coffee centers, irrigation systems & other isolated crop producing areas to the national network. Access to designated agricultural priority areas & the small producing farmers will provide support to accomplishment of the overall plan including the cooperative development. The project is fully consistent with the findings and recommendations of the CAP and has been specifically endorsed by CIAP.

As a feature of the program the GOH will make a substantial cash contribution of approximately 35%. In addition, community participation in realizing improvements to rural roads is included with self-help emphasized. A major feature of the project is the use of labor intensive methods utilizing people organized from local communities in the construction areas.

More than 80% of Haiti's population is the rural population composed of the low-income small farmer group. Since these small farmers are involved in production for their own use with some sales to local markets for cash income, this loan will directly affect the income and well-being of this group. Through development of community councils, cooperatives, road improvement, training & technical assistance from this & related activities which are dependent on a unified road network, additional persons will also benefit. Institutional development & participation in governmental and political processes are logical second steps.

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86. FAA § 601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.
87. FAA § 619. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?

The primary goal of the loan is to assist the GOH in their efforts to improve agricultural production, increase the income and standard of living of the poor farm population, with an increased flow of resources to the rural sector. This will result in fostering private initiative and encourage development of community institutions, farmers' cooperatives and credit institutions (Small Farmer Development Loan). Access to isolated agricultural producing areas can reduce excessively high freight rates, stabilize fluctuating commodity prices & eliminate monopolistic tendencies of middlemen. The program will also give the small farmer a degree of independence for controlling his own destiny by having access to outside markets, stimulating increased competition, prices & production of foodstuffs. It should increase commerce by permitting transportation of perishable & seasonal produce to market centers & export locations.

Not applicable.

Loan's Effect on U.S. and A.I.D. Program

88. FAA § 251(b)(4); § 202. Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.
89. FAA § 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.

About \$3 million will be used to procure U.S. manufactured items; i.e., construction equipment, materials & tools. The remaining \$2.0 million would be used to pay operating costs of AID-financed equipment & road construction costs including salaries of local workers. U.S. technical assistance in engineering fields will be furnished to the project under grant funding. Therefore, the loan should have a positive effect on the U.S. economy.

All of the \$5.0 million loan and \$2.4 million grant will be used to purchase goods and services from private enterprise.

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40. FAA § 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

U.S. investors are expressing considerable interest in Haiti at the present time, particularly with regard to transformation industries. As a result of an improved transportation network, increases in production of traditional crops could stimulate development of locally based industries (ie, coffee). Access to producing areas will also increase private trade & improve the possibilities of an expanded export program.

41. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?

Included in the program are provisions for use of U.S. engineering advisors and professional services.

42. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.

As appropriate, provisions will be made for U.S. small business to participate equitably in the furnishing of goods and services financed by this loan to the maximum feasible extent.

43. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?

There is no Bloc aid to Haiti.

44. FAA § 621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on

Some 25 man years of U.S. technical assistance for this program will be provided under grant funding for the Rural Sector Development project & will be obtained from private enterprise. This assistance is programmed over a four year period for approximately \$2.4 million. It is anticipated that facilities of other Federal agencies will not be utilized.

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whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

Loan's Compliance with Specific Requirements

45. FAA § 110(a); § 208(e). Has the recipient country provided assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the Loan is to be made? Yes, the GOH will provide \$3.7 million toward the total project cost of \$8.7 million.
46. FAA § 112. Will loan be used to finance police training or related program in recipient country? No.
47. FAA § 114. Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions? No.
48. FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter? Yes.
49. FAA § 604(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President? Procurement will be from Haiti, the U.S. and AID Geographic Code 941 countries.
50. FAA § 604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price? Appropriate provisions will be included in the loan agreement to assure that commodities financed are procured at prices not in excess of the adjusted U.S. market price.

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51. FAA § 604(d). *If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?* Haiti does not discriminate against U.S. marine insurance companies.
52. FAA § 604(e). *If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?* Not applicable.
53. FAA § 604(f). *If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable?* Not applicable.
54. FAA § 608(a). *Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.* An appropriate provision will be included in the loan agreement relative to excess property.
55. FAA § 611(b); App. § 101. *If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?* Not applicable.

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56. FAA § 611(c). *If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?* Approximately 940 km of agriculture feeder roads will be constructed in remote areas of Haiti. About 65% of the construction services will be performed by TPTC. The remaining 35% will be procured from qualified local firms. Design of work packages to be done by contract will be done by TPTC and/or local engineering firms. Construction will be on a lump sum or unit cost plus fixed fee basis. Normal competitive bidding procedures will be required for this program.
57. FAA § 612(b); § 634(h). *Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.* The loan conditions require the GOH to contribute local currencies in the equivalent of \$3.7 million for specific features of the program. The U.S. does not own or control Haitian Gourdes which could be allocated to this project.
58. App. § 113. *Will any of loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in U.S. Treasury?* There is no excess Haitian currency on deposit in the U.S. Treasury.
59. FAA § 612(d). *Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?* The U.S. does not own excess Haitian currency.
60. FAA § 620(q). *What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?* Loan funds will be limited to use for procurement of specific goods and services related to this project.

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61. FAA § 630(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million? Not applicable.
62. FAA § 636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction? No, the loan agreement will restrict procurement of vehicles to U.S. origin.
63. App. § 103. Will any loan funds be used to pay pensions, etc., for military personnel? No.
64. App. § 105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms? Yes, loan agreement will require AID approvals.
65. App. § 107. Will any loan funds be used to pay UN assessments? No.
66. App. § 109. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7). Loan agreement will require this compliance.

AID 1840-3 (8-74)

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67. App. § 110. Will any of loan funds be used to carry out provisions of FAA §§ 809(d) and 851(h)? No.
68. App. § 114. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan. Program was originally included in the FY 75 Congressional Presentation as a \$5.0 million Rural Sector Loan. Standard procedures were followed to obtain Congressional approval of the project.
69. App. § 601. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by the Congress? No.
70. MMA § 901.b; FAA § 640C.
- (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. Appropriate provisions will be included in the loan agreement; however, except for containerized cargo ships, there does not currently exist regularly scheduled U.S. shipping to Haiti.
- (b) Will grant be made to loan recipient to pay all or any portion of such differential as may exist between U.S. and foreign-flag vessel rates? No.

**CERTIFICATION PURSUANT TO
Section 611(e) of the
FOREIGN ASSISTANCE ACT
As Amended**

I, Scott L. Behoteguy, the principal officer of the Agency for International Development in Haiti, do herewith certify that in my judgement, Haiti has both the financial capability and human resources to maintain and utilize effectively goods and services procured under the capital assistance project entitled the Agriculture Feeder Roads Loan.

This judgement is based upon the record of implementation of AID-financed projects in Haiti and the results of the consultations undertaken during intensive review of this new project.



Scott L. Behoteguy
Director, USAID/Haiti

March 11, 1976

Date

DRAFT LOAN AUTHORIZATION

Provided from: Alliance for Progress Funds
HAITI: Agriculture Feeder Roads

Pursuant to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan ("Loan") pursuant to Part I, Chapter 2, Title VI of said Act to the Government of Haiti ("Borrower") of not to exceed FIVE MILLION United States dollars (\$5,000,000) to assist in financing United States dollar and local currency costs to carry out a program of assistance to small farmers through agricultural feeder road construction ("Project"). The Loan shall be subject to the following terms and conditions:

I. Interest and Terms of Repayment

Borrower shall repay the Loan to AID in United States dollars within forty (40) years from the date of the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to AID in United States dollars on the disbursed balance of the Loan interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

II. Other Terms and Conditions

- A. Goods and services financed under the Loan shall have their origin in and be procured from countries included in Code 941 of the AID Geographic Code book as in effect at the time orders are placed for such goods and services.
- R. Conditions Precedent to Initial Disbursement. Prior to the issuance of any commitment document under the Loan, TPTC will provide evidence satisfactory to AID that TPTC: (i) has appointed a full-time project manager for the Agriculture Feeder Road Program; (ii) has established a separate amount in the BNRH for deposit of both AID and GOH resources.

- C. Conditions Precedent to Disbursement for Road Reconstruction In Excess of \$100,000. Prior to the issuance of any commitment document under the Loan in excess of \$100,000, TPTC will provide evidence satisfactory to AID:
- 1) that it has instituted cost accounting procedures and records satisfactory to AID.
 - 2) that it has established and issued guidelines to TPTC construction Brigades for construction standards which are satisfactory to AID.
- D. Conditions Precedents to Disbursement for Equipment Leasing. Prior to issuance of any commitment document under the Loan; TPTC will provide evidence satisfactory to AID that:
- 1) a Leasing Service has been legally established.
 - 2) formal procedures have been initiated to procure private management services to administer the operation.
- E. Conditions Precedent to Disbursement for The Labor Intensive Pilot Project. Prior to issuance of any commitment document under the Loan, TPTC will provide AID with a proposed list of roads to be included in the pilot project, and a time-schedule for implementation.
- F. Borrower shall covenant:
- 1) To assign qualified engineers, managers, technicians, and operators, as well as other support as necessary, to the TPTC construction brigades in an amount appropriate to the increasing work load.
 - 2) To carry out an evaluation of the Equipment Leasing Service within two years of its initiation, to determine its degree of effectiveness and possibilities of continued self-sufficiency, with a view towards developing recommendations as to the necessity of continuing an annual borrower subsidy for operating costs if required.

- 3) To take such necessary action as required to insure that road maintenance will be provided to the roads reconstructed under the program.
 - 4) Unless AID agrees otherwise in writing, Borrower will insure that at least two fully equipped TPTC construction brigades, as well as any contract work done under program, will for the period of disbursement of the Loan give first priority to reconstruction of those roads which have been established as candidate roads in the Project Paper.
- G. Such other terms and conditions as AID may seem advisable.

Deputy U.S. Coordinator
Alliance for Progress

Date:

TRANSLATION

**ANNEX I
Exhibit D
(Eng.)
Page 1 of 3**

REPUBLIC OF HAITI

SECRETARY OF STATE FOR FINANCE AND ECONOMIC AFFAIRS

Port-au-Prince, March 10, 1976

No. SEC - AID/61

**Mr. Scott L. Behoteguy
Director
USAID Mission to Haiti
Port-au-Prince, Haiti**

Dear Mr. Director:

The Government of Haiti, with the financial assistance of IBRD and IDB, is currently undertaking major construction work on its Northern and Southern Highways and with its own resources, has begun to expand its reconstruction activities to other parts of the national road network. As a result of conversations and correspondence between the Ministry of Public Works, Transportation and Communications (TPTC) and AID, and on the basis of analysis and recommendations of the recently completed National Transport Study, the Government of Haiti hereby requests the assistance of AID in the financing of a five-year Agricultural Feeder Road Program.

The program would include the reconstruction of approximately 940 km. of secondary roads throughout rural Haiti. Construction would be accomplished by the use of Government forces for approximately 620 km. and private Haitian contractors would do the remainder. As part of this program, the Government of Haiti is also interested in carrying out a pilot project on labor-intensive techniques to determine the most appropriate approach to maximizing the use of hand labor in road construction, up-grading, and maintenance.

As indicated above, it is the policy of the Government to strengthen and expand the Haitian public works contracting industry. The Government has determined that the creation of an equipment leasing operation, Government-owned but privately managed (the National Bank, for example), would provide the necessary conditions for Haitian contractors to meet the increasing demand for their services.

Present estimates indicate that the above activities, over a period of five years, will require external loan financing of \$5.0 million.

In addition, the Government of Haiti will need to expand its capacity to organize and manage such activities during the five-year period in order to continue such expansion in the future. This will require technical assistance in the amount of approximately \$2.4 million.

Accordingly, the Government requests the loan and grant assistance of AID in the following areas:

1. A loan of \$5.0 million to cover the costs for:
 - a. Procurement of equipment, materials, tools, spare parts, fuel and lubricants necessary to fully equip and support the two TPTC construction brigades presently working on sections of the national highway system;
 - b. Procurement of equipment, tools and spare parts for an equipment leasing pool;
 - c. Procurement of construction services with qualified Haitian firms for indicated portions of the program;
 - d. Procurement of road construction materials;
 - e. A pilot program to test alternative methods of labor intensive techniques;
2. A grant of \$2.4 million to cover the costs for:

Technical assistance to assist TPTC in the management, control, design, and supervision of the program and assure the maximum utilization and efficiency of the loan.

The Government of Haiti hereby undertakes to provide the Gourde equivalent of \$3.75 million over the five-year program. This will include a portion of the necessary materials and operating costs for the TPTC construction brigades, a portion of the contract construction work, initial management expenses of the equipment leasing pool, and engineering costs to design and supervise the contract work.

The Government also undertakes to provide the necessary maintenance for the roads to be included in the program and looks forward to the expansion of the Permanent National Highway Maintenance Service (SEPRRN) over the next five years to provide country-wide

maintenance to the national road network. Operating funds necessary to accomplish this expansion have been included in the SEPRRN 1975-1980 program and budget.

With the exception of the equipment leasing pool, which the Government of Haiti hereby agrees to legally establish within four months of the signing of the Loan Agreement, the institutional base for implementation is in place and adequate to begin the initial phase of the program. The Government has under consideration the recommendations of the National Transport Study on reorganization and will implement the agreed upon improvements, as appropriate, over the term of the loan.

The Government of Haiti requests prompt and favorable consideration by AID of this request as it represents a major element within the National Development Plan, and the program's early initiation will facilitate other important programs and activities in the transport sector.

Sincerely yours,

s/s

Emmanuel Bros
Secretary of State for Finance
and Economic Affairs

Executive Secretary of CONADEP



REPUBLIQUE D'HAÏTI

ANNEX I
Exhibit D
(French)

Page 1 of 3

**SECRETARERIE D'ETAT DES FINANCES
ET DES AFFAIRES ECONOMIQUES**

No.....SEC-AID/61.....

Port-au-Prince, le.....10 MARS 1976.....107.....

MR. SCOTT L. BEHOTEGUY
DIRECTEUR
USAID MISSION EN HAITI
PORT-AU-PRINCE.-

Monsieur le Directeur,

Le Gouvernement Haitien, avec l'assistance financière de la BIRD et de la BID est actuellement en train d'entreprendre un vaste travail de construction sur les autoroutes du Nord et du Sud et, à ses propres frais, a commencé à étendre ses activités de reconstruction sur le réseau des routes secondaires. Comme résultat des conversations et de la correspondance entre le Secrétaire d'Etat des Travaux Publics, Transports et Communications (TPTC) et l'AID, et sur la base des analyses et des recommandations du bureau d'Etudes pour le Transport National récemment achevées, le Gouvernement Haitien, par la présente, sollicite l'assistance de l'AID pour le financement d'un programme de cinq ans pour les routes secondaires.

Ce programme comprendrait la reconstruction d'approximativement 940 Kms de routes secondaires dans tout le territoire haitien. La construction serait réalisée en utilisant l'équipement et le personnel du Gouvernement pour approximativement 620 Kms et en faisant appel aux contracteurs privés haitiens pour le reste. Comme partie de ce programme, le Gouvernement Haitien est aussi intéressé dans la réalisation d'un Projet-pilote où les techniques de la main d'oeuvre intensive seraient employées pour déterminer le moyen le plus approprié d'utiliser au maximum la main d'oeuvre dans la construction, le reprofilage et l'entretien des routes.

Ainsi qu'il a été ci-dessus indiqué, la ligne de conduite du Gouvernement est de renforcer et d'étendre les firmes haïtiennes de construction. Le Gouvernement est persuadé que la mise en place d'une opération de location d'équipement, propriété du Gouvernement mais dirigé par le secteur privé (BNPH, par exemple), donneront aux Contracteurs haïtiens le moyen nécessaire pour faire face à la demande croissante de leurs services.

Les estimations actuelles indiquent que les activités mentionnées plus haut, couvrant une période de cinq ans, exigeront un prêt extérieur de financement de \$5.0 millions. De plus, le Gouvernement Haïtien aura besoin d'étendre la capacité d'organiser et de diriger de telles activités durant cette période de cinq ans en vue de continuer cette même extension à l'avenir. Ceci demandera une assistance technique de l'ordre de \$2.4 millions, approximativement.

En conséquence, le Gouvernement sollicite une assistance Prêt/Don de l'AID dans les domaines suivants:

- 1.- Un prêt de \$5.0 millions pour couvrir les dépenses à faire pour:
 - a) acquisition d'équipement, de matériel, d'outils, de pièces détachées, d'essence et de lubrifiants nécessaires pour équiper pleinement et pour faire fonctionner les deux brigades de construction des TPTC travaillant actuellement sur des sections du système de routes nationales;
 - b) acquisition d'équipement, d'outils et de pièces détachées pour un "pool" de location d'équipement;
 - c) acquisition de services de construction selon contrat avec des firmes haïtiennes qualifiées pour des parties spécifiées du programme;
 - d) acquisition de matériel de construction de routes;
 - e) un programme-pilote pour comparer les différentes méthodes de technique de main d'œuvre intensive.
- 2.- Un don de \$2.4 millions pour couvrir les dépenses à faire pour:
 - Assistance Technique pour aider les TPTC dans l'organisation, le contrôle, la préparation et la supervision du programme et aussi pour assurer une utilisation optimum et efficiente du Prêt.

Par la présente, le Gouvernement Haïtien s'engage à prévoir l'équivalent en gourdes de \$3.750 millions à répartir sur le programme de cinq ans. Cette valeur couvrira une partie du matériel nécessaire et des coûts d'opération des brigades de construction des TPTC, une partie des travaux de construction à effectuer

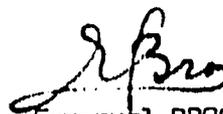
sous contrat et des dépenses initiales d'organisation du "pool" de location d'équipement et les frais pour la préparation des plans et la supervision des travaux sous contrat.

Le Gouvernement s'engage aussi à prévoir l'entretien nécessaire pour les routes à inclure dans le programme et compte sur l'expansion du SEPRAN pendant les cinq prochaines années pour assurer l'entretien du réseau de routes nationales à travers tout le pays. Les fonds nécessaires pour accomplir cette expansion ont été inclus dans le budget et le programme 1975-1980 du SEPRAN.

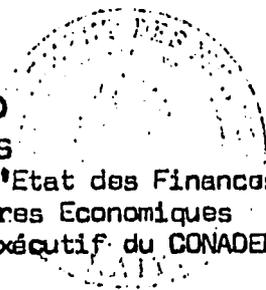
A l'exception du "pool" de location d'équipement, que le Gouvernement Haitien, par la présente, accepte d'établir légalement dans les quatre mois suivants la signature de ce contrat de Prêt, la base institutionnelle pour le développement est en place et permet le démarrage de la phase initiale du programme. Le Gouvernement prend en considération les recommandations du "National Transport Study" en ce qui concerne la réorganisation des TPTC et exécutera les améliorations comme il convient, dans la limite du Prêt.

Le Gouvernement Haitien sollicite une prompte et favorable considération de cette requête par l'AID car elle représente un élément majeur dans le Plan de Développement National. Le démarrage prochain de ce programme facilitera d'autres programmes importants et les activités dans le Secteur Rural.

Veuillez agréer, Monsieur le Directeur, mes meilleures salutations.



Emmanuel BROS
Secrétaire d'Etat des Finances
et des Affaires Economiques
Secrétaire Exécutif du CONADEP



DRAFT DESCRIPTION OF PROJECT
TO BE ANNEXED TO LOAN AGREEMENT

A. The Project

The Project will assist the Government of Haiti in carrying out a five-year Program to reconstruct approximately 940 km. of Agricultural Feeder Roads.

The program will be managed by the Secretariat of Public Works, Transportation and Communications (TPTC). The project is comprised of four major elements:

1. Reconstruction

Approximately 940 km. of rural roads will be reconstructed. Work will be accomplished by TPTC construction brigades (approximately 620 km) and private Haitian road contractors (320 km.). Road links to be reconstructed will be selected from a candidate road list identified in the Project Paper.

2. Equipment Leasing

The program will assist in the creation of an equipment leasing service for rental of equipment to private Haitian contractors. The Service will be a public entity, but will be privately managed. Leasing rates will be set at a level sufficient to cover all costs of operation, including depreciation and increased capitalization, after the first two years of operations.

3. Labor Intensive Pilot Project

During the first year of the program, a pilot project will be undertaken to explore various labor intensive methods of road maintenance/reconstruction. Approximately 200 km. of road will be involved.

4. Technical Assistance

Technical assistance will be provided TPTC over the period of the Loan to assist in carrying out the recommendations of The National Transport Study on reorganization, strengthen TPTC Force Account and contract work, establish the Equipment Leasing Service, and evaluate the results of the Labor Intensive Pilot Project.

B. Resources

The Loan will provide up to 5.0 million dollars for the purchase of equipment for the TPTC construction brigades and the Equipment Leasing Service, cover a portion of the costs for purchase of necessary road reconstruction materials, a portion of the operating costs for the Brigades, a portion of the expenses of private contract work, and 100% of the costs of the Labor Intensive Pilot Project. The Borrower will provide local currency in the equivalent of 3.750 million dollars to cover the remaining costs of necessary work reconstruction materials, a portion of Brigade operating costs, a portion of the expenses of private contract work and 100% of the costs of contract engineering and supervision, and two years' operations of the Leasing Service.

AID will also provide up to 2.4 million dollars for grant-funded technical assistance over the five-year period of the Loan.

The Borrower will, in addition to the above resources, provide all necessary administrative support for the project, including the costs of engineering and supervision of construction brigade road work.

C. Scheduling

The following table provides an approximate scheduling of resources to the program by AID and the Borrower. (Reference Table 1, Part III, A.1.f.)

GOVERNMENT OF HAITI/AID AGRICULTURAL FEEDER ROADS PROJECT - 1977/1987
CANDIDATE ROADS

LINK NO.	DESCRIPTION	DEPT.	KM	AVERAGE WEEKLY TRAFFIC			ADT 1986	ROAD STRATA CONDITIONS					PER CENT DISTRIBUTION			ROAD WIDTH		ESTIMATED COST (000)
				1975	1991	1986		G	E	R/S	O	1/ TOTAL	E	R/S	O	PRESENT	PROPOSED	
43	Gros Chaudiere - Peye	ART	10.2	125	529	396	57	-	10.2	-	-	10.2	100	-	-	5.4	4.0	37.4
118	Cayes-Camp Perrin	S	22.2	143	825	600	86	3.9	-	18.3	-	22.2	-	82	18	6.6	4.0	90.7
51	Pte Riviere Art.-Gs.Chaudiere	ART	3.9	125	529	396	57	-	-	3.9	-	3.9	-	100	-	6.8	4.0	16.4
6	Gros Morne-Bassin Bleu	ART/NW	22.2	138	765	559	80	-	5.1	17.1	-	22.2	23	77	-	5.9	4.0	93.2
229	Houck-Carrefour Joute	S	5.4	85	773	546	78	0.6	-	4.8	-	5.4	-	89	11	6.1	4.0	22.7
76	Mirebalais-Thomonde	W	37.8	95	789	560	80	37.8	-	-	-	37.8	-	-	100	9.5	4.0	127.2
85	Carrefour-Thomazeau	W	10.2	131	1239	874	125	-	2.1	7.2	0.9	10.2	21	71	8	6.0	6.0	59.4
100	Savanne Bourrique-Thiotte	W	33.9	129	729	531	76	-	2.2	31.7	-	33.9	6	94	-	3.5	4.0	152.6
217	Dini-Lascahobas	W	5.4	56	369	210	30	-	-	5.4	-	5.4	-	100	-	6.2	4.0	52.3
103	Thiotte-Nan Fougere	W	10.0	131	739	538	77	-	2.2	7.8	-	10.0	22	78	-	3.8	4.0	45.6
72	Rte 300-Cerca Carvajal	ART	11.7	*	*	-	-	-	5.1	6.6	-	11.7	44	56	-	3.6	4.0	82.5
78	Carrefour Fauche-Trouin	W	11.0	365	1812	1335	191	-	1.3	9.1	0.6	11.0	12	83	5	4.1	6.0	75.6
207	Jean Rabel-Morne Chretien	NW	8.1	37	137	-	-	-	7.9	0.2	-	8.1	98	2	-	4.1	4.0	38.3
109	Jacmel-Cayes Jacmel	W	15.9	141	1203	852	122	1.0	-	14.6	0.3	15.9	6	92	2	4.9	6.0	98.6
81	Fond Parisien-Savane Bourr.	W	21.6	123	699	509	73	-	3.1	18.5	-	21.6	14	86	-	4.3	4.0	125.1
230	Port Salut-Carrefour	S	12.0	66	507	362	52	-	2.7	9.3	-	12.0	22	78	-	6.0	4.0	72.5
5	Port de Paix-Bassin Bleu	NW	27.8	116	662	482	69	-	2.0	25.8	-	27.8	7	93	-	5.2	4.0	159.2

* No Traffic Count

1/ Code: G - Gravel; E - Earth; R/S - Rock/Stone; O - Other.

CANDIDATE ROADS
(Continued)

LINK NO.	DESCRIPTION	DEPT.	KM	AVERAGE WEEKLY TRAFFIC			ADT 1986	ROAD STRATA CONDITIONS ^{1/}					PER CENT DISTRIBUTION			ROAD WIDTH		ESTIMATED COST (000)
				1975	1991	1986		G	E	R/S	O	TOTAL	E	R/S	O	PRESENT	PROPOSED	
400	Belladere-Frontiere	W	4.5	9	48	35	5	-	-	4.5	-	4.5	-	100	-	3.5	4.0	8.9
183	Marmelade-Vieux Depot	ART/N	15.0	8	64	21	3	-	0.3	14.4	0.3	15.0	2	96	2	4.0	4.0	64.4
003-004	Port de Paix-Anse a Foleur	N/W	29.1	10	45	7	1	-	14.7	14.0	0.4	29.1	51	48	1	5.5/ 4.3	4.0	117.2
219	Nan Fougere-Belle Anse	W	17.9	20	106	49	7									3.7	4.0	92.6
116-	31-130-153 Carrefour Moussignac-Cotes de Fer	S	43.3	7	28	28	4	1.8	22.2	19.3	-	43.3	51	45	4	5.5/ 3.3	4.0	143.4
141-142	Pestel-Corail-Carrefour Charles	S	36.8	7	28		4	1.8	7.2	27.8	-	36.8	20	75	5	5.0/ #	4.0	114.6
150	Pestel-Beaumont	S	23.6	5	8	7	1	0.6	15.5	7.5	-	23.6	66	31	3	2.9	4.0	76.3
401	Barraderes-Pestel		20.0	(Penetration Road)												-	4.0	252.5
107	Trouin-Bainet	W	38.7	104	572	418	60	0.3	1.6	36.8	-	38.7	4	95	1	3.5	4.0	153.4
146	Pte Riviere de Nippes - Miragoane	S	16.0	40	162	122	18	-	12.8	2.9	0.3	16.0	80	18	2	4.0	4.0	61.6
149	Jeremie-Crochu	S	18.0	34	161	119	17	-	6.8	10.8	0.4	18.0	38	60	2	4.0	4.0	62.5
220	Cayes Jacmel-Marigot	W	8.2	81	741	523	75	0.3	0.3	7.6	-	8.2	4	92	4	3.1	4.0	48.4
18	Gde Riv. du Nord-Baron	N	17.3	54	281	206	30	1.8	15.2	0.3	-	17.3	88	2	10	5.3	4.0	69.9
12	Plaisance-Pilate	N	15.9	51	408		42	-	-	15.9	-	15.9	-	100	-	3.3	4.0	57.5
68	Nan Goave-Savanette	W	2.1	*	*		-	-	-	2.1	-	2.1	-	100	-	2.3	4.0	8.7
76	Mirebalais-Thomonde	W	37.8	95	789		113	-	18.9	17.4	1.5	37.8	50	46	4	9.5	6.0	127.2

*No Traffic Count

^{1/} Code: G - Gravel; E - Earth; R/S - Rock/Stone; O - Other.

CANDIDATE ROADS
(Continued)

LINK NO.	DESCRIPTION	DEPT.	KM	AVERAGE WEEKLY TRAFFIC			ADT 1986	ROAD STRATA CONDITIONS					1/ TOTAL	PER CENT DISTRIBUTION			ROAD WIDTH		ESTIMATED COST (000)
				1975	1991	1986		G	E	R/S	O	E		R/S	O	PRESENT	PROPOSED		
75	Thomonde - Hinche	ART	16.2	91	1199	834	119	0.6	8.1	7.5	-	16.2	50	46	4	7.3	6.0	99.0	
140	Roseaux - Jeremie	S	14.4	40	190	141	20	-	5.4	8.7	0.3	14.4	38	60	2	5.0	4.0	84.8	
79	Cx des Bouquets-Ganthier	W	18.0	423	2585	1871	268	5.1	-	2.7	10.2 ^{2/}	18.0	-	15	85	7.5	6.0	103.2	
145	Pte Riv.de Nippes-Anse a Veau	S	11.0	35	142	107	16	-	4.4	6.6	-	11.0	40	60	-	3.7	4.0	55.8	
80	Ganthier-Fond Parisien	W	11.1	157	905	658	94	5.7	-	0.3	5.1 ^{2/}	11.1	-	3	97	6.2	4.0	57.6	
10-11	Ca.Georges-Le Borgne	W	28.6	53	389	278	40	1.9	7.3	19.4	-	28.6	26	68	6	4.9	4.0	61.4	
139	Jeremie-Moron	S	20.7	43	129	101	15	1.5	4.8	14.4	-	20.7	23	70	7	5.8	4.0	96.1	
138	Moron-Dame Marie	S	25.6	25	75	59	9	0.3	-	25.3	-	25.6	-	99	1	4.4	4.0	91.6	
40	Ennery-St.Michel de l'Attalaye	ART	24.0	32	299	211	31	-	5.7	18.3	-	24.0	24	76	-	6.2	4.0	112.5	
143	Carrefour Charles-Car.Avocat	S	16.2	8	38	28	4	-	-	16.2	-	16.2	-	100	-	3.7	4.0	73.6	
234	Roseaux-Carrefour Charles	S	14.1	8	38	28	4	-	1.2	12.9	-	14.1	9	91	-	3.5	4.0	76.3	
27-28-29	Gde Riv. du Nord-Pignon	N	40.5	2	110	75	11	0.9	17.7	21.9	-	40.5	44	54	2	9.0	4.0	371.3	
66	Mirebalais-Dini	W	17.0	60	390	281	40	3.9	1.5	10.1	1.5 ^{2/}	17.0	9	59	32	5.8	4.0	82.8	
89	Fond Parisien-Frontiere	W	9.6	33	188	137	20	5.1	-	4.5	-	9.6	-	47	53	5.9	4.0	31.2	
110	Mariqot-Seguin	W	27.2	*	*	*	*	-	0.3	26.9	-	27.2	1	99	-	2.8	4.0	107.8	
67	Lascahobas-Belladere	W	33.4	9	48	35	5	6.0	0.3	26.2	0.9	33.4	1	78	21	5.7	4.0	141.3	
190	Belladere-Baptiste	W	21.0	*	*	*	*	-	0.3	20.7	-	21.0	1	99	-	3.2	4.0	117.4	
86	Thomazeau-Manneville	W	4.0	1	6	*	*	-	-	4.0	-	4.0	-	100	-	3.6	4.0	19.2	

*No Traffic Count

1/ Code: G - Gravel; E - Earth; R/S - Rock/Stone; O-Other.

2/ Bituminous surface.

REPUBLIQUE D'HAÏTI
PROJET PLANIFICATION DES TRANSPORTS

INVENTAIRE DES ROUTES
CARTE DES TRONÇONS

ECHILLE 1/750 000 DATE JUILLET 1975 REV SEPTEMBRE 1975

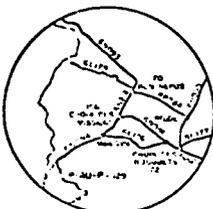
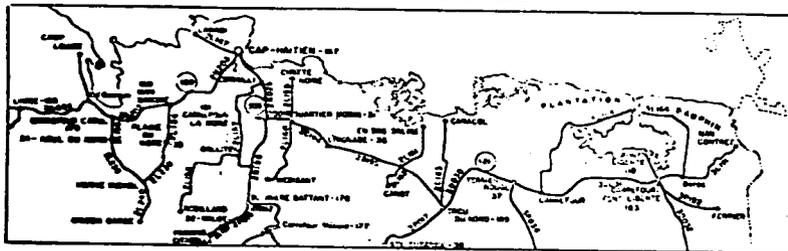
U.S. BEMER INT'L INC

LEGENDE

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- ROUTE 3^e DE TRONÇON
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- ROUTE 49^e DE TRONÇON
- ROUTE 50^e DE TRONÇON

AID AGRICULTURAL FEEDER ROAD LOAN
WORK BY TPTC BRIGADES
WORK BY CONTRACTORS

AGRANDISSEMENT
REGION CAP-HAÏTIEN
ECHILLE 1/750 000



AGRANDISSEMENT
REGION LES CAYES
ECHILLE 1/750 000

AGRANDISSEMENT
REGION DES MISSIONS
ECHILLE 1/750 000

AGRANDISSEMENT
REGION LES CAYES
ECHILLE 1/750 000

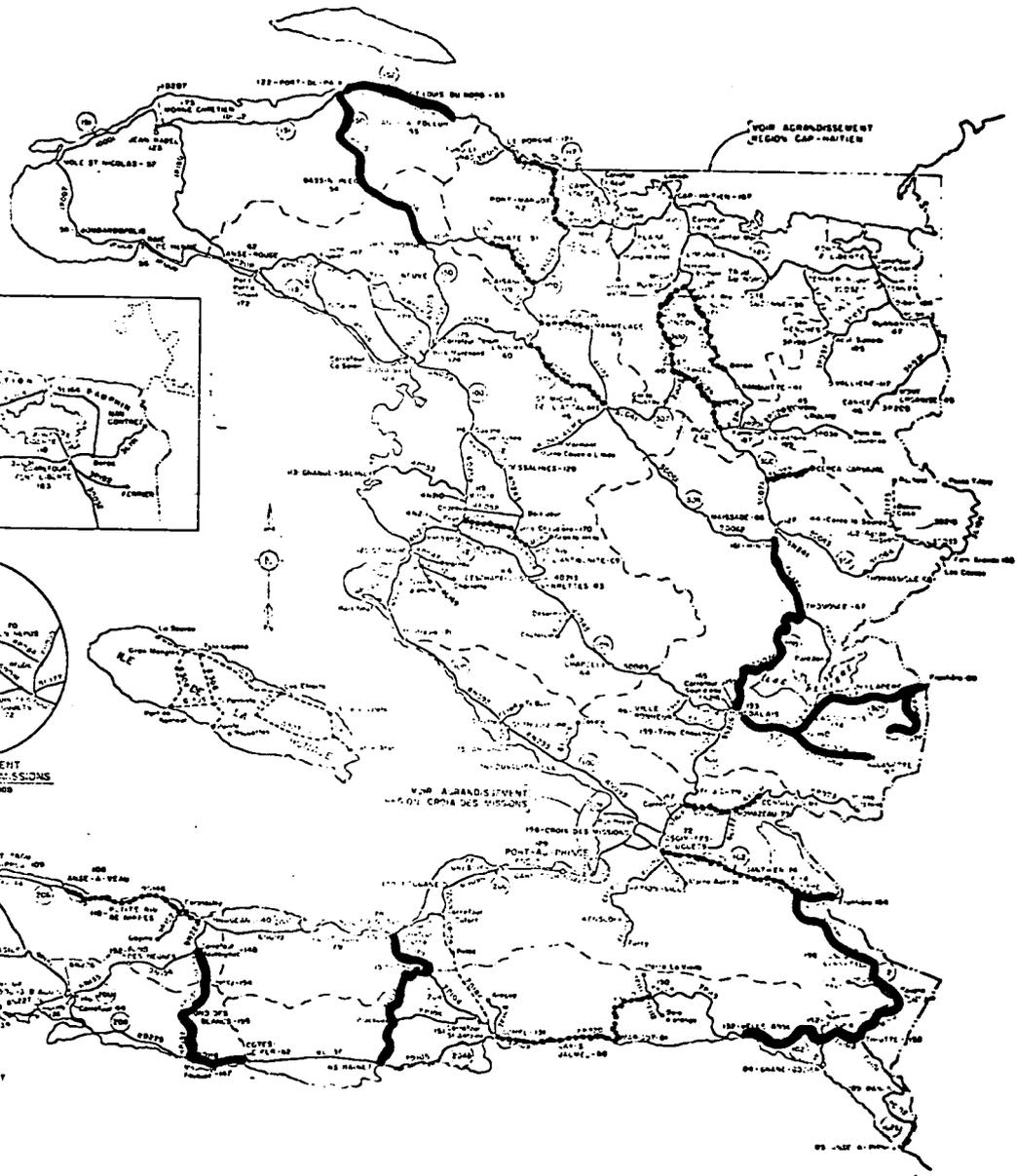
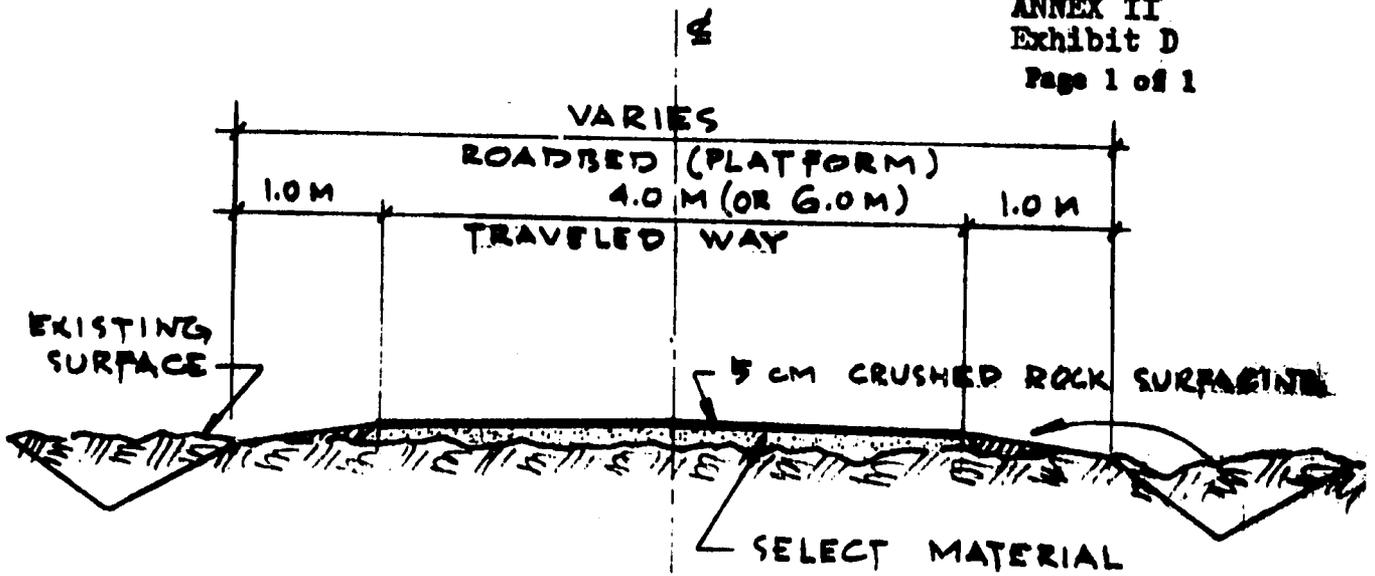


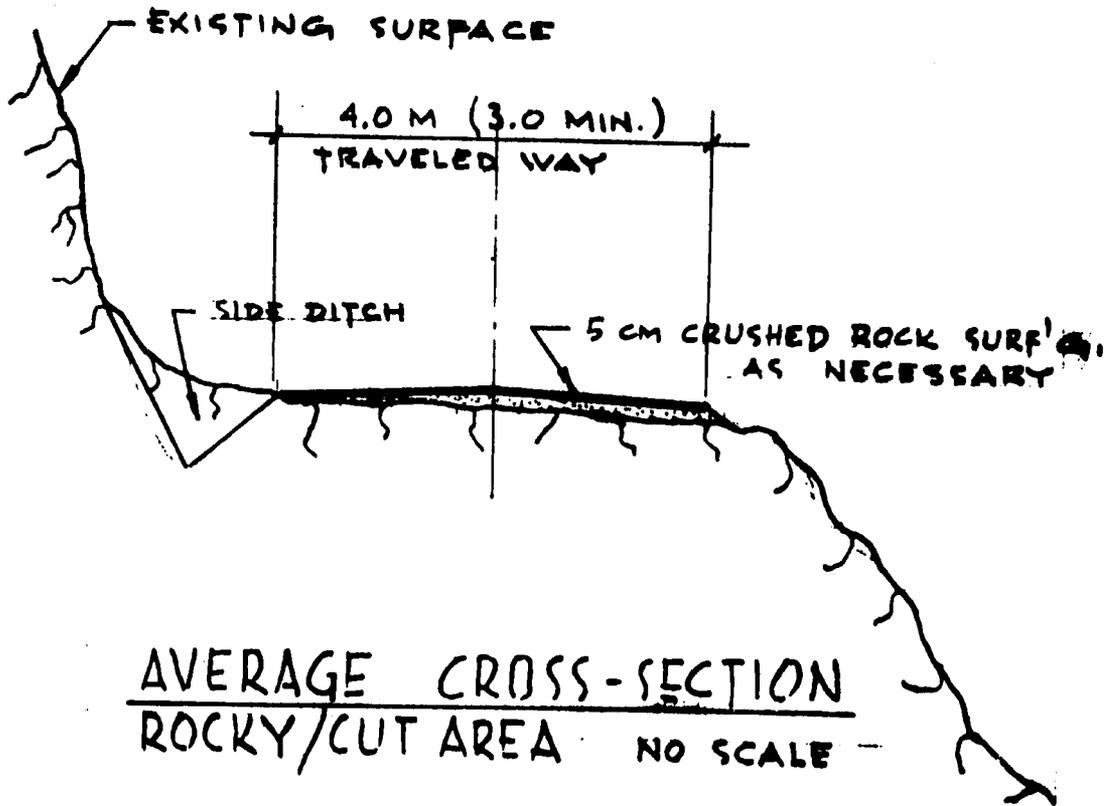
Illustration of Road Strata - Conditions on a Candidate Road

PROJET POUR Le Link No. 85 Carrefour - Thomazeau

LONGUEUR TOTALE DE CHAQUE TYPE DE SCULP EN KM																					
BEYON	SITUAL	TICHL	Gravel	Gravel	Stone	Stone	Earth	Earth	Rock	Rock	Other										
0.0	0.0	0.0	0.0	0.0	7.2	0.0	2.1	0.0	0.0	0.0	0.9										
L'ONGUEUR DE CHARGE TYPE DE TERRAIN EN KM						L'ONGUEUR DE CHARGE TYPE DE VEGETATION EN KM															
PLAT	YENE	ACCID	MIN	NSPEC	EN	MANC	CULT	FORET	DEVEL	HSPC											
10.2	0.0	0.0	0.0	0.0	2.7	0.0	9.0	0.0	0.0	1.2											
NOMBRE DE DEFORMATIONS UNIQUES				LONGUEUR DE DEFORMATIONS, KM																	
NIVEAU 1	NIVEAU 2	NIVEAU 3		NIVEAU 1	NIVEAU 2	NIVEAU 3															
0	1	0		0.113	1.579	5.451															
NOMBRE DE DEFATS UNIQUES				LONGUEUR DE DEFATS, KM			LONGUEUR NON-DEFORMEE DE DEFATS, KM														
NIVEAU 1	NIVEAU 2	NIVEAU 3		NIVEAU 1	NIVEAU 2	NIVEAU 3	NIVEAU 1	NIVEAU 2	NIVEAU 3												
0	0	0		0.0	3.233	5.714	0.0	1.729	0.150												
INDICE HORIZONTAL,		INDICE TERRAIN		INDICE "WIDE"		RATE OF RISE/FALL, M		PENDE MOY, POURC.													
95.9		107.9		0.8		65.2		0.2													
LARGEUR CHAUSSEE, M			LARGEUR PATEFORME, M			LONGUEUR FOSSE, M															
0.0			6.0			0.															
TRAFFIC																					
VOITURE		BUS		CAMION/BUS		CANION			DEFL			COURT			COURBES			LONG			EPING
0		0		4		0			7			20 45 80			20 45 80			20 45 80			0
									29 41 6			2 12 1			0 0 0			0			
CONDITION PARTICULIERE																					
POSTE DE POLICE		CHEMIN DE FER		ROND POINT		ENTREE GD VILLE		SORTIE GD VILLE		TOURNANT ANGLE DT		AUTRE CAS									
0		0		0		0		1		1		0 0 2									
FRICTION																					
ROUTE UN COTE		ROUTE 2 COTES		LEGERE UN COTE		LEGERE 2 COTES		LOURD UN COTE		LOURD 2 COTES											
6		0		9		11		0		0											
NOMBRE DE CHAQUE TYPE DES OUVRAGES DE DRAINAGE SELON LA CONDITION																					
CONDITION		CUVETTE OU BUSE		PTE RIV SANS OUV		PTE RIV AV DALLE		GDE RIV SANS OUV		GDE RIV AV DALLE		DALOT		PONT A UNE VOIE		PONT A 2 VOIES		PONT EXCEPT.			
NON SPEC.		0		0		0		0		0		0		0		0		0			
MAUVAISE		0		0		0		0		0		0		0		0		0			
MOYENNE		0		0		0		0		0		0		0		0		0			
EXCELLENTE		0		0		0		0		0		0		0		0		0			
NOMBRE DE POINTS BAS =				0				NOMBRE DE POINTS HAUTS =				1									



AVERAGE CROSS-SECTION
FILL AREA NO SCALE



AVERAGE CROSS-SECTION
ROCKY/CUT AREA NO SCALE

RECONSTRUCT SUBGRADE (REHABILITATION)

ANNEX II
EXHIBIT E
Page 1 of 1

No.	CREW DESCRIPTION	UNIT COST		CREW COST		TOTAL
		EQUIP.	LABOR	EQUIP	LABOR	
1	FOREMAN	-	18-	-	18-	18
1	BULLDOZER D-3	170-	16-	170	16	186
1	P.E. LOADER 2.5 CY	140-	16-	140	16	156
1	TRACTOR + ROLLER SHREDDER	80-	12-	80	12	92
1	DUMP TRUCK 5 CY	96-	10-	96	10	106
1/2	WATER TRUCK	96-	10-	48	5	53
1/2	SERVICE TRUCK	120-	14-	60	7	67
6	LABOR	-	2-	-	12	12
				594	96	690
<p>Production = 1500 cy/day = 1150 m³</p> <p>Unit Cost = 690 ÷ 1150 = 0.60 m³ SM = \$0.60</p>						
<p>PLACE ADDITIONAL SELECT SURFACE</p>						
1	FOREMAN	-	18-	-	18-	18-
1	BULLDOZER D-3	170	16-	170-	16-	186-
2	TRACTOR + ROLLER (VIBRATORY)	80-	12-	160-	24-	184-
1	WATER TRUCK	96-	10	96-	10-	106-
1/2	SERVICE TRUCK	120-	14	60	7	67-
6	LABORERS	-	2-	-	12	12-
				486	87	573
<p>Production 1300 cy.</p> <p>Unit Cost = 573 ÷ 1300 = 0.44 \$/cy x 1.3 = 0.56 m³/cm SM = \$0.56</p>						

ROAD MAINTENANCE COSTS

The standard on which maintenance costs are based is that which will assure all-weather service regardless of variations in traffic volumes and weather.

Both routine and periodic maintenance will be performed. They are complementary functions. Routine maintenance operations are normally corrective, performed at intervals of one year or less, and are the responsibility of district crews which are assigned specific sections of road. On the other hand, periodic maintenance, normally performed at intervals of more than one year, is both corrective and preventive, and is usually the responsibility of mechanized maintenance brigades.

A general lack of data on local road maintenance functions and costs called for an examination of past experience in several other underdeveloped countries. Production rates and costs were adjusted to Haitian standards.

Because of the low traffic levels on a large portion of the agricultural feeder road network, much of the routine road maintenance should be performed by hand labor using a minimum of motorized equipment and transport. Only roads carrying traffic in excess of 50 vehicles per day can justify regular grading and compaction using motorgraders and rollers. On roads with traffic of less than 50 vehicles per day the use of mechanized equipment is limited to periodic maintenance, to provide for assistance to hand labor crews in correcting deficiencies on particularly difficult road sections.

The primary maintenance activities on Haitian roads are identified as:

1.0 Routine Maintenance (manual)

- Clean and shape ditches manually
- Clean drainage channels and structures
- Cut grass and brush
- Clean and repair structures and traffic aids
- Repair localized wear of unpaved surfaces

2.0 Routine Maintenance (but periodic on low-volume roads)

- Machine-shape ditches
- Machine-grade surface

3.0 Periodic Maintenance

- Replenish materials and reshape surface

CALCULATION OF MAINTENANCE COST/KM

In practice, maintenance costs rise as a step function, depending upon how many maintenance operations of each type are required each year, and vary from kilometer to kilometer as a function of natural physical conditions.

Applying Haitian costs and productivity data to maintenance costs based on experience, Berger International consultants developed the following cost formula for the maintenance of gravel roads in Haiti which are less than 6.0 m. in width:

$$M = 425 + 0.617 \text{ AWT} + 0.457 (\text{AWT} - 1400)$$

Where: M = Annual Maintenance Cost

AWT = Average Weekly Traffic

Taking into account that for all candidate roads the AWT projected to 1986 is less than 1400, the last term was dropped. This reduced the formula to the following:

$$M = 425 + 0.617 \text{ AWT}$$

While the 1986 AWT for road sections on the candidate list varies from less than 30 to as much as 1335, 420 was assumed to be an average AWT for all the roads.

$$\text{Therefore, } M = 425 + (0.617) (420)$$

$$= \$684/\text{Km}$$

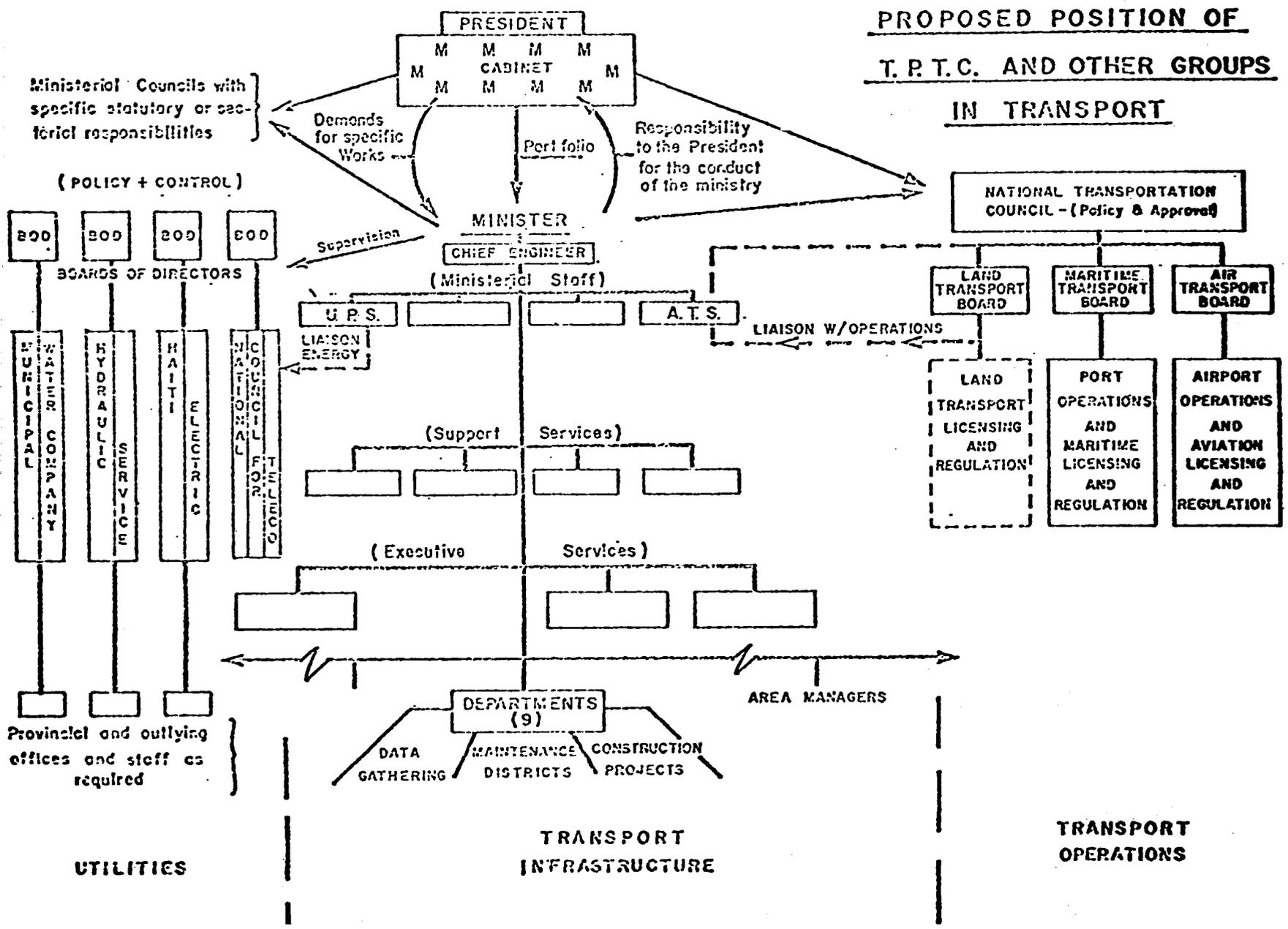
This average maintenance cost per kilometer reflects the Berger assumption that the shadow price of unskilled labor on road work is equal to its market price. However, we more conservatively have estimated unskilled labor's shadow price as 10% of its market price. We have assumed that, on average, 90% of the cost of road maintenance represents unskilled labor costs.

Therefore, the adjusted economic cost of road maintenance is represented by the following:

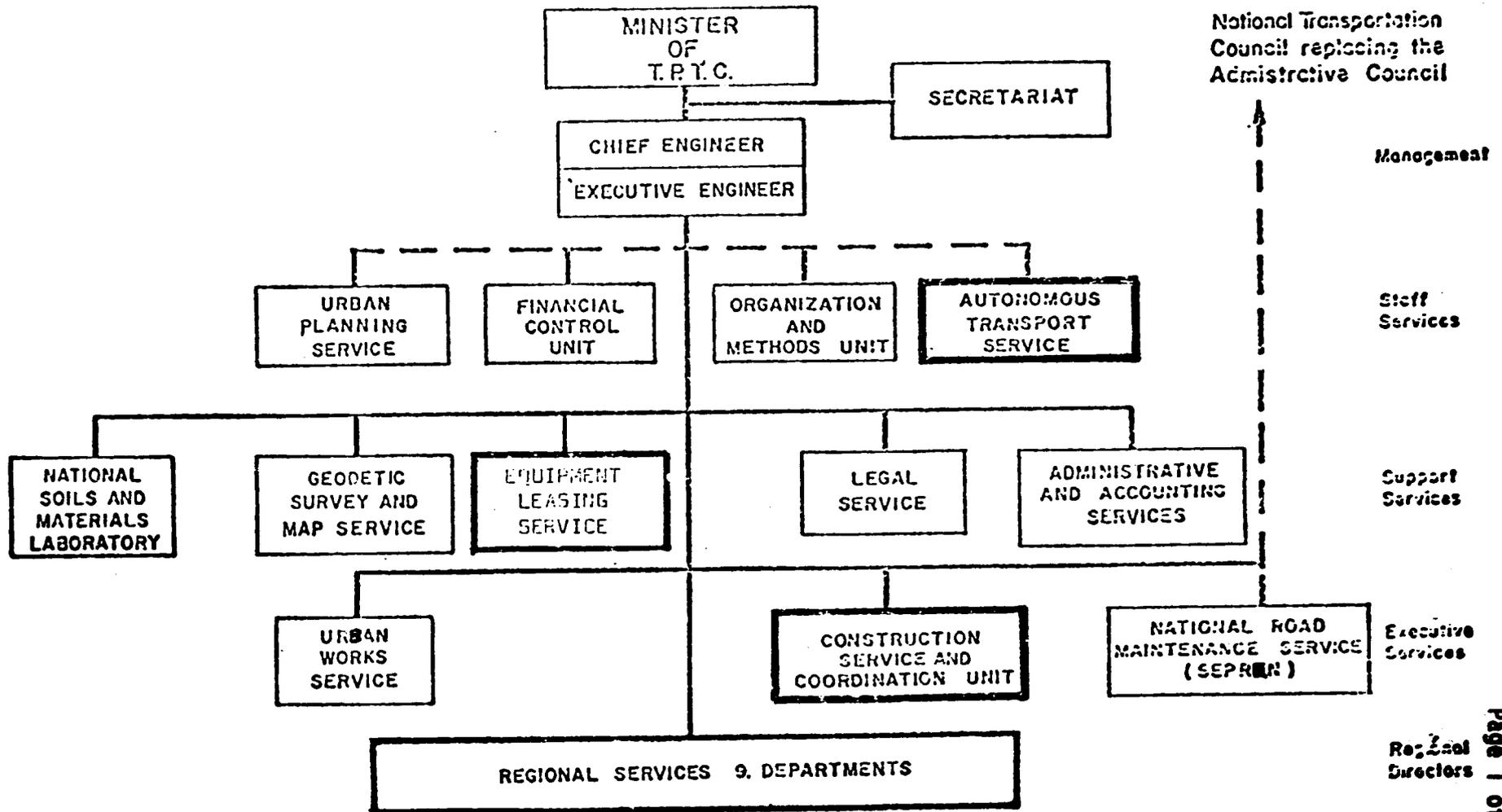
	<u>Berger Economic Cost Estimate</u>	<u>AID Adjusted Estimate of Economic Cost</u>
Unskilled Labor (90% of total financial cost)	\$616	\$62 ^{1/}
Equipment	68	68
TOTAL	<u>\$684</u>	<u>\$130</u>

^{1/} Shadow priced at 10%

**PROPOSED POSITION OF
T. P. T. C. AND OTHER GROUPS**



RECOMMENDED ORGANIZATION OF THE MINISTRY FOR PUBLIC WORKS, TRANSPORT AND COMMUNICATIONS



Reg. Encl
Directors

TPTC ORGANIZATION

The various elements of the new organization will have the following responsibilities:

(1) Management Level

The Minister is responsible to the President for the conduct of the Ministry. To discharge this responsibility, he must exercise the functions of:

Direction - The distribution of responsibilities for specific works, the interpretation of government policy insofar as it affects ministry operations and the dissemination of ministry policies, through directives to his executives and managers.

Control - of performance and expenditures, based upon evaluation of routine and special reports. Decisions will be enforced through ultimate approval of plans, programs, budgets and the release of funds.

Coordination - At the level of managers and executives. Delegation of authority in meeting these responsibilities will normally be made to the Chief Engineer and/or Executive Engineer. A Secretariat with secretarial and miscellaneous office assistance will support management level personnel.

(2) Staff Services

Work routinely required of the Minister's staff to ensure the efficient discharge of the Ministry's transportation and public works responsibilities includes:

- Physical and financial planning
- Control of quality standards
- Control of programs and progress
- Financial control
- Control of staffing levels within the organization
- Legal reviews of all matters pertinent to ministry operations.

The Transport Sector Study recommends that these responsibilities be placed in four staff services, namely:

- The Autonomous Transport Service
- The Urban Planning Service
- The Organization and Methods Unit
- The Financial Control Unit

Staff of these services will provide routine liaison with staff carrying similar responsibilities within each autonomous service attached to TPTC and with transport operations services and other interested agencies outside TPTC jurisdiction. The scope of their responsibilities is as follows:

(a) The Autonomous Transport Service (ATS)

The Autonomous Transport Service (ATS) will function as staff to the Minister in all matters related to establishing technical and quality standards; economic and physical planning; project preparation; advertising for and helping evaluate contractors bids for transportation infrastructure. Once a construction contract has been awarded, full responsibility for the construction of the project will be transferred to the Construction Service.

The responsibility of the ATS will cover all transport modes: land, sea and air. It will recommend to the Minister, to the National Transportation Council and to CONADEP development objectives and development strategies consonant with the aims of the National Development Program.

Planning and analysis performed by the ATS will include evaluation of taxation and regulation policies on behalf of the National Transportation Council. Policy implementation in these matters, however, will be the responsibility of the agencies controlling specific operations.

(b) The Organization and Methods Unit

The Organization and Methods Unit will assist the Minister in assuring the efficient internal operation of the entire Ministry, including: organization, staffing levels, procedures, standard forms and routines and training.

(c) The Financial Control Unit

The Financial Control Unit will act as ministerial staff in all matters concerning finances. It provides internal auditing services to ensure conformance to the law and internal regulations, performs financial analysis, and compiles consolidated reports on all expenditures by the Ministry (including financial reports from autonomous services who have separate accounting services).

(d) The Urban Planning Service

The Urban Planning Service will act as staff to the Minister in all matters related to: physical, economic, financial and regulatory planning for the cities and townships, project preparation, programming and progress control; review of budgets and expenditures; setting standards for urban infrastructure and for urban land use for both Port-au-Prince and the outlying provincial towns in Haiti. The range in responsibility carried would be similar to that of the ATS but for all public works projects other than transport infrastructure.

(3) Executive Services

The executive services of the Ministry will ensure that the end mission of TPTC is effectively and efficiently carried out. These services are:

- The National Road Maintenance Service (SEPRRN)
- The Construction Service
- The Urban Works Service

The scope of their responsibilities are as follows:

(a) The National Road Maintenance Service (SEPRRN)

SEPRRN is a semi-autonomous service responsible for road and bridge maintenance. The range of its activities are closely coordinated by the Ministry, with the possibility of expanding its maintenance responsibilities to some other transport infrastructure. The Berger study recommends that SEPRRN assume responsibility for the activities of the TPTC garage/shop, presently housed in the Administrative Service and become responsible for maintaining all TPTC equipment and vehicles. Otherwise, the principal work functions and organization of SEPRRN would change very little from the present.

(b) The Construction Service

The Construction Service is presently being established and trained with assistance from FENCO (Coordinating Unit) under the IDB South Highway Loans. Some of the functions presently included in the Coordination Unit will be transferred to the ATS. Other functions of this unit will remain permanently in the Construction Service, whose responsibilities would encompass all new construction of transport infrastructure for all modes of transport, either by contracted services or by TPTC work forces. This will involve coordinating road rehabilitation work by TPTC brigades with the Ministry department engineers and furnishing them with the needed supervisory staff.

(c) Urban Works Service

The Urban Works Service will be responsible for the improvement and maintenance of city streets, city drains and sanitary sewers, and maintenance of national buildings and public monuments. The range of this responsibility will include both urban areas and rural population centers (although work for the latter would generally

be controlled through the Departments). The Service would also be responsible for controlling private construction, for conformance to design standards, work safety regulations and assuring that permits and approvals required by the Urban Planning Service standards and city regulations have been obtained.

(4) Supporting Services

The Supporting Services will provide technical, logistic or administrative support and/or specialists to the other services in the Ministry as and when required. They include:

- The Administrative and Accounting Services
- The Legal Service
- The National Soils and Materials Laboratory
- The Geodetic Survey and Map Service
- The Equipment Leasing Service

The scope of their responsibilities is as follows:

(a) Administrative and Accounting Services

This Service will provide secretarial typing and filing staff to all services (as required by approved staffing levels) and oversee the hiring and training of such staff. The Service will also provide messengers, janitorial services and security services and assure building maintenance and upkeep. It will also be responsible for personnel records and central files; and perform the accounting functions for all but the autonomous services, to whom they will furnish trained staff to conduct each autonomous service's internal accounting.

(b) The Legal Service

There is no Legal Service as such presently in TPTC although there is a Legal Officer. With the recommended reorientation placing increased emphasis on contracted engineering and construction services, the requirement for Legal Services will increase, so it should be enlarged to meet these needs. This Service will also take over condemnation and expropriation procedures presently being handled by the Executive Engineer in Port-au-Prince and provide legal assist-

ance to the Construction Service and the Departments on similar problems throughout the country. The Chief of this Service will also function as the legal staff officer to the Minister.

(c) National Soils and Materials Laboratory

The National Soils and Materials Laboratory is presently being re-organized under an agreement between the TPTC and the Centre Experimental de Recherches et d'Etudes du Batiment et des Travaux Publics. Its responsibility is to provide specialized technical and laboratory services to the TPTC (and to outside users at cost) concerning engineering soils and construction materials.

(d) Geodetic Survey and Map Service

The Geodetic Survey and Map Service presently exists and will continue its present functions. Its responsibilities are to produce all maps of Haiti and operate a mapping center. It is also responsible for establishing the boundaries of rural sections, for mapping and registering property holdings and for topographic surveys and cadastra.

(e) Equipment Leasing Service

Under the proposed AID loan, assistance will be provided to help the local contracting industry develop a capability to undertake road construction, upgrading, rehabilitation and maintenance works. One element of this assistance is the establishment of an Equipment Leasing Service. The plan is to have the GOH procure the equipment and contract out the operation of the pool to a private management firm under the general supervision of TPTC. Provisions will be made to provide financial and technical assistance to the Service during the first two years of operation, after which time it should become self supporting. This Service is discussed in greater detail in Part III, A, 7.

(5) Regional Services and Departments

A strengthening of TPTC's organization in the provinces is needed since the bulk of the work performed by or for TPTC is performed outside of Port-au-Prince. The Department Engineer is the Minister's immediate representative in all matters that fall within the competence of TPTC within his area. He is under the direct supervision of the Chief Engineer. His function is primarily executive and he coordinates and supervises all work being performed by, or on behalf of, any of the TPTC services within his geographic area of responsibility. He ensures that any TPTC operation is being

efficiently managed by the designated responsible engineer, and that it conforms to quality and workmanship requirements. He provides all needed administrative support, requesting additional assistance if needed, so that time, quality and cost criteria may be adhered to.

(a) Technical Staff

The minimum technical staff requirements of any Department is at least one full-time maintenance engineer who would be carried on the SEPRRN staff roster and paid from their maintenance budget, but be attached to the Department Engineer for administrative purposes. He will be responsible to the Department Engineer for the efficient and effective discharge of the approved road maintenance program for the Department and assist community councils in developing a capability to maintain roads and inspect work performed prior to payment.

A second technical or engineering position is required in each Department to assist with development of project designs and construction supervision. Each Department will also need at least one senior mechanic capable of assuring maintenance of all TPTC/SEPRRN equipment within the area.

(b) Administrative Staff

Each Department requires a chief administrative officer to oversee the administrative and general service functions, assisted by typists and clerical staff, janitors, messengers, and security staff as needed. He is responsible for dispatching vehicles and for the supply, property and inventory functions at the departmental level.

A qualified accountant and such assistance as the departmental workload might necessitate is required to maintain accounts of expenditures under each budget allocation, to perform the disbursements and payroll functions within the Department, to procure road maintenance tools, replacement parts, automotive spare parts for the department.

(c) Districts

Districts will be formed as maintenance subdivisions responsible for a part of the geographic area of a Department, or for certain roads within the Department if the maintenance workload becomes such that additional engineering staff is required to control

maintenance operations, or if the problems of transport and time for supervisory maintenance staff make it convenient to establish a subordinate office at some location closer to the work than the departmental headquarters.

(d) The Projects

Construction projects located within the area of jurisdiction of a Department Engineer will come under the general supervision of the Department Engineer. The staffing for such projects will be planned by the Construction Service and personnel will be assigned to a specific project as a supplement to the regular departmental technical staff. While the TPTC construction brigades are working in a department, they will fall under the supervision of the Department Engineer and will be supported by the Department technical staff for surveys, stake-outs, plans, technical support, and any administrative support they might require.

d. TPTC Organizational Capabilities

(1) The Minister, Chief Engineer and Staff will provide overall direction, coordination and supervision of the new organization.

(2) The following personnel presently located in various sections of the TPTC organization will be transferred to sections of the new organization which relate directly to the AID financed Feeder Road Program:

(a) From the Transport Planning Unit to ATS

A group of TPTC professionals were attached to the U.S. Consulting Team of Berger to assist in the preparation of the Transport Sector Study and received training and experience over a one-year period. This group, consisting of one Supervisory Personnel, five Engineers, two Economists, two Technicians and ten Administrative type personnel will be transferred to the new ATS section.

(b) Personnel of the present Study and Design Section will be incorporated into the ATS, including two Supervisory Personnel, five Engineers and two technicians.

(c) A great deal of work has already been performed by the Coordinating Unit, with financial assistance from the Inter-American Development Bank, in training TPTC staff under the direction of the Canadian consulting firm of FENCO.

TPTC personnel trained in design, project preparation, cost estimation, and advertising for bids, will now be transferred to the Autonomous Transport Service. Included in this group are two supervisory personnel, two engineers, three technicians and five administrative type personnel.

(d) Other members of the Coordinating Unit have been receiving training and experience in management and supervision of field construction work from FENCO. Of these, one supervisor, two engineers, four technicians and five administrative type personnel will become part of the new Construction Services Unit.

(e) Personnel of the present Highway Service who are presently involved in the operation of the two TPTC construction brigades will be transferred to the new Construction Services Unit. This group includes two supervisory personnel, four engineers, three accounting personnel, seven foremen and four employees.

(f) Personnel of the present Topographic Services will be incorporated into the new Construction Services Unit. Included in this group are two supervisors and 13 surveyors.

(g) The present regional organization of some 84 engineers, technicians, accountants, foremen, administrative personnel and employees, including those presently in the two construction brigades, will continue in their present duties. Additional foremen and equipment operators are also being hired on a monthly basis.

(3) Setting up the ATS and the Construction Service, and expanding SEPRRN's activities simultaneously will tax the personnel resources of the Ministry during a period of a few years. The supervision of contract engineering, construction and/or maintenance services also requires experienced supervisory and technical staffs.

To assure that sufficient supervisors, engineers, technicians, equipment operators, mechanics, foremen and crew chiefs are available for the expanding program, TPTC should develop a plan of career development. The proposed mode of training for these and other key personnel in the other transport agencies is to provide continued technical assistance from an experienced team, who can supervise practical training in the form of actual work on selected projects and can call in short-term technical expertise to provide assistance in specialized fields.

At a later date it would be useful to send some TPTC staff to special courses in the United States under AID participant programs.

AGRICULTURAL FEEDER ROAD LOAN
EQUIPMENT AND PERSONNEL
FOR EACH TPTC CONSTRUCTION BRIGADE

	<u>EQUIPMENT</u>	<u>PERSONNEL</u>
I. <u>DIRECTION</u>		
	2 Jeeps	Brigade Engineer Assistant Engineer Clerk/Accountant
	1 Pick-up	<u>Survey Party</u> Instrument Man 2 Rodmen 2 Chainmen 1 Driver
II. <u>CONSTRUCT ROAD</u>		1 Supervisor
	a. <u>Clearing & Excavation</u>	1 Foreman 4 Operators 5 Drivers 20 Laborers
	1 D-8 Angle Dozer w/Ripper	
	1 Track Loader (Cat 951C)	
	5 Dump Trucks (5cy)	
	½ Air Compressor w/accessories (600 cfm)	
	½ Rock Drill	
	b. <u>Place Fill & Subbase Material</u>	1 Foreman 2 Operators 1 Driver 10 Laborers
	1 D-6 Angle Dozer	
	1 Grader (Cat 140G)	
	1 Water Truck (1500 gal)	
	1 Roller (Sheepsfoot)	
	c. <u>Place and Finish Base</u>	1 Foreman 3 Operators 1 Driver 5 Laborers
	1 Grader (Cat 12G)	
	1 Water Truck (1500 gal)	
	1 Roller - Rubber tire - Vibrating	
	1 10-15 T Steel Drum Roller	

- d. Construct Drainage - Dry Walls
- | | |
|--|-------------|
| 2 Hand Compactors (Wacker
Vibrating Flatbottom) | 2 Foremen |
| 2 Concrete Mixers (6 cf) | 6 Operators |
| 1 Air Compressor (125 cfm)
w/accessories | 8 Masons |
| 1 Loader/Backhoe | 50 Laborers |

III. QUARRY OPERATION

- a. Produce Select Material
- | | |
|---|--------------|
| 1 Crushing-Screening Plant
(30 T/hr) | 1 Supervisor |
| 1 Generator (75 KW) | 1 Foreman |
| 1 D-8 Angle Dozer | 6 Operators |
| 5 Dump Trucks | 5 Drivers |
| 1 Air Compressor w/Accessories
(315 cfm) | 20 Laborers |
| 1 Wheel Loader (Cat 920) | |
- b. Culvert Prefab Plant
- | | |
|---|-------------|
| 1 Concrete Mixer (16 cf) | 1 Foreman |
| 1 Flatbed Truck (2½ T) | 3 Operators |
| 1 Cement Storage Van (20 T) | 1 Driver |
| 1 Water Trailer (1000 gal) | 20 Laborers |
| 1 Air Compressor w/vibrators
(125 cfm) | |
| 1 Crane (2 T) | |
| 1 Set Steel Forms 18"-36"-48" | |

IV. SUPPORT EQUIPMENT

- | | |
|----------------------------------|--------------|
| ½ 5 T Tractor | 1 C/Mechanic |
| ½ Highboy (20T) | 4 Mechanics |
| 1 10 T Tilt Top Trailer | 3 Operators |
| 2 Water Trailers (400 gal) | 5 Drivers |
| 2 Pickup Trucks (¾ T) | 10 Laborers |
| 1 Lube Truck (on 2½ T chassis) | |
| 1 Fuel Truck (1500 gal) | |
| ½ Electrical Welder (300 amp) | |
| 1 15 KW Mobile Generator | |
| ½ 10 T Mobile Crane | |
| 1 Trailer (Office/Tools/Storage) | |

AGRICULTURAL FEEDER ROAD LOAN
EQUIPMENT AND MATERIALS TO BE PROCURED
FOR T.P.T.C. BRIGADES

Quantity	Item Description	Unit	<u>Estimated FOB Price</u>	Total
<u>Highway Construction and Support Equipment</u>				
2 ea	D-6 Bulldozers w/Angle Blades	62,000		124,000
10 ea	8 cy. Dump Trucks	25,000		250,000
2 ea	Cat 140 G Graders w/Scarifiers	62,000		124,000
2 ea	1500 gal Water Trucks	15,000		30,000
2 ea	Sheepsfoot Rollers	4,000		8,000
2 ea	Rubber Tired Vibrating Rollers	18,000		36,000
4 ea	Wacker Flat-Bottomed Vibrating Compactors	2,000		8,000
1 ea	600 cfm Air Compressors w/Accessories	30,000		30,000
1 ea	Rock Drills	10,000		10,000
1 ea	315 Cfm Air Compressor w/Accessories	20,000		20,000
4 ea	125 Cfm Air Compressors w/Accessories	10,000		40,000
2 ea	16 cf Concrete Mixers	10,000		20,000
2 ea	2 T Mobile Crane	10,000		20,000
4 ea	6 cf Concrete Mixers	4,000		16,000
2 ea	Loader/Backhoes	20,000		40,000
2 ea	30 T/hr Mobile Rock Crusher/screening Plants	100,000		200,000
2 ea	75 Kw Trailer Mounted Generators	18,000		36,000
2 ea	15 Kw. Trailer Mounted Generators	3,000		6,000

Qty	Item Description	Unit	Estimated FOB Price	
				Total
4 ea	400 gal Water Trailers	4,000		16,000
1 ea	5 T Semi-Tractor	20,000		20,000
1 ea	20 T Highboy Trailer	12,000		12,000
2 ea	10 T Tilt Top Trailers	8,000		16,000
2 ea	20 T Closed Semi-Vans	8,000		16,000
6 ea	3/4 T Pickup trucks	7,000		42,000
2 ea	4 wheel drive jeeps	7,000		14,000
2 ea	2 1/2 T Field Maintenance trucks w/lube units	25,000		50,000
2 ea	1500 gal Fuel trucks	20,000		40,000
1 ea	300 A Trailer mounted Welder	5,000		5,000
1 ea	10 T Mobile Crane	80,000		80,000
2 ea	48' Trailers for offices-shop warehouses	12,000		<u>24,000</u>
				<u>\$ 1,353,000</u>

2. <u>Equipment to fabricate RC Culvert</u>				
2 sets	Steel Forms for Prefabrication of RC Culverts, in 18", 36" and 48" Diameter w/extra base plates	20,000		<u>40,000</u>
				<u>\$1,393,000</u>

ANNEX II
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<u>Quantity</u>	<u>Item Description</u>	<u>Unit</u>	<u>Estimated FOB Price</u>	<u>Total</u>
<u>3. Hand Tools for Intensive Labor</u>				<u>\$1,393,000</u>
1	stock Misc. Hand Tools and Minor Equipment			40,000
	SUB-TOTAL EQUIPMENT-STEEL FORMS-HAND TOOLS			<u>1,433,000</u>
<u>4. Spare Parts and Operating Supplies</u>				
15%	Spare Parts for Equipment (1,433,000 x .15)			214,950
10%	Operating Supplies for Equipment and Steel Forms (1,433,000 x .10)			<u>143,300</u>
	SUB-TOTAL EQUIPMENT-FORMS-TOOLS-SPARE PARTS			<u>1,791,250</u>
<u>5. Shipping and Insurance Costs</u>				
10%	Shipping and Insurance (1,791,250 x .10)			<u>179,125</u>
	<u>TOTAL COST</u>		Round to <u>\$2,000,000</u>	<u>1,970,375</u>

HAITIAN CONTRACTING INDUSTRY

A. General

The Berger Report analyzed 13 Haitian contractors. During fiscal year 1974/75 the combined gross income of all 13 contractors amounted to \$6.4 million. Two firms averaged between \$1,500,000--\$2,500,000, two firms between \$800,000--1,499,000, two firms between \$100,000--799,000, and seven firms below 50,000.

Their managerial and administrative capacity was rated from fair to good, with at least two firms rated superior in most rankings, and only two rated as generally weak. Financial capacity was rated somewhat lower, as four firms were evaluated as weak and five as only fair. Low capital investment (i.e. under \$50,000) was a chief characteristic of nine companies, and only four firms equipment investment exceeded \$500,000. Borrowings of over \$300,000 were limited to four firms. The report concludes that if the local contracting industry is to expand the Government must provide a continuous and steady supply of construction projects to local contractors. This will require an increased capacity to produce detailed plans, specifications and contract packages.

The constraints that the contractors must overcome in order to expand their capabilities are:

- Scarcity of experienced field supervisors and field engineers.
- Lack of long term financing. An assured supply of Government projects would influence bank lending policies.
- Shortage of certain types of equipment. With Government projects added to the present work load, the contractors must be able to increase their equipment holdings, either through leasing, lease-purchase, or credits.
- Lack of experience in certain types of work and in larger contracts. Contractors will need to subcontract among themselves, joint venture or seek temporary foreign expertise to make up deficiencies. Government must scale the contract size and duration to local capability.

Management of larger firms is generally strong and experience in competitive bidding is expected to develop with practice. With proper assistance and Government support, the industry should be capable of increasing its present volume of work from \$6.4 to \$15.0 million during the next two years. New construction work of \$125 million is planned for the next five years. The report estimates that up to \$70.9 million of this work, or 56 percent, would be contracted to the local industry. (Table 9).

The report also concludes that technical assistance will be needed by both Government and Contractors in order to assure a steady growth of the industry.

TABLE 9:
FUTURE CONSTRUCTION PROJECTS IN US \$ 1,000

DESCRIPTION OF CONSTRUCTION PROJECTS	TOTAL VALUE			ANNUAL VALUE										
	Contract	Local firm	Foreign firm	LOCAL CONTRACTOR					FOREIGN CONTRACTOR					
				1975	1976	1977	1978	1979	1975	1976	1977	1978	1979	
Sandé Bridge	1 000	-	1 000 100%	-	-	-	-	-	-	-	100	900	-	-
Extension of François Lualaba Airport	500	500 100%	-	-	500	-	-	-	-	-	-	-	-	-
Improvement of coffee Feeder Roads- US AID	6 500	6 500 100%	-	2 000	1 750	1 200	1 100	-	-	-	-	-	-	-
National Highway Rehabilitation and Maintenance Program *	10 500	5 250 50%	5 250 50%	-	1 000	1 250	1 500	1 500	1 000	1 250	1 000	1 000	1 000	1 000
US AID Feeder Road Program and Related Projects	20 000	20 000 100%	-	1 000	5 300	5 000	5 000	4 000	-	-	-	-	-	-
Construction of lot #3 - #4 Southern Road **	25 000	5 000 20%	20 000 80%	-	3 500	1 500	-	-	-	9 000	11 000	-	-	-
Erosion Control of lot #1-#2 #3- #4 Southern Road **	1 500	1 500	-	-	750	750	-	-	-	-	-	-	-	-
Road Signing of the Northern and Southern Roads	500	500 100%	-	300	200	-	-	-	-	-	-	-	-	-
Agricultural Projects	15 000	15 000 100%	-	-	3 000	3 500	4 000	4 500	-	-	-	-	-	-
Hydraulic Projects	3 000	1 500 50%	1 500 50%	250	250	250	250	500	-	250	250	500	500	500
Estimate of Government Transport Work ***	42 000	21 000 50%	21 000 50%	-	-	7 000	7 000	7 000	-	-	7 000	7 000	7 000	7 000
TOTAL	139 650	70 900 56%	48 750 44%	1 750	13 375	19 370	17 850	17 500	1 000	10 600	20 150	8 500	8 500	8 500

* The Figures in the Foreign Contractor's column represent work executed by T.P.F.C

** Projects reserved exclusively for Local Contractors

*** This figure represents 50% of the Infrastructure Construction Work awarded by the Government during 1975.

TABLE 9

ANNEX II
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Finally, the report recommends that a type of performance bond be developed for local contractors, and that bonding become a standard requirement of all government contracts.

On the basis of the analysis, and assuming proper support, the report estimates that by sub-contracting or joint venturing among themselves, at least eight of the firms could have the capacity to execute simple road and bridge contracts.

B. Equipment Demand

A review of the inventory of local contractors versus foreign contractors in the major items is as follows:

<u>TYPE</u>	<u>LOCAL</u>	<u>FOREIGN</u>
Tractor/Dozer	10	25
Frontend Loader	12	14
Graders	5	14
Dump Trucks	47	61

The primary items of equipment required by a contractor to engage in road construction are in short supply in their inventories. These items are as follows:

- Angle dozers
- Graders
- Rubber tired vibrating rollers
- Steel drum rollers
- Bituminous spreaders

To commence operations in a road construction contract, the bare minimum equipment, with an import tax, would be as follows:

<u>TYPE</u>	<u>ESTIMATED COST CIF</u>
Grader	\$61,600
Tractor/Dozers	\$71,500
Drum Roller	\$19,800
TOTAL	<u>\$152,900</u>

In Haiti, the general practice for loan conditions demand a full private guarantee mostly using real estate as collateral. Equipment is not accepted.

Equipment may be financed over a maximum of 18 months; however, capital investment loans rarely run over 36 months.

Thus, interest alone would approximate \$30,000 and it is inconceivable for a small contractor to find himself encumbered with a bank loan for equipment in the area of \$200,000. He would be precluded from bidding small agricultural feeder roads due to the inability to provide the necessary financing.

The cost of owning and operating construction equipment is large and most projects involve the use of construction equipment. The purchase of equipment represents a large capital investment and the owner at the same time expects to make a profit on his investment. If a profit is to be realized from the use of equipment, it is first necessary to the owner to recover from the use of the equipment during its useful life sufficient money to pay the entire cost of the equipment plus an additional amount for profit.

It appears that the new proposed road reconstruction projects will cost between \$50,000 and \$300,000 (average \$68,000) with a twelve (12) to twenty-four (24) month completion time.

The basic equipment supposition did not include equipment for loading and if the contractor had no means, a front-end loader would also be required at an estimated cost of \$53,880.

Thus, automatically no contractor could obtain 18 month financing under these conditions to repay at a 13% - 14% annual interest. The lack of longer-term loans severely handicaps the expansion of small firms and inhibits the expansion of larger firms.

Bankers, in the past, have been worried about financing the local construction industry that has not had a steady market. This is probably a reflection of the relative insecurity existing in the contracting industry.

Under the existing terms and conditions local financing is not providing the required credit to enable the contractors to purchase equipment in the required mix and quantity for contracts in the \$150,000-\$300,000 range and a 18 month time frame.

Any of the existing 13 construction contractors would require an absolute minimum of \$100,000 to augment their existing inventory. Using the same supposition, most contractors would need approximately \$200,000. Accordingly, anywhere from \$1,300,000 to \$2,600,000 would be required to purchase equipment if all decided to enter the road construction field. If only half of the contractors did enter, the amount of credit could be reduced from \$650,000 to \$1,300,000. However, the same conditions would exist as described above. The contractors would be precluded from purchasing.

The GOH has, accordingly, decided to seek alternative means to strengthen the private contracting industry, specifically the creation of an equipment leasing service within TPTC.

C. Construction by Private Contractors

1. General

In view of the stated policy of the TPTC to emphasize the use of contracted services for both construction and engineering to meet the requirements of the National Development Plan, a capability will be developed within the TPTC for prequalification of construction contractors, selection of engineering firms, advertising for and evaluating bids and awarding contracts.

Three committees will be established whose membership would be designated (from time to time, or on a job-by-job basis) by the Minister and the Chief Engineer. The committees are:

a. Prequalification Committee

The Contractor Prequalification Committee will be attached to the Construction Service. The functions of this committee would include the prequalifying of contractors for special large bid packages.

With the expectation of increased utilization of local contractors on smaller projects, and as joint-venturers or prime contractors on larger projects, a permanent roster of prequalified contractors for various types and magnitudes of work will be developed and periodically updated. The review and reclassification of contractors will be based on information furnished by the contractors, on their actual demonstrated performance and on increased experience on their part. Such a system, for instance, would classify contractors into groups A, B, C and D, representing the ranges in the monetary value of works that they were capable of undertaking, and also into classes I, II, III, and IV, representing the different types of construction for which they qualify (e.g. earthwork, structures, paving, water-front construction etc.)

When a bid is advertised, the stipulated minimum acceptable level of prequalification will be announced so as to avoid

unnecessary and costly efforts on the part of ineligible firms. Additional prequalification submissions could be accepted from joint-ventures of two or more such firms formed especially for such projects, but these should always be submitted and evaluated sufficiently in advance of the date for submission of bids for ineligible firms to be advised of prequalification results prior to their going to the work and expense of preparing a bid proposal.

Prequalification requirements will be framed so as to help local firms progressively overcome their weaknesses and deficiencies: i.e., a firm letter of agreement or contract with suitably experienced construction or mechanical supervisors, possibly not presently in Haiti, and conditioned on the event that if the company is awarded the job, these personnel could be accepted as a substitute for experienced staff directly in the employment of a construction firm. Similarly, affidavits on credit ratings from banks, conditioned upon the contractor being awarded the contract, should also be acceptable for compliance with financial requirements.

Once the contract is signed, it will be sent to the Construction Service for the management of the contract supervision.

The staff work required in verifying and checking local contractor qualifications will rest with the Construction Service. In this work they should be assisted by, and cooperate with the Urban Works Service, who will also have requirements for use of contractors, although possibly for work of a different nature. These requirements should be considered and included when the classifications to be used in the permanent roster of local contractors are prepared.

The Prequalification Committee will meet periodically to review applications for up-graded status of local firms and performance reports from job sites, both of which could affect the status of prequalified firms. The results of such reviews will be communicated promptly to the appropriate agencies. The committee would also meet at the time of any call for bids, to review the ongoing workload of each qualified contractor (this would be the principal additional prequalification submission required of firms already registered with the TPTC, as it might affect their eligibility

for undertaking additional work at that time).

b. Bidding Committee

All project planning and preparation, preparation of contract documents and the advertisement for bids will be conducted by the Autonomous Transport Service. The Bidding Committee, whose function is to evaluate the bids submitted, will therefore be attached to this Service.

Its members will be appointed by the Minister, on a case-by-case basis, so as to obtain representation from qualified senior staff with the correct technical expertise. The Construction Service should be represented, as well as the Autonomous Transport Service and, depending on whether the project involved highways, city streets, ports, or airports, other qualified staff appropriate to the evaluation would be designated.

The Bidding Committee will receive, open and register bids. These will then be evaluated and the final result will be an evaluation report and a recommendation concerning the award of the contract, which will be sent to the Award Committee.

The actual work involved in evaluating the bid submissions (checking that all conditions of the call for bids have been met, analyzing the prices quoted and checking for unreasonably unbalanced bid-prices) will be performed by Autonomous Transport Service staff, or others, at the direction of the Committee.

c. Award Committee

The Award Committee will be attached to the Chief Engineer's office and will be composed of designated chiefs of services or their deputies, nominated by the Minister. They will receive and review the bid evaluation report and recommendation for award prepared by the Bidding Committee.

They will be entitled to return the report to the Bidding Committee for further information should they see fit, to otherwise state any disagreements with the report, or to

accept the recommendations for award. Their recommendations, together with the report of the Bidding Committee, will be sent to the Minister for final approval.

Once the contract is signed, it will be sent to the Construction Service, which will be responsible for the management of the contract supervision.

2. Selection of Engineering Firms

The selection of engineering firms for design or for supervision of construction will normally be performed by an ad-hoc committee composed of a senior member of the service for whom the firm will work (normally the ATS), a senior engineer specialized in the field of work involved, a representative of the Minister and two other members at large designated by the Minister. Staff work will be provided by the service concerned. The recommendation for the selection of a firm will be submitted to the Minister for his approval.

DETERMINING EQUIPMENT OWNING AND OPERATING COSTS

1. Annual Net Loss in Equipment Value

- a) The annual net loss in equipment value represents market value loss minus any tax effect. In this instance, it must be assumed there will be no tax effect.
- b) Loss in market value is the difference in price the equipment would bring on the open market from the beginning to the end of the year. This difference reflects not only the physical condition of the equipment, but obsolescence of the model.
- c) For example, one might use at the end of the first year a hypothetical machine costing \$100,000, pay no government taxes, and assume 2,000 hours use per year to produce a current hourly cost.

(i)	Acquisition cost	\$100,000
(ii)	Market value at end of year	\$ 80,000
(iii)	Loss in market value	\$ 20,000
(iv)	Depreciation	\$ 25,000
(Assume 8 year life and \$20,000 balance)		
(v)	Gain or loss on disposition	\$ 5,000
(vi)	Total net value loss	\$ 50,000
(vii)	Current year cost (assumed)	\$ 30,000
(viii)	Current hourly cost	\$ 15.00

2. Investment and Insurance

(Assume the combined value annual cost equals 15% for interest and insurance yields an average of

$$\frac{\$100,000 + \$80,000}{2} = \$90,000$$

Investment x 15% or \$13,500 hence

(i)	Value at start	\$100,000
(ii)	Value at end	\$ 80,000
(iii)	Average value	\$ 90,000
(iv)	Investment Cost	\$ 13,500
(v)	Cost per hour	\$6.75

3. Maintenance and Repair Cost

The major operating expense generally is maintenance and repair as in a five (5) to eight (8) year period an amount equal 100% of purchase price could be spent.

(i)	Estimated annual maintenance and repair	\$ 3,500
(ii)	Cost per hour	\$1.75

4. Operating Cost

(Assume 2,000 hours per year machine time. Operator wages \$1.30/hr. or \$2,600/yr., fuel \$6,800 annual cost, oils, etc. \$625).

(i)	Operators' wages	\$ 2,600
(ii)	Fuel	\$ 6,800
(iii)	Oil, etc.	\$ 625
(iv)	Annual Cost	\$ 10,025
(v)	Cost per hour	\$5.013.5 is \$5.01

5. Downtime

Downtime is the time lost due to a machine breakdown which results in its not being available for work. Although it is desirable to have 100 percent machine availability, usage generally results in

increased downtime as a machine grows older. This loss of machine time can vary greatly with the make, age, and especially the service provided. Actual records should be used in computing downtime.

An assumption of \$25/hour is used to represent cost of renting replacement during the time the owners machine was not available.

(i)	Availability	97%
(ii)	Hours of downtime	60
(iii)	Annual Cost in dollars @ \$25/hour	\$1,500
(iv)	Downtime cost per hour	\$0.75

6. Productivity Differential

Productivity differential is the cost of retaining a machine when an improved, more productive model is available. It is the extra cost of doing the job with the existing machine.

Productivity cost in their example will be an additive cost. Assume a significant improved piece of equipment becomes available during fifth year and lessor is using a current model. The new machine offers 30% greater productivity. A rental cost of \$25/hour is used.

(i)	Year	5
(ii)	Extra hours required to equal new machine	600
(iii)	Annual cost @ \$25/hour	\$15,000
(iv)	Production differential dollar cost per hour	\$7.50

Summary of Cost Per Hour - Year 1

(i)	Net machine value loss	\$15.00
(ii)	Investment insurance	6.75
(iii)	Maintenance and repair	1.75

(iv)	Operating Cost	\$ 5.01
(v)	Downtime	.75
(vi)	Productivity Differential	<u>7.50</u> ^{1/}
	Total equipment cost per hour	\$36.76

To this cost of equipment must be added profit, replacement and capital investment cost (facilities, etc.) to determine a rental rate per hour.

^{1/} Obviously, use of this factor in Haiti is not entirely appropriate. Total equipment cost per hour would, therefore, reduce the above figure to \$29.26 per hour.

TABLE 12

NOTES ON ESTIMATED 10 YEAR COST FLOW

The following assumptions made for calendar years:

1976

Rental

2	Graders 1 mo at	\$4324	=	\$8,648
1	Tractor Dozer at	<u>\$4890</u>	=	<u>\$4,890</u>
				\$ 13,538

1977

Rental

1	Tractor Dozer at 6 mo at	\$4890	=	\$29,340
2	Graders 6 mo at	4324	=	51,888
2	Lube Units at 6 mo at	1296	=	15,552
2	Wheel Tractors 4 mo at	1410	=	<u>11,280</u>
				<u>\$108,060</u>

1978

Assume 15% Inflation labor for O/H.

O/H	\$170,000 x 1.15	=	\$195,500
-----	------------------	---	-----------

Rental

95%	rented for 8 mo.		
95	x \$445,576	=	\$423,297

1979

Assume Operators and Maintenance 20% Inf.

Operator	\$34,800 x 1.20	=	\$ 41,760
Maintenance	\$33,600 x 1.20	=	\$ 40,320
Rental	8 mo at 95%	=	\$423,297

1980

Increase Rental Rates 20%

\$423,297	x 1.20	=	\$507,956
95%	for 8 mo. overhaul		\$95,000 spares

Table 12 - continued

1981

15% Inflation all labor.

O/H \$195,560 x 1.15	=	\$224,894
Operators \$41,760 x 1.15	=	48,024
Maintenance \$40,320 x 1.15	=	46,368
Major Overhaul \$75,000 spares		
Rental 95% 8 months		

1982

Rental Increase by 10%

\$507,956 x 1.10	=	\$558,752
Salvage Value 5 Year	=	65,000
Transfer from accumulated reserve	=	645,220
New procurement increased by 40%		
476,280 x 1.40	=	\$669,552

1983

Inflation 15%

O/H \$224,894 x 1.15	=	\$258,628
Operators \$48,024 x 1.15	=	55,228
Maintenance \$46,368 x 1.15	=	53,323

1984

No change.

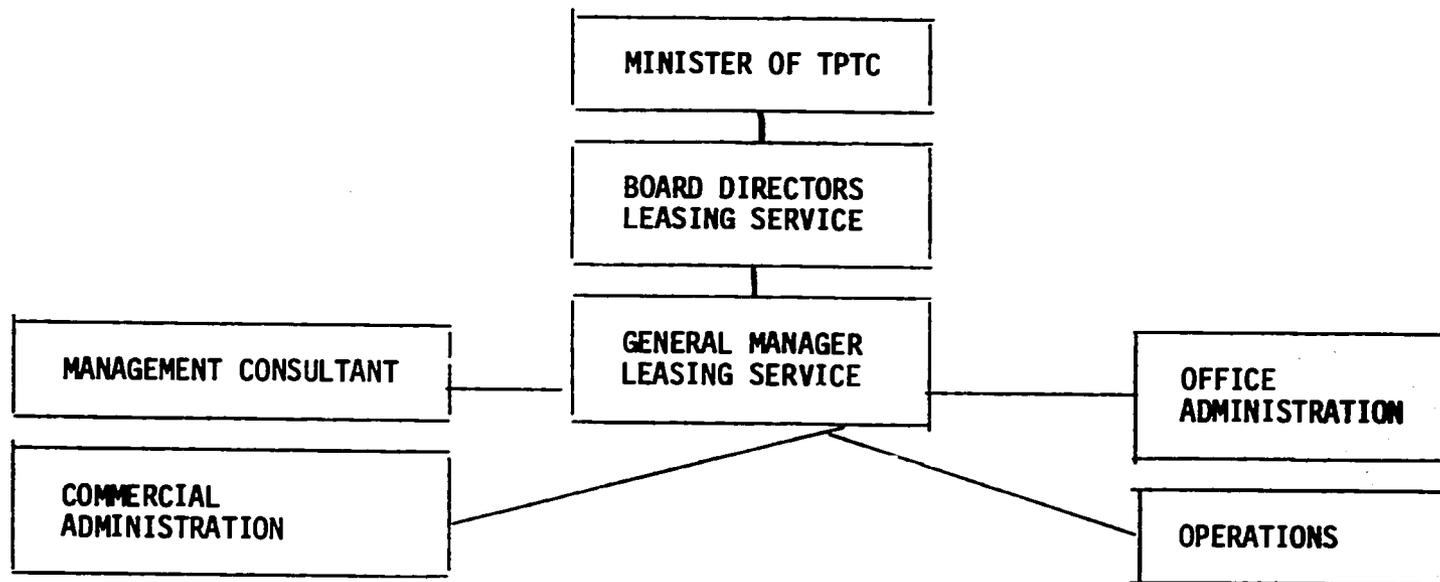
1985

Rental increase by 40% to build up replacement reserve.

\$558,752 x 1.4	=	\$782,253
Inflation 15%		
O/H \$258,628 x 1.15	=	\$297,422
Operators \$55,228 x 1.15	=	63,512
Maintenance \$53,323 x 1.15	=	61,321
Major Overhaul Spares \$115,000		

Note: On requirement for replacement 10 Year (1987) Assume
 60% increase \$337,920 x 1.60 = \$540,676
 Reserve excess of \$950,000.

LEASING SERVICE ORGANIZATION



- 1. Chief Accountant/Finance Officer
- 3. Accountants
- 2. Rental Collection
- 2. Budget Control
- 3. Secretary
- 2. Clerk/Typist

- 1. Chief Technical Operations (ENGR)
- 1. Planning and Allocation (ENGR)
- 1. Master Equipment Mechanic (Lubrication)
- 1. Training
- 1. Master Equipment Operator
- 4. Lubrication Men
- *15. Equipment Operators
- 3. Secretary
- 4. Laborers/Messengers
- *12. Chauffeurs

***NOTE:** Not included in budget as equipment rental covers their salaries.

DRAFT SCOPE OF WORK FOR LABOR-INTENSIVE
ROAD MAINTENANCE/CONSTRUCTION PILOT PROJECT

ANNEX II
Exhibit N
Page 1 of 5

I. Objective

In the relatively labor-abundant and capital-scarce environment of Haiti, develop the basic understanding and experience necessary to undertake an effective labor-intensive road maintenance/construction program. More specifically, the purposes are to:

- a) Provide the GOH with productivity data for comparison of equipment-intensive (EI) and labor-intensive (LI) technologies.
- b) Improve efficiency of existing labor-intensive road maintenance/construction techniques by experimentation with work organization, selection of work tasks, equipment-labor mix and other factors affecting worker productivity.
- c) Prepare for use by GOH personnel a manual on technical procedures for carrying out various LI road maintenance/construction activities in a form suitable as a teaching aid.
- d) Develop information on organizational and administrative aspects of an expanded program in the GOH for labor-intensive road maintenance/construction. Needed information includes: the optimal ways for organization, training and management of road maintenance/construction labor teams and, where appropriate the best means for working with local organizations and leadership Community Councils.
- e) Provide information on cultural and social factors which might affect the recommended labor-intensive road activities.
- f) Provide findings and recommendations in a form which could be used by the GOH as a guide in developing an expanded LI road maintenance/construction program.

II. Subjects to be Covered

1. Productivity Data on Alternative Technologies

- a) Develop for selected, typical road maintenance/construction tasks productivity estimates for LI technologies, as well as sufficient information for a comparison of LI and EI techniques.
- b) Relate productivity estimates to appropriate parameters such as those indicated in the IBRD Technical Memorandum No. 8 July 1975, "A Field Manual for the Collection of Productivity Data from Civil Construction Projects".

- c) Estimate costs of labor-intensive technologies based on productivities as derived above. Develop factors of cost difference between LI and EI technologies based on a limited analysis of EI project work.

2. Improvement of Productivity of Existing Labor-Intensive Road Maintenance/Construction Technologies

- a) Observe existing labor-intensive technologies in order to design a few selected experiments with the objective of raising worker productivity. These experiments may be with the organization of work, materials handling, equipment-labor mix, etc.
- b) After testing experimental design and demonstrating feasibility, attempt to introduce same on a limited basis in the pilot project.

3. Training Material for Labor-Intensive Road Maintenance/Construction Program

- a) Prepare training materials which would provide a means for effectively communicating to field supervisors and foremen methods for carrying out labor-intensive road maintenance/construction. The field materials would be designed for carrying with ease, e.g. small cards with typical road cross-section designs.
- b) Subjects to be covered would include crew sizes and mix of tools for different tasks and environmental conditions, procedures for carrying out specific tasks, and explanation of purposes of road designs (ditching, drainage, superelevation, etc.) to enable supervisors to make cost-saving decisions in the field.

4. Organization and Administration

- a) Explore arrangements for the organizational framework ; in particular, the possibilities for the GOH to work with Community Councils, other organizations or combinations of them.
- b) Determine best means of administering various aspects of a LI road maintenance program such as financial controls, movement and control of tools, and selection and training of supervisory personnel.

- c) Determine suitable wage payment system which will ensure prompt and full payment for work completed. Assess effects of alternative wage payment systems on work incentives: piece work vs. hourly work; payment in cash, food or combinations of food and cash.

5. Cultural and Social Factors

- a) The consultant will conduct a study to describe cultural and social factors in Haiti which may affect the introduction and adaptation of labor-intensive road maintenance/construction activities. He will explore new ways of working as well as possible motivational factors affecting road crew performance. He will consider, e.g. the extent to which rural villagers may be motivated to work on roads not near their homes and the Haitian traditions of mutual-help projects.
- b) The consultant will consider the ways in which coordination may be made effective between road agency officials and Community Council leaders -- and will consider the best means of contracting for services of villagers through their leaders.

III. Reports

Reports will be of three types:

- a) unprocessed raw field data;
 - b) interim reports
 - c) a summary report (in draft, and in final form)
- a) The Consultant will transmit to the USAID and to AID/W copies of his quantitative field data on a monthly basis. The field sheets will be adequately labeled, dated, and a list of the sheets will be prepared. A brief report on projects undertaken and their status will be made. The texts of the monthly reports may be brief.
 - b) Two interim reports will be filed: the first at the end of three months and the second at the end of six months. (In those months, the monthly report may be integrated with the interim reports, so as to avoid duplication of effort). The first interim report will indicate some of the approaches being taken, hypotheses being tested, etc.

- c) A draft summary report will be filed at the end of the ninth month. AID will report its comments within one month, the consultant will act upon any suggested changes; and will file his final report within one month after receiving AID's comments.

IV. Project Staff

Staffing for the LI study will be included in the consultant contract covering the Agricultural Feeder Road Programs. Specific requirements for this study include:

<u>Specialty and Function</u>	<u>Period of Service, months</u>
An Engineer-economist and team leader	4 <u>1/</u>
A Cost Analysis Specialist	9
A Construction Engineer (Haitian)	9
An Anthropologist-Sociologist (Haitian)	9

V. Description of Professional Personnel Needs

The descriptions given here are to aid in recruiting personnel who can best meet the requirements of the pilot project.

- a) Engineer-economist (Part-Time): This person will have a strong background in road problems in LDC, have a feeling for the industrial engineering nature of the labor-intensive measurements and for the scientific method, particularly in collecting and interpreting the data.
- b) Cost Analysis Specialist: This person will have experience in collection and evaluation of cost data on labor-intensive methods of road work. He must be willing to spend considerable time in the field under difficult conditions.
- c) Construction Engineer: This person will have experience in the field in the construction industry, preferably in road construction and maintenance. He must be willing to spend considerable time in the field and have an ability to convey his information. This person should be a Haitian or Haitian-American.
- d) Anthropologist-Sociologist: This person will be well versed in

1/ of a 12-month tour in Haiti.

the science of his/her title, and will have field experience in LDCs, preferably in relation to development projects such as those which the volags carry out. Analytical ability which relates to practical field problems, as well as to broad social science issues is required.

All four team members must be fluent in French and, where possible, Creole.

COST ESTIMATE FOR TECHNICAL ASSISTANCE

A. ProAg for Priority Services

Equipment Procurement Specialist	3 m/m
Leasing Pool Consultant	3 m/m
Highway Engineer	3 m/m
	<hr/>
Total ProAg Services	9 m/m

B. Consultant Contract

1. Long Term Advisors

a - Senior Transport Engineer	48 m/m
b - Transport Engineer	36 m/m
c - Transport Economist	24 m/m
d - Administrative Advisor	24 m/m
e - Budget/Accounting Advisor	24 m/m
f - Field Engineer	24 m/m
g - Field Engineer	24 m/m
h - Equipment Specialist	24 m/m
i - Heavy Equipment Mechanic	24 m/m
	<hr/>
Total Long Term Advisors	252 m/m

2. Short Term Advisors

a - Equipment Leasing Pool Advisor	12 m/m
b - Admin/Acct. Specialist	7 m/m
c - Cost Analyst Specialist	9 m/m
d - Misc. Specialists	12 m/m
	<hr/>
Total Short Term Advisors	40 m/m

C. Costs

a - Long Term Advisors (contract)	\$1,764,000
252 m/m at \$7,000/m/m average	
b - Short Term Advisors (ProAg & Contract)	245,000
49 m/m at \$5,000/m/m average	

MARKETING OF AGRICULTURAL PRODUCTION IN HAITI

1. Staple Food Crops

General

Haiti produces a wide variety of staple food crops. Four of these -- sugar, rice, coffee and cacao -- are treated separately. The rest, including cereals, starches, dry legumes, fresh vegetables and fruits, are considered as a whole.

The different altitudes and microclimates as well as the land tenure system of minifundia encourage production of many different items, for farm family consumption and for marketing. Currently about 1,600,000 tons of staple food crops are produced. The total amount, as well as the composition, varies according to weather conditions, and there do not appear to be clearcut trends within the commodity group.

For the principal crops the average percentages consumed on the farm and sold commercially are shown in Table

It is likely that transportation improvements will lead to an increase in the volume marketed from 400,000 tons in 1975 to 600,000 tons in 1991, an increase from 25% to 37% of the total. Farmers are also likely to sell higher value items in order to buy cheaper foodstuffs for themselves and earn a little cash.

Projected Demand

The anticipated demand for staple crops is projected in Table

TABLE

DEMAND FOR STAPLE CROPS
 (1975-1991)

	<u>1975</u>	<u>1981</u>	<u>1991</u>
West	138 400	203 000	322 000
South	15 200	19 000	24 000
North	22 800	27 500	34 000
Northwest	5 400	7 000	8 800
Artibonite	<u>18 800</u>	<u>23 500</u>	<u>29 800</u>
TOTAL	200 600	280 500	418 600

The Department of the West, including metropolitan Port-au-Prince, will provide about 75% of the total demand for staples moved by vehicle.

Transport Alternatives and Costs

A large share of the staple food crops going to market is carried by human or animal transport. The share so carried will decline from 50% to 30% over the forecast period, with only a slight decrease in the actual volume. The tonnage carried by vehicles (trucks and coastal shipping) will more than double in the next 16 years to a total of nearly 420,000 tons.

Marketing Techniques

The category "rural and urban markets and street vendors" contributed 73.8 million gourdes in 1972 FY in gross domestic product to the 178.6 million gourdes of wholesale and retail trade. There are some 500 markets in Haiti, the result of the widely distributed population. The contribution of these markets to GDP grew 8 million gourdes between 1965 FY and 1972 FY. Some 22% of the gainfully employed women (compared to only 2% of the men) were engaged in some of trade in 1970. The number of women in trade increased from 53 000 in 1950 (6% of the gainfully employed women) to 169 000 in 1970.

Population centers are often small, farm products are produced in small quantities over wide areas, and markets are customarily open only once twice a week.

TABLE 1

ESTIMATED DISPOSITION OF PRINCIPAL CROPS PRODUCED IN HAITI
(1975)

CROP	PRODUCTION (000's of MT)	PERCENT CONSUMED ON FARM	PERCENT SALES	
			Sold for domestic non-farm consumption	Percent Exported
Fruits	350	80	20	-
Vegetables	245	75	25	-
Plantain	200	67	33	-
Bananas	40	33	67	-
Millet	215	90	10	-
Corn	200	75	25	-
Beans	40	25	75	-
Manioc	135	90	10	-
Igname	25	90	10	-
Peas	80	25	75	-
Sweet Potatoes	70	90	10	-
Coffee	90	5	20	75
Cotton Fiber	1	?	?	?
Cacao	3	?	?	?
Sisal	750	40	20	40
Sugar Cane and Derivatives	2500	72	28	-
Rice	100	10	90	-
Meat	92	50	50	-
Firewood & Charcoal	720	80	20	-

RURAL ROAD ANALYSIS
FIELD DATA FORM

1.0 Department _____ Province _____ Date _____

2.0 Does this Road Connect With an All-Weather Road? _____

3.0 Road Description

3.1 General

From: _____ TO: _____ Km

3.2 Detail

<u>Section (From - To)</u>	<u>Width</u>	<u>Km</u>	<u>Road Condition</u> ^{1/}	<u>Estimated No. of Small Farms in this Section</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total (Equals (3.1.))	-----	_____	-----	_____

Structures, by Section; identify bridges, fords, no. of culverts/Km

4.0 Area of Influence: Definition of space, size of population served

4.1 Distance out from road on each side.

4.2 Geographic restrictions.

^{1/} Describe: surface, earth, gravel, etc, profile, base conditions, drainage, alignment.

4.3 Estimated Total Population in Area of Influence

5.0 Farm Size

5.1 Size Range: _____

5.2 Average small farm size: _____

6.0 Average Small Farm Description

6.1 Farm family size: _____ persons

6.2 Use of farm land

6.2.1. Area cultivated; breakdown by crop and hectares

Crop: _____	Hectares _____	% of Total Area Cultivated _____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total hectares cultivated _____

Total hectares in pasture _____

Total hectares fallow, or unused _____

6.3 Disposition of Production

Crop	M.T.	% Consumed by farm family	% Utilized for farm animal feed	% available for commercial sale
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Livestock	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

7.0 Marketing

7.1 Percentage of net farm surplus sold:

At farmgate: _____ % ; to whom?^{1/} _____

In local markets: _____ %

In distant markets _____ %

Total _____ 100 %

7.2 Market locations; distance from road mid point:

Local:

_____ ; _____ km

_____ ; _____

Other:

7.3 Crops/Livestock;

<u>Crop</u>	<u>Unit</u>	<u>Price</u>		<u>At what delivery point</u>
		<u>Per Unit</u>	<u>Per Mt.</u>	
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

^{1/} Eg: truckers, assemblers, etc.

7.4 Transport Costs

<u>Mode</u>	<u>From/To</u>	<u>Km</u>	<u>Cost/Ton Km</u>	<u>Transit Time in hrs</u>
Head Load				
Animal				
Truck				
Bus				

7.5 Social Services

7.5.1. Agricultural Extension Service; No. of visits/year

7.5.2. Health Facilities; location; distance from road mid point

7.5.3. Schools: grade levels; location; distance from road mid point

7.6 Road Improvement; factors

7.6.1. Average daily or weekly traffic; size of trucks

7.6.2. Months and percent of year present road can be used by trucks

7.6.3. Availability of select materials; distance from road mid point

7.6.4. Estimated no. and size of culverts required/km

7.6.5. Cost/MT to transport select materials to road mid point

7.6.6. Average estimated cost/km for road improvement

7.6.7. Small farms/km ratio

7.6.7 Recommended minimum acceptable design standard

8.0 Additional Comments

ROAD LINK ANALYSIS

The following factors were considered in making a detailed analysis of each road section to be included in the Feeder Roads program.

Project Life

A project life of 10 years is assumed, reflecting the normal expected longevity of rural feeder roads. However, in view of AID plans for continued support and expansion of the SEPRR road maintenance function to feeder roads it is anticipated that considerable residual value will remain at the end of the 10 year period, especially in view of the relatively low volume of traffic. Consequently, roadbed improvement and drainage structures were assigned a fifty percent salvage value at the end of 10 years.

Costing

The financial analysis, in which funding requirements and government expenditures are estimated, reflects the effects of anticipated inflation on the costs of credit, road improvement, and technical assistance. A 15 percent inflation rate is reflected in costs during the loan disbursement period.

In the economic analysis inflation is not included because of the assumption that as costs inflate so will benefits and at the same rate. Constant prices are used in the analysis for both costs and benefits. However, the sensitivity analyses permit a testing of project viability under assumptions of a 15 percent increase in project costs and a 15 percent decrease in project benefits.

(ii) Benefit Assumptions

(a) Direct Benefits

User Cost Savings

Savings in vehicle operating costs as a consequence of improved roads are the largest single benefit factor. Berger consultant calculations of user cost savings based on route restoration to 1960 standards were adjusted upward by 4 percent in the case of a further upgrading from a rock or stone road surface to gravel and by 15 percent where the conversion was from earth to gravel surface.

Induced Production Benefits

Also quantified as direct benefits are increased agricultural and agro-industrial production, and the value of additional trucking and cottage industry output, which have been aggregated as 30 percent of annual year user cost savings, the magnitude of which is an indicator of increased economic activity in the area of influence of each road section.

Accident Reduction Benefits

The Berger consultants found that one in four vehicles is involved in a reportable accident annually. Given the current vehicle population of approximately 18,000 vehicles, approximately 4,500 accidents can be expected annually. In view that many accidents presently occur on narrow mountain roads, particularly during the rainy season, a factor of 15 percent of the annual year user cost savings was considered reasonable as a direct benefit of candidate road improvements.

Shadow Pricing of Costs

Labor

Skilled Labor

In view of the relative scarcity of skilled construction equipment operator and gang foreman labor in Haiti, the market cost of this labor is taken also to be its economic cost.

Unskilled Labor

The shadow priced unskilled labor was assigned at \$.13 per day, which is 10 percent of the minimum daily wage. This is taken to be the average value of production foregone by its employment on the project in lieu of its most productive alternative employment. Where unemployment is high, as in Haiti, the shadow price of labor is sometimes assumed to be zero. This is based largely on the ground that there is no reduction in economic output elsewhere in the economy as a consequence of this labor being employed on the project. The zero assumption has not been taken here for several reasons. The men registered as being unemployed are not necessarily -- and not typically -- completely idle and unproductive. They may be performing useful work in the household sector, such as gardening or cow keeping; they may be engaged in petty trade; or as casual laborers in off-farm activities. To conclude that the opportunity cost of employing an unemployed man is zero ignores such real costs as those of the additional caloric intake required to

meet higher energy requirements, wear and tear on clothes, the cost of transportation to and from work; and the non-pecuniary costs (as perceived by the worker) of working on a particular job rather than doing whatever he was doing previously (i.e. the reservation price). There are several offsetting considerations:

A decline in unemployment is expected, due to increased demand for labor on expanded farms. And the hiring of unskilled farm labor for road work tends to create a farm labor shortage in peak periods such as the harvest season, bidding up its price.

However, cet. par. weighing all these considerations the shadow price for unskilled labor was supported at \$.13 per man/day.

Equipment

The price of the gourde in terms of U.S. Dollars is fixed and there is no shadow pricing element in terms of the cost of foreign exchange.

All equipment other than bulldozers is levied a 10 percent tax when imported commercially, but all equipment under the loan is imported duty-free. There is therefore no shadow-pricing aspect to taxes on equipment.

Fuels bear a duty of 10 percent on gasoline and 5 percent on Diesel oil. This was taken into account in the Berger costing of construction.

Ranking of Project Investments

After the financial costs and benefits for each road link over a 10-year road life were quantified over time, they were shadow priced to reflect their respective economic values. The substantial utilization of unskilled labor in road improvement and maintenance shadow priced at a realistic 10 percent of its market price was a salient factor in support of a good proportion of link improvements.

A 10 percent discount rate was utilized in the computer program to determine the present value of benefits and costs. Benefit cost ratios ranged from 6.5 to less than 1.0. As a consequence several candidate roads at the lower end of the scale were dropped leaving a total of 52 viable sub-projects for investment.

(b) Indirect Benefits

Also expected but not quantified were the social benefits accruing to the small farmer through the project.

Improved access to agricultural production technology through agricultural extension agents and agricultural experimental farms has not been accounted for. Cost reduction in agricultural inputs such as fertilizers as a consequence of reduced transport costs have not been counted.

The benefits of better accessibility to health facilities and schools have not been quantified. Easier travel to towns where staples and consumer goods may be available at more reasonable prices than from traders at the farmgate is also an indirect benefit. Further, the introduction of all weather roads increases the probability that small farmers will convert part of their production efforts to the more perishable high value crops which promise a better profit margin. The value of these increased profits has not been considered. Nor has the reduced spoilage as a consequence of field rot or damage in transit, which in some countries, such as Bolivia, amounts to as much 20 per cent of the crop value.

Income Redistribution

The project, designed to assist the low income rural population, has certain income redistribution aspects. While no attempt has been made to introduce distributional considerations into the economic analysis (such as by attaching distributional weights to the various costs and benefits), the way in which labor has been shadow priced involves an implicit distributional judgment.

By shadow pricing labor at one tenth of the wage paid, the assumption is made that the other nine tenths of the wage payment does not represent an economic cost, but rather a transfer from the rest of society to the workers employed on the project. Since most of the workers to be employed are extremely poor, the transfer results in a more equitable distribution of income.

(iii) Sensitivity Analysis

In illustrative cases tested by the computer principal factors were varied to analyze the sensitivity of project viability to alternative assumptions of values. Two conditions were derived: (1) to reflect the reduction of benefit expectations by 15% and (2) to prolong the time of construction to examine what impact this had on the benefit/cost ratios. Other constraints included in these analyses were time or labor requirements at key periods of the year, market outlets and production allotments.

The overall shifts to induced benefits and accident savings proved to be most sensitive to change, while upward shifts in financial costs yielded approximately a 10:1 sensitivity ratio.

The sensitivity analysis performed did not include the evaluation of institutional variables, such as success in effective operation in bringing inputs and effective collection of project charges. These, too, will have an important impact on any project, but fall outside the analytical process followed.

A. THE COMPUTER MODEL

(i) Analysis

The Berger Study yielded an array of user cost data, all which were implanted in the AID Transport Model. More specifically, the AID computer was used to store and compile a very large data base which produced, internally, twenty-three separate variables and approximately 150 line items (roads).

The following information was extracted directly from the Berger Study:

- (a) Cost to restore road to its 1960 standard.
- (b) Percentages of each road in gravel, earth, rock/stone and pavement.
- (c) User savings growth as related to the Berger gravity model.
- (d) Traffic growth
- (e) Structure costs; including culverts and headwalls, fords, and bridge repairs.
- (f) Width, length, and other geometric criteria.

The AID economic analysis team sought to put into most useful perspective the data that the Berger team had collected. The first task was largely a mission judgment to modify the geometric standards of 1960 to something more compatible with the low-volume traffic witnessed today, while improving the design quality to all weather standards.

The conclusion reached after considerable examination was that staged construction, and in most cases 4-meter roadways (with turnouts) would suffice with present and projected Haitian traffic.

This involved eliminating the extra cost that Louis Berger had estimated to restore road widths to their often oversized dimension reflected in 1960 standards.

The next task involved calculating the additional cost of a gravel wearing surface, which had been purposely excluded from their estimates. Once the extrapolation of the costs had been determined, the data were compiled and stored into the AID computer

model. The outcome provides a major benchmark for the development of the economic costs.

(11) Economic Costs

Adjustments of the financial costs were necessary to derive the economic costs to society.

As detailed in a following section, the unskilled labor was shadow priced at \$.13/day. This approach also implies a bias towards redistribution of income, an important AID goal. The financial cost of unskilled labor utilized in feeder road improvement was first determined. This was accomplished by: 1) Identifying the labor and equipment percentages in both a capital intensive and a labor intensive road improvement technology's; 2) identifying to what degree each technology would be applied on a given road stratum eg: rock and stone, earth, or "other"; 3) determining from the Berger road inventory the amount of each stratum eg: rock, stone, earth, etc as a percentage of the total road link length; 4) applying the percentage of unskilled labor used in each type of stratum to the cost percentage of each stratum, multiplied by the road link improvement cost.

The financial cost of unskilled labor was then shadow priced to its economic cost. Maintenance of the roads is a critical consideration. SEPRRN, the highway maintenance agency has recently launched a serious labor intensive road maintenance program and plans call for further AID support through a road maintenance loan. In this light, the labor cost of maintenance is highly significant and has been subjected to shadow waging techniques.

The computer model was designed to discount all costs beyond Year 1, at a predetermined opportunity cost of capital. That discount rate was determined to be 10%.

Mathematically, the economic costs were derived from the financial costs as follows:

Construction Costs = \sum Berger costs x Improvement Ratio 1/
Plus: Maintenance Costs = \$130/year

$\sum_{n=1}^{10}$ Discount and Maintenance Cost = \$130/yr x $1/ (1-i)^n$

1/ The Ratio between AID estimates and Berger costs

Less: Taxes & Transfers & Contingencies = 23.5% Constr. Costs

Less: Unskilled Labor Cost = Production factor x Constr. costs

Economic Costs = \sum Contr. Costs - Tax & TC -09 Economic Cost of Labor
+ Present Value of maintenance stream, shadow-priced

The total cost structure as presented by the computer is illustrated in Tables 27A&B. It should be noted here that the roads have been ranked and sorted in order of decending Benefit/Cost ratios.

(iii) The Benefits

The basic yardstick for the benefit stream was the motor savings base provided by the Berger team. It was simply a financial profile of vehicular savings over a restored roadbed. Obviously, the expansion of the road program suggested that additional measurements would come into play. For example, Berger's use savings base was associated with a specific growth projected per today's vehicular traffic only. It excluded local traffic i.e.: animal, headload and local vehicles which contribute substantially to the present movement of foodstuffs.

Further, while Berger excluded "accident savings", the value of the accident savings has proven to be substantial. Recent interviews with the insurance agencies here suggest that one out of every four automobiles in Haiti has a major accident. This brings up an important difference between a "saving" as defined by Berger and AID and benefits included in the economic appraisal.

** The words "saving" and "benefit" infer a before and after type of comparison. A monetary saving is defined as the reduction in cost of a product or service effected by a change to a new process, procedure, or device. For instance, when a new highway constructed from A to B reduces the motor vehicle running cost to 4.9 cents per vehicle-mile as compared to 5.3 cents on the highway before the new construction, there is a true saving of 0.4 cents a vehicle-mile. This is a direct before and after comparison. "Savings" are based on the concept that you accomplish the same objective as before, but at less cost.

In contrast, a benefit may be realized without having gained a true saving by reason of not having a "before base" from which to calculate the monetary saving. On your first trip to a city

you drive on the new urban expressway. You gained the benefit of the expressway, but no actual saving. The saving is hypothetical only, because to have achieved it in reality you would have had to drive the former route, which no longer exists. A saving can be computed for you, however, on the basis that had you driven the former route you would have experienced a saving on your current trip over the former trip. These hypothetical savings do not accrue in a manner that could be used to pay for the facility. Generated traffic is the best example of traffic receiving a benefit but no saving.

To quantify the benefits then, becomes the real challenge to the analyst. After the local traffic "savings" certain induced benefits were known to exist but were found to be less quantitative.

One alternative method seemed appropriate, given the following rationale. As aforementioned, data flowing from ongoing Berger studies provided only financial indicators of feeder road worthiness. Basically, a market analysis done by the Interamerican Institute for Agricultural Sciences (IICA) provided information on route linkage in terms of marketed surpluses usually head-loaded into the more rural centers. These indicators supported the notions that transport was very competitive with regard to vehicular and mule traffic, and that the value of surplus off the farm was basically a function of the domestic market price and the accumulation of costs associated with transporting the surplus. In the aggregate, these various modal transport (operational) costs, in a competitive market would reduce the ratio of length of haul to the market price. Uncertainties and factor inputs with regard to that market price also play an important role as to farm cropping patterns. Obviously small farmers are interested in maximizing their profits as perceived by them. Transport costs, especially by "rented mule train" are real cash outlays to be considered in the farmer's net profit. The lack of factor inputs are, of course, the major reason that yields are extremely low which very often reflects the inaccessibility of the project regions.

In short, the depressing situation witnessed in the rural sector reflects proportionately the magnitude and quality of data available for the analysis of our selected project sites. The paucity of applicable data gave rise to a methodology for analysis to cope with these shortfalls and to utilize the scattering of available data to the ultimate. If AID's objective to assist small farmers by increasing their incomes was to be realized,

several restrictive assumptions had to be formulated with the data to provide a measure of induced benefits.

- (a) That a minimum agriculture package program would soon be implemented in Haiti.
- (b) That factor inputs would increase proportionately with traffic growth, and
- (c) That transfers in technology would account for some improvement in the farm sector.

The present state of the art illustrates a fair amount about how road improvements affect truck maintenance costs and the operating cost of vehicles. Much less is known about how the reduction in operating cost affects the transport rates which in turn influence the development of natural resources and the location of economic activity; that is, less is known about the demand for transport. In urban transport, the problem is mainly that of the passenger, his intermodal choice, and the division between public and private transport. In rural transport, the main concern is freight haulage, the extension of the area of cultivation and the transformation from traditional pursuits to producing for the market.

After reviewing the IICA market study, several important indicators were flagged which may reflect the true measure of induced benefits. Basically, the IICA Team raised two issues in their study. What would be the consequences on the volume and character of traffic, on the area of cultivation and on the increase in marketed produce? Restrictive assumptions had to be made in order to provide a useful factor related to area, traffic or some other similar unit. In doing so, the main assumption is that there is free entry to the road haulage industry and that it enjoys constant costs. Thus when a road is improved reductions in operating costs are wholly passed on to the users in the form of lower rates. No part is kept by any monopoly of the truckers. Secondly, the marketing arrangements are organized under highly competitive conditions -- so that a fall in wholesale prices will be passed on immediately in the form of lower retail prices. Since one crucial assumption -- very competitive transport, has been made -- and to a large extent verified, no fraction of the reduction in transport cost is siphoned off.

These assumptions -- and they are crucial -- enabled us to isolate

the effects of road improvement in terms of the expansion and production of induced benefits with respect to farmer location. Based upon the IICA market survey, a conservative basis of thirty percent was added to the user savings to reflect the induced benefits.

The sum of benefits, discounted internally provide the last link to the B/C ratio. The formulation included:

- User Savings Base Growth Rate (G)
- Plus: Local Traffic (held constant)
- Plus: Accident Savings
- Plus: Induced Benefits
- Plus: Salvage Value

Mathematically,

$$\text{Present Worth of Benefits} = \sum_{n=1}^{n=10} \frac{G(1+i)^{n+1}}{i} - (n+1) \times \frac{G}{1(1+i)} + \text{User Base} \times \frac{(1+i)^{tn-1}}{i(1+i)^{tn}} \times \frac{1}{(1-i)^n}$$

- + Accident Savings = 15% user savings benefits
- + Induced Benefits = .30 user savings base x 1/(1+i)ⁿ
- + Salvage Value = .50 Construction Costs x 1/(1-i)¹⁰

After the development of all variable data was completed, the computer model calculated the various factors and sorted the roads according to their various B/C ratios. At this juncture, roads which didn't measure up to a B/C of at least 1.0 at a 10% discount rate, were deleted. Table 27c illustrates that list and respective costs and B/C ratios.

ROADS SCHEDULE FOR HAITI
FY 1976
FIGURES IN US DOLLARS
ECONOMIC COSTS
DISCOUNTED AT 10%

Table 27.A.

ANNEX III
EXHIBIT D
PAGE 7 of 9

ROAD LINK	LINK NO.	LENGTH	CONSTR COSTS	MAINT. COSTS DCM 10%	UNSKILLED LABOR DCM 10%	BRIDGE COSTS	TRANSFERS AND TAXES DCM
CARRFOR-THOMAZEAU	85.00	10.60	59,346.00	8,401.31	17,803.80	2,650.00	14,243.04
JEAN PABEL-NOR CRETN	207.00	8.10	38,308.00	6,419.87	5,746.20	2,025.00	9,193.92
TOMASCAN-MANVILLE	86.00	4.00	19,190.00	3,170.30	4,029.90	1,000.00	4,605.60
RT 300-CER CARL	72.00	11.70	82,521.00	9,273.14	20,630.25	2,925.00	19,805.04
CAYES-CAMP PERR	118.00	22.20	90,750.00	17,595.19	30,855.00	5,550.00	21,780.00
GROS MORN-BASS BLU II	6.00	22.20	93,233.50	17,595.19	36,361.06	5,550.00	22,376.04
THIOTLE-NAN FOJGR	103.00	10.00	45,636.50	7,925.76	17,798.23	2,500.00	19,952.76
CROIX DES BOUQ-GANTHIR	79.00	18.70	103,247.00	14,821.17	48,526.09	4,675.00	24,779.28
PORT SALUT-CARRFOR JOUTE	230.00	12.50	72,490.50	9,907.20	28,271.29	3,125.00	17,397.72
BARRADER-PESTEL	401.00	20.00	252,500.00	15,651.52	85,850.00	5,000.00	60,600.00
BELLADER-FRONTIP	400.00	4.50	8,850.00	3,566.59	1,327.50	1,125.00	2,124.00
PET PRO ART-GROS CHAND	51.00	4.10	16,408.00	3,249.56	5,086.48	1,025.00	3,937.92
PORT DE PAIX-BAS BLU	5.00	27.90	159,230.50	22,112.87	54,138.37	6,975.00	38,215.32
CAYES JACML-MARGT	220.00	8.30	48,430.00	6,578.38	16,466.20	2,075.00	11,623.20
SAVN BORGU-THRTT	100.00	33.90	152,622.00	26,868.33	50,365.26	8,475.00	36,629.28
ST RAPL PRAGON	29.00	16.20	57,172.50	12,839.73	28,586.25	4,050.00	13,721.40
HOUC-CARFOR JOUTE	229.00	5.60	22,698.00	4,438.43	7,490.34	1,400.00	5,447.52
MIRBOLAIS-THOMOND	76.00	37.80	127,203.00	29,959.37	62,329.47	9,450.00	30,528.72
GONTHR-FOND PARISON	80.00	11.50	57,552.00	9,114.62	28,200.48	2,875.00	13,812.48
CA FOUCHE-TROUIN	78.00	10.90	75,576.00	8,639.08	27,207.36	2,725.00	18,138.24
MIRBLAS-DINI	66.00	17.00	82,774.66	13,473.79	37,248.60	4,250.00	19,865.92
GROS CHAUDRE-PIE	43.00	10.10	37,411.00	8,005.02	5,611.65	2,525.00	8,978.64
BARR BATT-DONDON	27.00	12.00	109,468.80	9,510.91	54,734.40	3,000.00	26,272.51
JACNEL-CAYES JACMEL	109.00	15.90	98,600.00	12,601.96	33,524.00	3,975.00	23,664.00
ROUSO-CARFOR CHAS	234.00	14.70	76,279.50	11,650.87	24,409.44	3,675.00	18,307.08
THOMONDE-HINCHE	75.00	16.20	98,978.40	12,839.73	14,846.76	4,050.00	23,754.82
VERME-CROUCHU	149.00	18.00	62,475.00	14,266.37	28,113.75	4,500.00	14,994.00
CA GEORGS-LE BORGNE	11.00	28.60	61,351.16	22,667.67	19,018.86	7,150.00	14,724.28
FOND PARSN-FONTRI	89.00	10.00	31,160.00	7,925.76	12,775.60	2,500.00	7,478.40
DONDON - ST RAPHAEL	28.00	12.80	147,420.00	10,144.97	73,710.00	3,200.00	35,380.80
LABCOS-BELLADER	67.00	33.40	141,300.00	26,472.04	49,455.00	8,350.00	33,912.00
PTE PRO NIPP-MARAGOANE	146.00	16.00	61,589.00	12,681.22	19,092.59	4,000.00	14,781.36
FOND PARISEN-SAVON BORRQUE	81.00	21.60	125,100.00	17,119.64	45,036.00	5,400.00	30,024.00
ROSO-JEREMIE	140.00	15.30	84,807.00	12,126.41	39,011.22	3,825.00	20,353.68
NANGRAVE-SANTT	68.00	2.10	8,710.00	1,864.41	2,700.10	525.00	2,090.40
VERMIE-MORON	139.00	21.50	96,140.00	17,040.38	38,456.00	5,375.00	23,073.60
CARFOR CHAS-CARFOR AUCT	143.00	16.20	73,623.50	12,839.73	22,823.28	4,050.00	17,669.64
FLASNCE-PILTE	12.00	15.80	57,531.00	12,522.70	17,834.61	3,950.00	13,807.44
DINI LAYCABOS	217.00	5.60	52,272.00	4,438.43	16,204.32	1,400.00	12,545.28
BELLADER-BAPTIST	190.00	21.00	117,390.00	16,644.10	64,564.50	5,250.00	28,173.60
ENRY-ST MIKE	40.00	25.00	112,455.00	19,814.40	43,857.45	6,250.00	26,989.20
PESTEL-CHARLES	141.00	36.80	114,562.00	29,166.80	48,116.04	9,200.00	27,494.88
PETH REV NIZ-ANS NEAU	145.00	11.00	55,825.00	8,718.34	25,678.50	2,750.00	13,398.00
GDE RTU DU NORD-BARON	18.00	17.30	69,904.00	13,711.56	10,488.60	4,325.00	16,776.96
TROU-BERET	107.00	38.80	153,418.50	30,751.95	52,162.29	9,700.00	36,820.44
MORON-DAME MARIE	138.00	26.60	91,581.00	21,082.52	28,390.11	6,650.00	21,979.44
MARIGOT-SEQUIN	110.00	27.20	107,844.00	21,558.07	33,431.64	6,800.00	25,882.56
CARPEFOR-MOUS-COTFER	116.00	43.30	143,379.00	34,318.54	71,689.50	10,825.00	34,410.96
PORT PAIX-ANSE FLR	3.00	29.10	117,214.00	23,063.96	58,607.00	7,275.00	28,131.36
MARMALDE-NIEU PORT	183.00	15.00	64,408.00	11,888.64	20,610.56	3,750.00	15,457.92
PESTIL-BEAUMONT	150.00	23.60	76,300.00	18,704.79	22,890.00	5,900.00	18,312.00
NAN-FOUGERE-LBELL ANSE	219.00	17.90	92,564.50	14,187.11	30,546.28	4,475.00	22,215.48
TOTALS	6,059.00	936.10	4,406,799.50	741,930.28	1,642,705.92	234,024.95	1,057,631.93

SRU'S: 14.7

- 1

ROADS SCHEDULE FOR HAITI
FY 1976
FIGURES IN US DOLLARS
ECONOMIC BENEFITS
DISCOUNTED AT 10%

Table 27.B.

ANNEX III
EXHIBIT D
PAGE 8 of 9

ROAD LINK	LINK NO.	LENGTH	GROWTH RATE	LOCAL TRAFFIC DCM 10%	ACCIDENT SAVINGS DCM 10%	RESIDUAL VALUE DCM 10%	INDUCED BENEFITS DCM 10%	ECONOMIC BENEFITS DCM 10%
CARRFOR-THOMAZEAU	85.00	10.60	8.00	31,251.53	34,067.12	11,438.94	24,543.09	157,469.13
JEAN RABEL-NOR CRETN	207.00	8.10	9.90	24,663.50	30,895.33	7,383.87	19,369.24	121,922.31
TOMASCAN-MANVILLE	86.00	4.00	10.50	10,078.56	13,129.20	3,698.87	7,915.10	50,415.20
RT 300-CER CARL	72.00	11.70	12.50	31,895.35	46,677.76	15,905.92	25,048.70	162,842.94
CAYES-CAMP PERR	118.00	22.20	14.50	31,936.61	51,527.70	17,492.06	25,081.11	163,773.92
GROS MORN-BASS BLU	6.00	22.20	9.30	28,829.83	34,652.49	12,970.76	22,641.23	152,115.80
THIOTLE-NAN FOUGR	103.00	10.00	9.40	13,102.96	15,860.64	8,796.44	10,290.28	69,744.77
CROIX DES BOUQ-GANTHIR	79.00	18.70	9.90	21,970.30	27,521.62	19,900.86	17,254.16	121,931.93
PORT SALUT-CARRFOR JOUTE	230.00	12.50	11.30	17,899.21	24,489.03	13,972.54	14,056.97	96,732.50
BARRADER-PESTEL	401.00	20.00	12.10	55,558.64	79,566.12	48,669.37	43,632.44	304,926.99
BELLADER-FRONTIR	400.00	4.50	9.00	4,347.70	5,114.53	1,705.84	3,414.42	21,955.28
PET PRO ART-GROS CHAND	51.00	4.10	9.00	4,565.08	5,370.25	3,162.64	3,585.14	24,424.56
PORT DE PAIX-BAS BLU	5.00	27.90	9.30	36,996.32	44,468.33	30,691.68	29,054.70	202,835.33
CAYES JACML-MAROT	220.00	8.30	9.60	11,065.31	13,581.58	9,334.88	8,690.03	60,772.03
SAUN BORGU-THRTT	100.00	33.90	9.50	38,218.06	46,585.98	29,417.89	30,014.19	207,131.84
ST RAPL PRAGNON	29.00	16.20	13.10	10,575.61	15,965.79	11,020.00	8,305.46	59,653.99
HOUC-CARFOR JOUTE	229.00	5.60	10.10	5,259.68	6,676.77	4,375.04	4,130.64	28,785.68
MIRBLAIS-THOMOND	76.00	37.80	15.50	22,925.76	30,603.23	24,518.38	18,004.52	129,242.28
GONTHR-FOND PARISON	80.00	11.50	10.50	8,271.72	10,775.47	11,093.15	6,496.12	49,434.40
CA FOUCHE-TROUIN	78.00	10.90	11.20	13,598.46	18,494.70	14,567.27	10,679.42	77,461.45
MIRBLAS-DINI	66.00	17.00	10.50	12,695.49	16,538.24	15,954.82	9,970.28	74,801.19
GROS CHAUDRE-PIE	43.00	10.10	8.90	10,675.40	12,466.87	7,210.97	8,383.82	56,947.87
BARR BATT-DONDON	27.00	12.00	13.00	10,531.36	15,818.60	21,100.11	8,270.70	69,544.76
JACHEL-CAYES JACHEL	109.00	15.90	10.20	17,120.53	21,876.13	19,005.15	13,445.44	98,437.84
ROUSO-CARRFOR CHAS	234.00	14.70	10.00	14,392.25	18,149.49	14,702.87	11,302.81	81,549.83
THOMONDE-HINCHE	75.00	16.20	15.20	24,510.73	40,762.64	19,078.09	19,249.26	131,131.99
VERME-CROUCHU	149.00	18.00	9.00	10,144.63	11,933.90	12,042.06	7,966.98	59,290.76
CA GEORGS-LE BORGNE	11.00	28.60	13.30	16,040.72	24,459.82	11,825.44	12,597.43	85,548.81
FOND PARSN-FONTPI	89.00	10.00	10.50	5,329.17	6,942.23	6,006.09	4,185.21	30,707.95
DONDON - ST RAPHAEL	28.00	12.80	13.10	10,839.53	16,364.22	28,415.20	8,512.72	78,262.88
LABCBOS-BELLADER	67.00	33.40	11.00	21,516.42	28,913.34	27,235.57	16,897.71	126,812.90
PTE PRO NIPP-MARAGOANE	146.00	16.00	9.10	10,482.13	12,420.52	11,871.28	8,232.04	60,676.11
FOND PARISEN-SAVON BORRQUE	81.00	21.60	9.60	16,361.33	20,081.93	24,113.02	12,849.21	100,168.77
ROSO-JEREMIE	140.00	15.30	10.20	8,320.58	10,631.81	16,346.55	6,534.49	54,950.87
NANGRAVE-SAUNT	68.00	2.10	10.10	1,355.59	1,720.82	1,678.85	1,064.60	7,970.25
VERMIE-MORON	139.00	21.50	7.10	11,615.81	11,748.25	18,530.98	9,122.36	72,969.92
CARRFOR CHAS-CARRFOR AUCT	143.00	16.20	10.20	10,035.37	12,822.91	14,190.93	7,881.18	60,751.18
PLASNCE-PILTE	12.00	15.80	13.90	8,610.07	13,515.15	11,089.10	6,761.84	50,592.99
DINI LAYCABOS	217.00	5.60	10.10	5,410.73	6,868.52	10,075.43	4,249.26	35,187.11
BELLADER-BAPTIST	190.00	21.00	10.00	6,316.58	7,965.58	22,626.92	4,960.66	51,952.04
ENRY-ST MIKE	40.00	25.00	13.10	11,612.44	17,531.06	21,675.70	9,119.72	75,077.73
PESTEL-CHARLES	141.00	36.80	10.30	13,137.34	16,895.91	22,081.83	10,317.28	83,014.76
PETH REV NYZ-ANS NEAU	145.00	11.00	9.10	4,344.47	5,147.86	10,760.27	3,411.89	30,988.14
GDE RIU DU NORD-BARON	18.00	17.30	11.00	11,575.99	15,555.58	13,474.00	9,091.09	67,047.32
TROU-BERET	107.00	38.80	11.20	17,854.46	24,283.12	29,571.42	14,021.83	112,150.02
MORON-DAME MARIE	138.00	26.60	7.10	11,615.81	11,748.25	17,652.24	9,122.36	72,091.17
MARIGOT-SEQUIN	110.00	27.20	10.00	12,921.84	16,295.22	20,786.93	10,148.04	80,777.45
CARRFOR-NOUS-COTFER	116.00	43.30	10.00	11,770.93	14,843.84	27,636.30	9,244.18	82,283.60
PORT PAIX-ANSE FLR	3.00	29.10	9.90	8,091.10	10,135.51	22,593.00	6,354.27	60,168.43
MARMALDE-NIEU PORT	183.00	15.00	13.90	7,075.41	11,106.20	12,414.64	5,556.60	44,877.33
PESTIL-BEAUMONT	150.00	23.60	10.00	9,623.06	12,135.25	14,706.82	7,557.38	59,382.51
NAN-FOUGERE-LBELL ANSE	219.00	17.90	10.30	8,258.88	10,621.73	17,841.81	6,486.03	56,147.70
TOTALS	6,059.00	936.10	555.10	783,196.21	1,042,323.63	849,410.66	615,075.55	4,475,804.06

SRU'S: 15.8

ROADS SCHEDULE FOR HAITI
FY 1976
FIGURES IN US DOLLARS

ANNEX III
EXHIBIT D
PAGE 9 of 9

ROAD LINK	LINK NO.	UNIT COST	LENGTH	CONSTR COSTS	R/C RATIO
CARRFOR-THOMAZEAU	85.00	5,599.68	10.60	59,346.00	4.41
JEAN KABEL-NOR GRETN	207.00	4,709.38	8.10	38,308.00	4.09
TOMASCAN-MANVILLE	86.00	4,297.50	4.00	19,190.00	3.67
RT 300-CER CARL	72.00	7,053.08	11.70	82,521.00	3.17
CAYES-CAMP PERR	118.00	4,087.84	22.20	90,750.00	2.94
GROS MORN-BASS BLU	6.00	4,199.71	22.20	93,233.50	2.92
THIOTLE-NAN FOUAR	103.00	4,563.65	10.00	45,636.50	2.81
CROIX DES BOUQ-ANTHIR	79.00	5,521.23	18.70	103,247.00	2.72
PORT SALUT-CARRFOR JOUTE	230.00	5,799.24	12.50	72,490.50	2.63
BARRADER-PESTEL	401.00	12,625.00	20.00	252,500.00	2.50
BELLADER-FRONTIR	400.00	1,966.67	4.50	8,850.00	2.45
PET PRO ART-GROS CHAND	51.00	4,001.95	4.10	16,408.00	2.30
PORT DE PAIX-BAS BLU	5.00	5,707.19	27.90	159,230.50	2.28
CAYES JACML-MAROT	220.00	5,834.94	8.30	48,430.00	2.26
SAUN BORGU-THRTT	100.00	4,502.12	33.90	152,622.00	2.24
ST RAPL PRAGON	29.00	3,529.17	16.20	57,172.50	2.15
HOUC-CARFOR JOUTE	229.00	4,053.21	5.60	22,698.00	2.03
MIRBOLAIS-THOMOND	76.00	3,365.16	37.80	127,203.00	2.01
GONTHR-FOND PARISON	80.00	5,004.52	11.50	57,552.00	2.01
CA FOUCHE-TROUIN,	78.00	6,933.58	10.90	75,576.00	1.99
MIRBLAS-DINI	66.00	4,869.10	17.00	82,774.66	1.91
GROS CHAUDRE-PIE	43.00	3,704.06	10.10	37,411.00	1.85
BARR BATT-DONDON	27.00	9,122.40	12.00	109,468.80	1.83
JACMEL-CAYES JACMEL	109.00	6,201.26	15.90	98,600.00	1.82
ROUSO-CARRFOR CHAS	234.00	5,189.08	14.70	76,279.50	1.80
THOMONDE-HINCHE	75.00	6,109.78	16.20	98,978.40	1.79
VERME-CROUCHU	149.00	3,470.83	18.00	62,475.00	1.76
CA GEORGS-LE BORGNE	11.00	2,145.15	28.60	61,351.16	1.70
FOND PARSN-FONTRI	89.00	3,116.00	10.00	31,160.00	1.63
DONDON - ST RAPHAEL	28.00	11,517.19	12.80	147,420.00	1.61
LABCBOS-BELLADER	67.00	4,230.54	33.40	141,300.00	1.50
PTE PRO NIPP-MARAGOANE	146.00	3,849.31	16.00	61,589.00	1.50
FOND PARISEN-SAVON BORRQUE	81.00	5,791.67	21.60	125,100.00	1.49
ROSO-JEREMIE	140.00	5,542.94	15.30	84,807.00	1.46
NANGRAVE-SAUNTT	68.00	4,147.62	2.10	8,710.00	1.43
VERMIE-MORON	139.00	4,471.63	21.50	96,140.00	1.41
CARFOR CHAS-CARFOR AVCT	143.00	4,544.66	16.20	73,623.50	1.32
PLASNCE-PILTE	12.00	3,641.20	15.80	57,531.00	1.32
DINI LAYCABOS	217.00	9,334.29	5.60	52,272.00	1.26
BELLADER-BAPTIST	190.00	5,590.00	21.00	117,390.00	1.26
ENRY-ST MIKE	40.00	4,498.20	25.00	112,455.00	1.22
PESTEL-CHARLES	141.00	3,113.10	36.80	114,562.00	1.22
PETH REV NYZ-ANIS NEAU	145.00	5,075.00	11.00	55,825.00	1.22
GDE RIV DU NORD-BARON	18.00	4,040.69	17.30	69,904.00	1.19
TROU-BERET	107.00	3,954.08	38.80	153,418.50	1.18
MORON-DAME MARIE	138.00	3,442.89	26.60	91,581.00	1.16
MARIGOT-SEQUIN	110.00	3,964.85	27.20	107,844.00	1.15
CARREFOR-MOUS-COTFER	116.00	3,311.29	43.30	143,379.00	1.15
PORT PAIX-ANSE FLR	3.00	4,027.97	29.10	117,214.00	1.12
MARMALDE-NIEU PORT	183.00	4,293.87	15.00	64,408.00	1.12
PESTIL-BEAUMONT	150.00	3,233.05	23.60	76,300.00	1.10
NAN-FOUGERE-LBELL ANSE	219.00	5,171.20	17.90	92,564.50	1.04
TOTALS					
SRU'S: 13.7	6,059.00	258,588.67	936.10	4,406,799.50	99.13

DEPARTMENT OF STATE
TELEGRAM

ANNEX IV
Page 1 of 5

PORT AU PRINCE

ACTION: AID
INFO : AMB
DCM
CHRON

UNCLASSIFIED
Classification

CONT: 3967
RCVD: 18 DEC 74

R 17235Z DEC 74
FM SECSTATE WASHDC
TO AMEMBASSY PORT AU PRINCE 6133
BT
UNCLAS STATE 276873

AIDAC

E.O. 11652: N/A

REF: AGRICULTURAL FEEDER ROADS IRR (FORMERLY RURAL SECTOR
DEVELOPMENT)

1. THE DAEC REVIEWED SUBJECT IRR ON NOV 26 AND APPROVED
INTENSIVE REVIEW SUBJECT TO THE FOLLOWING:

A. THE INTERDEPENDENCE BETWEEN THE IRR AND OTHER ACTIVE OR
PROJECTED AID ACTIVITIES WAS NOTED. RESERVATION WAS EXPRESSED
HOWEVER, TO THE ADVISABILITY OF LINKING THE PROGRAM'S SUBS
PROJECTS TO A YET UNDETERMINED SERIES OF IRRIGATION SYSTEMS.
RATHER, THE INTENSIVE REVIEW SHOULD AIM AT IDENTIFYING THE SPECIFIC
GEOGRAPHIC AREAS OF PRIORITY AGRICULTURAL DEVELOPMENT WHICH CAN
BE RANKED ON DEMONSTRATED POTENTIAL FOR INCREASE IN AGRICULTURE
PRODUCTIVITY AND THEN INCORPORATED WITHIN THE TPIC OVERALL PLAN.
EACH AREA MUST BE JUSTIFIED ON THE BASIS OF OVERALL AGRI-
CULTURAL ACTIVITY, INCLUDING OTHER DONOR PROGRAMS.

B. AID ACCEPTS THE OVERALL SIX-YEAR TPIC PLAN AS THE GENERAL
PROGRAM FRAMEWORK. AID PARTICIPATION, HOWEVER, WILL NEED
TO BE DEFINED IN TERMS OF SPECIFIC ROAD SEGMENTS TO BE ACCOM-
PLISHED WITHIN THE PERIOD OF AID PARTICIPATION IN THE PLAN,
AND PRELIMINARY ENGINEERING ESTIMATES WILL HAVE TO BE DEVELOPED
TO THE EXTENT POSSIBLE. THE INTENSIVE REVIEW PERIOD, THEREFORE,
WILL REQUIRE A PRELIMINARY ENGINEERING ASSESSMENT OF THE SPECIFIC
ROAD SEGMENTS TO BE IMPROVED. THE MISSION SHOULD IMMEDIATELY
IDENTIFY THE ENGINEERING AND AGRICULTURAL MANPOWER REQUIRE-
MENTS NECESSARY TO ACCOMPLISH THIS TASK AND SEEK TO BEGIN FIELD
ANALYSIS AT AN EARLY DATE. AID/W WISHES TO SEE THE PRELIMINARY
RESULTS OF THIS ANALYSIS TO DETERMINE THAT SUFFICIENT BASE-
LINE DATA EXISTS TO WARRANT PROCEEDING WITH THE CAP.
MISSION IS REQUESTED TO INDICATE HOW THEY WISH TO PROCEED
(E.G., LUMP SUM CONTRACT, AID/W IDY, ETC.), AND WHAT ASSISTANCE
CAN BE PROVIDED BY AID/W TO FURTHER THE PROCESS.

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C. THE GON COUNTERPART CONTRIBUTION TO THE LOAN WILL INVOLVE THE EXPECTED IPTC ANNUAL BUDGETARY INCREASES NEEDED TO EXECUTE THE PROGRAM PLUS THE NECESSARY INCREASES TO SEPRRN FOR MAINTENANCE OF THE ROADS RECONSTRUCTED UNDER THE PROGRAM, INCLUDING THOSE ROADS IDENTIFIED AS HAVING PRIORITY STATUS UNDER THE AID LOAN. THE MISSION SHOULD REQUEST SEPRRN TO PREPARE AN ESTIMATE OF ITS NEEDS OVER THE NEXT SIX YEARS TO ACCOUNT FOR THE INCREASED MILEAGE EXPECTED TO BE COVERED AS A RESULT OF THE PROGRAM. SUCH ANNUAL ESTIMATES, WHICH SHOULD BE REVIEWED AND AGREED TO BY THE IPTC, SHOULD TAKE INTO ACCOUNT THE RELATIVE SHARE OF GON RESOURCES WHICH CAN BE EXPECTED TO BE ALLOCATED TO THE MAINTENANCE SECTOR IN RELATION TO OTHER NATIONAL PRIORITIES, AND A REASONABLE ANNUAL INCREASE IN SEPRRN'S BUDGET SHOULD BE PROJECTED. WHILE THE AID LOAN WILL NOT COVER THE ENTIRE SIX-YEAR IPTC PROGRAM, WE WOULD EXPECT THE GON TO COVENANT ITS SUPPORT TO SEPRRN OVER THE ENTIRE SIX YEARS.

D. EQUIPMENT NEEDS WILL HAVE TO BE RELATED TO ESTIMATES AS TO MILEAGE EXPECTED TO BE ACCOMPLISHED AND THE TYPE OF TERRAIN AND STANDARD OF ROADS EXPECTED. HEAVY EQUIPMENT SHOULD BE RESTRICTED TO THE MINIMUM AMOUNT REQUIRED AND STRESS SHOULD BE PLACED UPON THE MAXIMUM USE OF HAND LABOR WHENEVER FEASIBLE. THE CAP WILL NEED TO DEVELOP AN OVERALL PROJECTION OF IPTC'S EQUIPMENT REQUIREMENTS AND AN ANALYSIS OF THE TYPES OF EQUIPMENT NOW HELD AND AMOUNT OF ROAD WORK TO BE CARRIED OUT WILL BE REQUIRED.

E. IPTC'S INSTITUTIONAL CAPACITY WILL HAVE TO BE ANALYZED BOTH IN PHYSICAL AND AVAILABLE MANPOWER TERMS. WHAT GAPS EXIST IN PRESENT DESIGN, SUPERVISORY, AND OPERATING PERSONNEL RANKS? WHAT IS THEIR CAPACITY TO CARRY OUT THE PROJECTED KILOMETERS DURING SIX YEARS? WHAT ARE THE MISSION'S ESTIMATES, BASED UPON AN ANALYSIS OF PRESENT AND PROJECTED RESOURCES, OF HOW MUCH CAN REASONABLY BE ACCOMPLISHED? WHAT TECHNICAL ASSISTANCE REQUIREMENTS WILL BE NEEDED, AND WHEN, TO ASSIST IPTC IN ITS OVERALL PLAN? WHAT SPECIFIC TRAINING REQUIREMENTS WILL NEED TO BE MET OVER THE LIFE OF THE LOAN? ALSO, THE IPTC IS CURRENTLY RECEIVING ACROSS-THE-BOARD TECHNICAL ASSISTANCE FROM IDB, IBRD, AND THE FRENCH. CAN THE IPTC ABSORB THE ESTIMATED AMOUNT OF TA PROPOSED BY AID? HOW WILL IT COMPLEMENT OTHER DONOR ACTIVITY?

F. THE RELATIONSHIPS OF THIS PROGRAM TO OTHER DONOR ACTIVITY WITHIN THE TRANSPORTATION SECTOR, AND THE EFFECT THIS INCREASING ACTIVITY WILL HAVE UPON THE IPTC, SHOULD BE ANALYZED CLOSELY.

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THIS WOULD INCLUDE A COMPLETE BREAKDOWN OF ALL OTHER DONOR ACTIVITY WITH THE TPIC AND THE PROJECT LIFE FINANCIAL REQUIREMENTS, BY PROJECT AND YEAR, THAT ARE CURRENTLY CONTEMPLATED. IN THIS CONTEXT, THE MISSION SHOULD REQUEST THE EMBASSY, USING AVAILABLE IBRD AND GOH DATA, TO PREPARE AN UP-DATED ANALYSIS OF THE GOH'S CURRENT AND PROJECTED FISCAL SITUATION AND THE RELATIVE SHARE WHICH THE EXPANDING TRANSPORTATION SECTOR WILL DEMAND FROM OVERALL GOH RESOURCES OVER THE NEXT FIVE - SIX YEARS. ALSO, TO THE EXTENT THAT THE GOH PROGRAM OF FEEDER ROAD CONSTRUCTION IS DEPENDENT ON COMPLETION OF THE ROAD PROJECTS FINANCED BY OTHER DONORS, THE EXPECTED PROGRESS UNDER THESE MAJOR ROAD PROJECTS SHOULD BE ANALYZED TO INSURE THAT THE FEEDER ROAD CONSTRUCTION SCHEDULE IS REASONABLE.

G. THE ISSUE OF UTILIZING COMMUNITY WORK TEAMS AND PAYMENT FOR THEIR SERVICES UNDER THE PROGRAM RAISES SERIOUS QUESTIONS AS TO THE ABILITY OF THE TPIC TO ORGANIZE AND ADMINISTER SUCH A SYSTEM SO AS TO AVOID INEFFICIENCIES AND MAXIMIZE PRODUCTIVITY. THE EXACT AMOUNT PROPOSED FOR SUCH ASSISTANCE WILL REQUIRE AN ANALYSIS OF THE PROPOSED NUMBER AND TYPE OF MANPOWER REQUIREMENTS, BASED UPON PRELIMINARY ENGINEERING ESTIMATES, OF THE PROGRAM. THE EFFECTIVE WAGE SCALE PROPOSED SHOULD TAKE INTO ACCOUNT PREVALENT RURAL HAITIAN WAGE STANDARDS. THE EXACT FORMULA FOR SUCH PAYMENT IS NOT SPECIFIED IN THE IRR. WILL IT BE THE SAME AS PROPOSED UNDER THE FY 76 INTEGRATED AGRICULTURAL DEVELOPMENT SCHEMES IRR? IS THIS A REALISTIC WAGE RATE THE PROPOSED WAGE RATE MUST BE SUPPORTED BY DISCUSSION IN THE CAP. THE USE OF SUCH FUNDS SHOULD BE AIMED PRIMARILY AT SUPPORTING THOSE SEGMENTS OF THE PROGRAM IDENTIFIED AS HAVING HIGH AGRICULTURAL PRIORITY; HOWEVER, SUCH ANALYSIS SHOULD INCLUDE THE MANPOWER REQUIREMENTS OF THE OVERALL TPIC PROGRAM RESULTING IN RECOMMENDATIONS ON THE EXTENT SUCH FUNDS MAY BE USED TO PROVIDE LIMITED SUPPORT TO OTHER IMPORTANT ELEMENTS OF THE PROGRAM WITHIN THE AID LOAN TIME FRAME. THE CAP SHOULD ALSO INCLUDE A SEPARATE ANALYSIS AND DISCUSSION AS TO THE SPECIFIC ORGANIZATIONAL STRUCTURE, INCLUDING APPROPRIATE SAFEGUARDS, WHICH WILL IMPLEMENT AND CONTROL THE PAYMENT SYSTEM.

H. THE ANALYSIS SHOULD ALSO ASSESS THE IMPACT UPON THE RURAL ECONOMY OF SUCH PAYMENTS AND WHETHER MEASURES COULD BE TAKEN TO CHANNEL SUCH ADDITIONAL INCOME INTO PRODUCTIVE USES (I.E., A PAYROLL DEDUCTION PLAN TO CREATE SEED CAPITAL FOR COMMUNITY CREDIT UNIONS). NUMBERS OF COMMUNITIES AFFECTED AND POTENTIAL NUMBER OF FAMILIES, ALONG WITH ESTIMATES AS TO HOW MUCH EACH FAMILY WOULD EXPECT TO RECEIVE UNDER THE PROGRAM SHOULD BE SPECIFIED.

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I. THE CAP WILL NEED TO SPECIFY THE ROLE AND EXTENT OF THE COMMUNITY COUNCIL'S PARTICIPATION IN THE ROAD IMPROVEMENT AND SUBSEQUENT MAINTENANCE PROGRAMS. A HIGH ELEMENT OF ORGANIZATION TRAINING WILL BE REQUIRED. IT WILL HAVE TO BE DETERMINED IN THE CAP WHO SHALL BE RESPONSIBLE FOR THIS TRAINING ACTIVITY, HOW IT WILL BE CARRIED OUT, WHAT KIND OF TRAINING IS REQUIRED, AND HOW MUCH IT WILL COST OVER THE LIFE OF THE LOAN. OF PARTICULAR IMPORTANCE IS NEED TO REACH AN UNDERSTANDING EARLY ON AS TO WHAT MAINTENANCE RESPONSIBILITIES CAN BE EXPECTED TO BE PERFORMED BY THE COMMUNITIES THEMSELVES AND HOW THIS CAN BE FOSTERED AND EXPANDED THROUGH THE LOAN.

J. THE CAP WILL NEED TO IDENTIFY TO THE EXTENT POSSIBLE THE IMPACT OF THE PROGRAM AND THE LOAN UPON THE VARIOUS COMMUNITIES AFFECTED. THE USE OF A RURAL SOCIOLOGIST DURING THE INTENSIVE REVIEW IS SUGGESTED. HE OR SHE SHOULD AIM AT DEVELOPMENT OF SOME SOCIAL INDICATORS WHICH WOULD ASSESS THE IMPACT OF INCREASED ACCESSIBILITY UPON THE COMMUNITY. THE MISSION SHOULD SEEK TO RECRUIT SUCH SERVICES, EITHER HAITIAN OR OTHERWISE, IN THE NEAR TERM.

K. THE REQUESTED FOUR-YEAR DISBURSEMENT PERIOD WILL NEED TO BE RECONSIDERED AND, IF NECESSARY, JUSTIFIED IN TERMS OF OVERALL REQUIREMENTS OF THE IPTC SIX-YEAR PLAN, ESTIMATED LEAD TIME FOR EQUIPMENT DELIVERIES AND TIME REQUIRED UNDER THE COMMUNITY COUNCIL ORGANIZATION AND TRAINING ELEMENT. THE CAP WILL NEED TO DEMONSTRATE WHY LOAN CANNOT BE FULLY DISBURSED THREE YEARS FROM DATE OF FIRST DISBURSEMENT.

L. THE PRESENT AND EXPECTED PROGRESS OF SEPRRN UNDER LOAN 005 SHOULD BE EXPLORED IN DEPTH IN THE CAP. AN ASSESSMENT SHOULD BE MADE, IN CONJUNCTION WITH THE ANALYSIS OF SEPRRN'S BUDGETARY NEEDS, OF THE ORGANIZATIONAL CHANGES ACCOMPLISHED UNDER LOAN 005, AND DISCUSSION SHOULD BE GIVEN TO THE INTERRELATIONSHIP THAT WILL EXIST BETWEEN SEPRRN AND IPTC AS BOTH GROW IN SIZE AND FUNCTION.

M. THE IRR LACKED MENTION OF THE APPLICATION OF THE FAA PERCY AMENDMENT. THE CAP SHOULD ADDRESS THE QUESTION OF HOW THE LOAN WILL MEET THE AIMS OF THIS LEGISLATION, EVEN IF INDIRECTLY, E.G., EASE OF MARKETING PRODUCE. EFFECTS, BOTH POSITIVE AND NEGATIVE, OF THE LOAN ON THE ROLE OF WOMEN SHOULD BE ADDRESSED, AS WELL AS THE EXTENT OF THEIR PARTICIPATION IN THE VARIOUS PROGRAM ELEMENTS.

N. EVALUATION CRITERIA WILL NEED TO BE DEVELOPED BEYOND

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THE AMOUNT OF KILOMETERS IMPROVED. TARGETS SHOULD INCLUDE THE IDENTIFICATION AND TO THE EXTENT POSSIBLE QUANTIFICATION OF EXPECTED EFFECTS OF THE LOAN ON SUCH ASPECTS AS AGRICULTURAL PRODUCTION, REDUCED SPOILAGE, TRANSPORTATION COSTS, PRICES PAID TO FARMERS FOR AGRICULTURAL PRODUCTS, AVAILABILITY OF PERISHABLE AGRICULTURAL PRODUCTS IN URBAN AREAS, DEVELOPMENT OF TRANSPORTATION INFRASTRUCTURE, ACCESS TO MEDICAL SERVICES, PERSONAL INCOME, TRAINING OF PERSONNEL, COMMUNITY ORGANIZATIONS, ETC. SINCE ASSUMPTIONS ARE CRITICAL TO SUCCESS OF PROJECT, VERIFIABLE INDICATORS SHOULD BE DEVELOPED WHICH WILL MEASURE PROGRESS TOWARD ACCOMPLISHMENTS.

O. THE IRR FULFILLED THE REQUIREMENTS OF THE PPP OF THE PROPOSED GRANT-FINANCED PROJECT TO ACCOMPANY THE LOAN. THE PROP WILL NEED TO BE SUBMITTED IN CONJUNCTION WITH THE CAP AND WILL REQUIRE SPECIFIC DELINEATION OF THE COMPLEMENTARY ROLE THE PROP INTENDS TO MAKE TO THE TPTC PROGRAM AND THE LOAN. SIMPLE PROVISION OF GRANT-FINANCED ENGINEERING SERVICES PER SE AND SOME TRAINING WILL BE INSUFFICIENT. RATHER, THE PROP SHOULD IDENTIFY THE SPECIFIC EXAMPLES OF EXPERTISE REQUIRED TO FILL THE GAPS IDENTIFIED IN THE TPTC INSTITUTIONAL ANALYSIS AND SHOULD RELATE TO THE TPTC ABILITY TO ABSORB AND UTILIZE THE INCREASED TA. THIS WILL DEPEND, TO A LARGE DEGREE, UPON THE ABILITY OF THE MISSION TO ELICIT FROM THE TPTC AN UNDERSTANDING OF AID'S ROLE WITHIN THE OVERALL TPTC PROGRAM. ELEMENTS OF AID ASSISTANCE GO TO OVERALL SUPPORT OF THE SIX-YEAR PROGRAM AND THE INSTITUTIONALIZATION WITH TPTC AND THE COMMUNITIES TO MAKE IT EFFECTIVE. OTHER ELEMENTS WILL SEEK TO ADDRESS ONLY THOSE ROAD SEGMENTS WHICH ARE DETERMINED AS HAVING AGRICULTURAL PRIORITY. DISCUSSIONS WITH THE TPTC DURING THE INTENSIVE REVIEW SHOULD SEEK A FLEXIBILITY WHICH WILL ALLOW THESE AGRICULTURAL PRIORITY SEGMENTS TO BE GIVEN PRECEDENCE IN THE PRESENT SIX-YEAR TPTC PLAN. WE WILL ALSO NEED A SOLID GOX COMMITMENT ON THE NECESSARY INCREASES IN THE SEPRRN BUDGET OVER THE SIX-YEAR PERIOD.

P. FINALLY, THE CONCENTRATION ON RURAL FEEDER ROADS WILL REQUIRE THAT WE SEND A CLARIFICATION TO CONGRESS ON THIS LOAN. WE WILL NOTIFY YOU OF DETAILS IN THIS REGARD. THE NEW TITLE OF THE LOAN IS "AGRICULTURAL FEEDER ROADS."

Q. THE TIMING OF THE CAP WILL BE DETERMINED LARGELY BY THE PROGRESS OF THE MISSION IN IDENTIFYING AND RECRUITING REQUIRED INPUTS OVER THE NEXT FEW MONTHS. AID/W WOULD REQUEST THAT A MID-TERM IRR REPORT BE MADE BY THE MISSION BY FEBRUARY 28TH AS TO WHERE THE DIFFERENT ANALYTICAL AND POLICY COMMIT-

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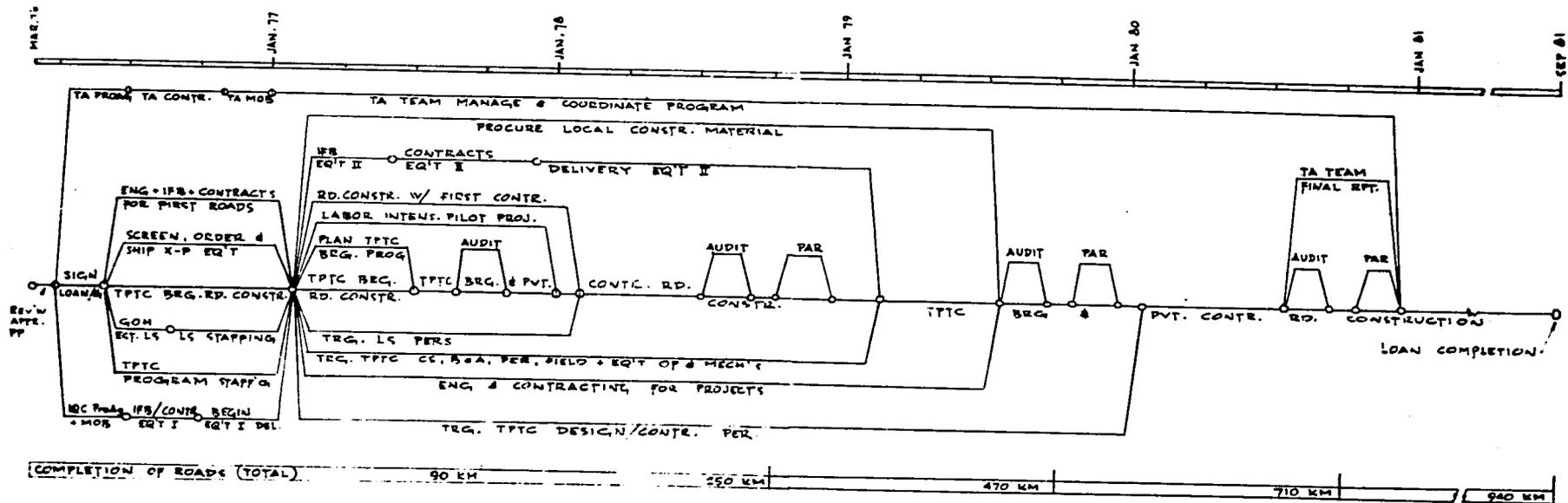
MENT PIECES ARE AT THAT POINT. ^{Classification} IF PROGRESS SEEMS SUFFICIENT, IT WOULD BE EXPECTED THAT A CAP WOULD BE PREPARED DURING APRIL, 1975, FOR SUBMISSION O/A MAY 1. AID/W WILL PROVIDE, UPON REQUEST, THE SERVICES OF A LOAN OFFICER, TRANSPORTATION ECONOMIST AND AGRICULTURAL ADVISOR. KISSINGER

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