

5710074
PO-AIF-275-A

PROJECT DATA SHEET

IX: REVISION #2

1. COUNTRY/ENTITY: HAITI
 2. PROJECT NUMBER (7 DIGITS): 521-0074
 3. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Agricultural Feeder Roads
 4. BUREAU/OFFICE: USAID/Haiti
 5. SYMBOL: LAC
 6. CODE: 05
 7. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY: 76, B. QUARTER: 4, C. FINAL FY: 80
 8. PROJECT ASSISTANCE COMPLETION DATE (MM DD YY): 10/29/81

9. COSTS BY SOURCE OF FUNDS

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FA	C. LC	D. TOTAL	E. FA	F. LC	G. TOTAL
AID APPROPRIATED TOTAL	3,750	1,875	5,625	6,878	2,528	9,406
GRANT	550	75	625	3,678	728	4,406
LOAN	3,200	1,800	5,000	3,200	1,800	5,000
OTHER U.S.						
HOST COUNTRY	-	445	445	-	4,403	4,403
OTHER COUNTRIES	-	-	-	-	-	-
TOTALS	3,750	2,320	6,070	6,878	6,931	13,809

10. PROPOSED BUDGET AND FINANCING (\$500)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		F. 1ST FY 76 + TQ		H. 2ND FY 77		K. LIFE OF PROJ	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	H. GRANT	J. LOAN	K. GRANT	M. LOAN
1) FN	280	061	061	625	5,000	725	-	4,406	5,000
2)									
3)									
4)									
TOTALS				625	5,000	725	-	4,406	5,000

11. SECONDARY TECHNICAL CODES (MAXIMUM SIX CODES OF THREE POSITIONS EACH): 721
 12. SPECIAL CONCERNS CODES (MAXIMUM SEVEN CODES OF FOUR POSITIONS EACH): BR, BL, LAB

13. PROJECT PURPOSE (MAXIMUM 400 CHARACTERS)

- 1) To provide small farmers with all weather access to commercial market centers, to lower land transport cost for agricultural inputs, and permit delivery of essential social services to isolated rural areas; and
- 2) To strengthen the capability of TPTC to plan, manage and implement rural roads upgrading programs.

14. SCHEDULED EVALUATIONS: INTERIM (05/79), FINAL (10/81)
 15. SOURCE/ORIGIN OF GOODS AND SERVICES: LOCAL, OTHER (SPECIFY)

16. ORIGINATING OFFICE CLEARANCE: SIGNATURE: Allan R. Furman, Director, USAID/Haiti; DATE SIGNED: 11/01/79
 17. DATE DOCUMENT RECEIVED IN AID/FA, OR FOR AID/FA DOCUMENTS, DATE OF DISTRIBUTION

18. AMENDMENTS/NATURE OF CHANGE PROPOSED: Increased focus on institutional development of implementing agency (TPTC) and on labor intensive road construction techniques; extension of technical advisory services through end of project; addition and funding of baseline evaluation data gathering and follow-up; reduction of physical outputs (kilometers of roads built); increase in grant funding of \$1,700,000 to cover additional technical assistance and evaluation costs.

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

GRANT AUTHORIZATION

(Amendment No. 2)

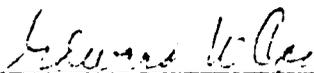
Name of Country: Haiti
Name of Project: Agricultural Feeder Roads
Number of Project: 521-0074

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, the Agricultural Feeder Roads project (the "Project") for Haiti was authorized on March 31, 1976. The grant component of the Project was amended on July 27, 1979, to increase the grant by \$306,000. The grant component of the Project is hereby further amended as follows:

(a) an increase to the grant of \$1,700,000 is hereby authorized;
and

(b) the Project design shall be modified to provide greater support for administrative reorganization, to reduce the physical outputs (road reconstruction) and to incorporate other changes, all as more specifically described in the Project Paper Amendment attached as Tab B to the Action Memorandum for this Grant Authorization Amendment.

2. Except as expressly amended or modified hereby, the grant component of the Project remains in full force and effect.



Acting Assistant Administrator
Bureau for Latin America
and the Caribbean

Jan 14, 1980
Date

Clearances:

GC/LAC:JLKessler JLK Date 1/8/80

LAC/CAR: RDelaney Date _____

LAC/DR:MBrown MB Date 1/8/80

GC/LAC:GMWinters:jlo:1/2/80:29182

PROJECT PAPER AMENDMENT NO. 2

AGRICULTURAL FEEDER ROADS PROJECT NO. 521-0074

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Attachment A: Evaluation Study of Haiti Agricultural Feeder Roads Project by Group Seven Associates, Inc.

PROJECT PAPER AMENDMENT NO. 2

AGRICULTURAL FEEDER ROADS PROJECT NO. 521-0074

I. INTRODUCTION

The purpose of this PP Amendment is to reflect modifications in the scope and focus of the project and to provide an additional \$1,700,000 in grant-funded technical assistance and evaluation studies needed for the successful implementation of the project. These changes have resulted from an in-depth evaluation of the project undertaken in May 1979 and lengthy discussions of the recommendations of this evaluation between USAID/Haiti and the Government of Haiti.

The project redesign described in this Amendment represents a strengthening of the institutional development focus of the original design through greater support for the administrative reorganization process initiated by the Department of Public Works, Transportation and Communications (TPTC) and through the full integration of project activities into the TPTC divisions responsible for rural road construction work. It also reflects a considerable reduction in the physical outputs of the project (kilometers of feeder roads constructed) due to cost over-runs caused principally by procurement delays under the project and upgraded road design standards that were necessary to assure "all-weather" service. In addition, this revision reflects a much greater emphasis on labor intensive road reconstruction techniques and the establishment of "light" brigades within TPTC to formalize the labor intensive approach. The private contractor component of the project has been eliminated, while the TPTC brigades have been expanded correspondingly. On balance the overall level of effort under the project has been slightly increased.

The original grant component of the project was \$2,400,000 to finance long- and short-term technical assistance and other related costs. This amount was increased to \$2,706,000 by PP Amendment #1, which was approved by AID/W in July 1979. This additional funding was requested to extend the services of the long-term contract advisory team through December 1979. The project redesign reflects a decision by the GOH to retain the services of the present contractor and to extend the services

provided through the end of the project. Modifications have been made in the composition of the long-term advisory team to reflect the revised emphasis of the project. In addition to the long-term contract, grant funds are required to finance the collection of baseline evaluation data and to conduct follow-up evaluations of the impact of road construction on the communities served. Funding is also requested for an administrative advisor to TPTC to assist further with their reorganization process. Total additional grant requirements are \$1,700,000 to cover these costs through September 30, 1981.

While the project has encountered numerous implementation problems to date and progress has been slower than expected, preliminary indications are that the roads constructed are providing definite benefits to the rural inhabitants within their area of influence. Most of the delays have been due to new (to the TPTC) and cumbersome AID procurement and contracting procedures and over-expectations in the original project design of TPTC's performance capabilities during the early stages of project implementation, because of its limited prior experience with this type of program. These problems have been reflected in equipment procurement delays and poor phasing of various project components during implementation (e.g. too early assignment of advisors at the request of USAID). However, progress has been made and is expected to accelerate now that the principal problems have been identified and are either resolved or in the process of resolution.

In considering this PP Amendment, two alternatives were considered by the Mission: 1) to request additional funding for road construction costs and an extension of the project's terminal date to allow for completion of the original number of roads projected in the PP (940 kilometers), or 2) to provide no additional construction financing and stay within the existing terminal date, but to scale down the number of roads to be constructed correspondingly. The latter approach was chosen. The Mission believes that TPTC has made substantial progress toward improving its capability to administer rural roads construction efforts and becoming a strong implementing organization over the past three years. However, continued emphasis is needed on overall institutional strengthening during the next two years. TPTC performance over this period will provide a basis for a judgment as to what additional assistance might be provided to TPTC to build on the experience gained under this project. The Mission believes that it would be premature at present to request the significant amount of additional funding that would be required to complete the original target of 940 kilometers of roads, although we fully expect to be in a position to recommend further assistance in this area in the future through new projects.

II. BACKGROUND AND RATIONALE FOR AMENDMENT

The Agricultural Feeder Roads Project was authorized on March 31, 1976. The Loan Agreement (521-T-007) was signed on June 29, 1976 and the complementary Grant Agreement was signed April 27, 1976. The loan provides \$5.0 million to cover the costs of equipment, materials and operating expenses to enable the Department of Public Works, Transportation and Communications (TPTC) to reconstruct approximately 940 kilometers of agricultural feeder roads. Of this total, 620 kms were to have been constructed by TPTC force account brigades and the remaining 320 kms. were expected to be constructed by private Haitian contractors. Additional project components were the establishment of an Equipment Leasing Service (SLELC) to assist private contractors perform road construction work planned for them in the original project design and the testing of labor intensive road construction/maintenance methods on a pilot basis, which was expected to provide guidance for future labor intensive feeder road construction in Haiti. The grant provided \$2.4 million (this was increased to \$2,706,000 by PP Amendment #1 in July 1979) for long- and short-term technical assistance, commodities, training, and other related costs. Technical assistance was provided in two distinct phases: (1) a short-term phase of 9 work months (wm) at the beginning of the project to provide priority services of an equipment procurement specialist, a leasing pool consultant and a highway engineer to assist with designs for the first roads to be reconstructed, and (2) the long-term phase of a range of long-term and short-term advisors to assist with the implementation of the various project activities. Through these components, it was expected that the institutional capability of TPTC to undertake reconstruction of agricultural feeder roads in Haiti would be significantly increased.

A. Project Implementation to Date

The project was designed for a five-year implementation period. Major procurement and contracting actions were scheduled during the first three months of project implementation, since projected progress on road reconstruction was predicated on the early availability of heavy equipment, technical services and designs and other bidding documents for roads to be constructed by private contractors. Despite this planning effort, implementation has been continually delayed from the outset for a variety of reasons to the point that the project is now considerably behind schedule, and has experienced

substantial cost overruns, particularly in construction, as compared with original estimates for which there was no previous experience base. These delays and other contributing factors, and progress to date on the major project components, are summarized briefly below.

2. Road Construction

Two principal and interrelated factors concerning the road reconstruction aspect of the project have contributed to the present situation: (a) delays in the procurement of heavy construction equipment for the TPTC brigades and (b) the pace and cost of construction by these brigades.

According to the original implementation plan, the first group of heavy equipment was to arrive during the fifth-month of the project. The short-term consultants hired at the beginning of the project were to have produced the IFB for this equipment. In fact, the IFB was not ready for publication until 9 months after the departure of the short-term team due to problems with the specifications prepared by the consultant. The original specifications tended to require proprietary procurement, which resulted in a determination by AID/W that they be revised. This entire process took 9 months, bringing the entire time required to produce the IFB to one year. Following publication, an additional 13 months passed before the equipment was delivered to Haiti and distributed to the two TPTC brigades. Thus there was an 18-month delay in the receipt of the first lot of construction equipment for the brigades.

These delays were repeated for the second tranche of heavy equipment, which was needed to bring the two brigades up to their full capacity by November 1977, as projected in the PP. This equipment was delivered in October 1979, almost two years behind schedule. Again, preparation of the IFB accounted for 14 months of the delay. Delays in obtaining a proprietary procurement waiver from AID/W to permit TPTC to standardize its equipment contributed to this delay. The two TPTC construction brigades have just received this equipment and are only now at the level of equipment projected for them for the middle of the second year of the project.

Consequently, construction progress by the brigades has been considerably less than anticipated in the PP. The PP states that the brigades were operating at an average of approximately 1.5 km/month prior to the initiation of the project (PP, p. 34), but that they were expected to increase this

average to 5 km/month during the life of the project. Such a three-fold increase in efficiency now appears to have been over-optimistic in the first place. Coupled with the significant delays in the arrival of project-financed equipment, it has been impossible to attain this rate of construction. The average construction rate of the two brigades since the beginning of the project has been only slightly over 2 km/month, although this rate has been improving slowly recently and will most likely improve further once the second lot of equipment is delivered to the brigades. The net effect of this low level of production has been the completion of only approximately 130 kilometers of road, as compared with the 450 kilometers that were expected to be reconstructed by this time.

Complicating this picture is the fact that the road reconstruction costs have not been proportionately lower. The brigades have been operational since the beginning of the project. Therefore, fixed operating costs have been incurred at or above the expected level, despite the meager physical progress. In addition, the feeder roads reconstructed are being built at substantially higher standards than contemplated in the PP. The PP, in fact, was somewhat contradictory on the question of design standards. It calls for construction of "all weather" roads, but proposes standards which would not, under Haitian weather conditions, provide that level of service. As a result of these factors, plus the delays caused by the equipment procurement process, the cost of the road construction undertaken to date is currently approximately \$15,680/km, as opposed to the average of \$7,176/km estimated in the PP*. With inflation during the remainder of the implementation period, this rate will increase, although possible increases may be offset to some extent by greater efficiency with the addition of the new equipment.

In sum, due to delays in equipment procurement and substantially increased per kilometer costs of construction, the project is seriously behind schedule in terms of kilometers of feeder roads reconstructed and is facing a situation in which the available funds will finance only a greatly reduced number of roads at a considerably higher cost.

2. Technical Assistance

The long-term technical assistance contract was signed in March 1977 with Tippetts, Abbetts, McCarthy, Stratton (TAMS) Consulting Engineers. Contract signature and mobilization of the contractor was delayed approximately 8 months from the PP schedule due to TPTC unfamiliarity with AID host-country contracting procedures and with slower than expected negotiations with a consulting firm. Because of the delays in the construction

*PP, page 21

aspect of the project, however, the effect of the delay in their arrival was not significant. The original plan for technical assistance presented in the PP (Annex II, Exhibit 0), was for the majority of the long-term advisors to spend one to two years in Haiti, with the exception of the Senior Transportation Engineer-Team Leader (4 years) and the Transportation Engineer (3 years).

The TAMS contract team has provided assistance to the TPTC in overall management and administration, accounting, and equipment maintenance, as well as field engineering assistance to the TPTC brigades. In addition, the labor intensive pilot project was performed with the assistance of advisors provided under the TAMS contract. A series of factors have influenced the performance and contribution of the TAMS team to the project. First, the services of several of the long-term advisors, who arrived in Haiti at the beginning of the contract period at USAID's urging, were somewhat premature because of delays in the arrival of construction equipment for the TPTC brigades and the SLELC. Most of the TAMS advisors, including the field engineers and the equipment leasing specialist, were in country beginning in June 1977, a year before the first lot of equipment was received. In fact, the tours of several advisors (leasing service, heavy equipment) expired before the operations they were to have assisted began, and in most other areas, where advisory services were to have been provided to field operations, these operations were substantially behind schedule. Secondly, two major additions were made in the long-term advisory personnel provided under the TAMS contract, which resulted in faster than anticipated draw-down of the work months to be provided under the contract. These two problems necessitated a substantial revision to the technical assistance plan for the project and an increase of \$306,000 in the funding for the contract, which was obtained following approval of PP Amendment #1 for this project in July 1979. However, even with this increase, the TAMS contract is funded only through December 1979.

3. Labor Intensive Pilot Project

The labor intensive pilot project was designed to develop policy guidance on various labor intensive road construction/maintenance techniques through the construction of agricultural feeder road segments using these techniques. The pilot project was carried out with the assistance and analysis of several specialists provided by TAMS. It was conducted over a period of approximately one year beginning in November 1977, a delay of 9 months from the PP implementation schedule.

The labor intensive pilot project was intended to provide policy guidance for future labor intensive works through a detailed comparison of various labor intensive techniques or of labor intensive vs. machine-intensive technologies. The pilot project, as conducted by TAMS, did not include such a comparison and as a

result, the report on the pilot project prepared by TAMS provides little in the way of policy guidance for a future labor intensive road construction/maintenance program in Haiti beyond the conclusion that labor intensive techniques are workable and should be employed. However, the experience gained from the pilot project has provided valuable information on the organization for and implementation of labor intensive road construction. Much was learned through the actual construction experience about labor recruitment and organization, and the cost data suggest that labor intensive road construction (on at least this section of road) compares favorably to more capital intensive techniques. Construction costs for the labor intensive road, both during and after the pilot project, have been approximately \$16,188/km compared to a total project average of approximately \$15,680/km. Despite some problems over the manner of recruitment and employment of local labor, it also appears that the labor intensive mode provides substantial benefits to the local population through direct and indirect employment creation.

The experience gained during the labor intensive pilot project has been supplemented by a recent evaluation of labor intensive road construction techniques and experience under the Small Farmer Development project (521-0073). In general, this evaluation supported the conclusion that this type of road construction provides significant benefits to the rural target group and provided additional guidance for future efforts at using this construction mode.

The labor intensive work begun with the pilot project has continued through the creation of a "light" TPTC brigade. Although not contemplated in the original design, this "light" brigade is now an integral part of the agricultural feeder roads project and is the basis for the modified road construction technology focus of the project described in this PP amendment.

4. Construction by Private Contractors

This element of the program has been one of the most disappointing. The PP projected that 320 kms of roads would be reconstructed by private contractors. To date, only one contract for 7 kms has been awarded for construction and progress on this contract is 11 months behind schedule.

Initial design, specifications and contract documents for the first set of roads for private contractors were to have been completed by the short-term consultants at the beginning of the project. These were completed on schedule in

September 1976. The designs were based on a "straight line" plan commonly used for this type of work in other countries. Private contractors, however, declined to bid the project with this abbreviated engineering plan. It was then decided to provide a field survey and a more detailed plan for bidding purposes. Seven contractors were prequalified, but only two bid, and their bids were considered excessive. The plans were altered by reducing the profile and quantities and by shortening the length. New bids were sought and one was received. The contract was eventually awarded to this contractor, who started work in late November 1978. There have been continued delays and problems since the award. As a result, the scheduled completion date of February 1979 for the contract has been substantially exceeded with the work only 86.7% completed as of September 30, 1979. Construction costs for this road section are more than double the projections in the PP.

Furthermore, design consultants who were to have prepared plans for subsequent road sections assigned to private contractors are seriously behind schedule. Designs were recently completed for two additional roads and one was bid. The lowest bid received was at \$25,000/km, greatly exceeding the TPTC/TAMS cost estimate of \$15,000/km for this work. On the basis of this experience, the continued use of private construction contractors in the project has been reconsidered.

5. Equipment Leasing Service

The SLELC was established in March 1977 and the staffing commenced in July 1977. However, due to the problems described above, equipment for SLELC did not arrive until July to October 1978. Thus, leasing operations began only in late 1978.

SLELC has benefitted from dynamic leadership and operations are now on a sound footing. Although considerable leasing has occurred, the Service has not operated to date for the purpose for which it was established. As described above, only one contract has been awarded for feeder road construction under the project and this contractor has not utilized SLELC equipment. However, SLELC conducts its own training program for its equipment operators, supplemented with specialized training from the local equipment dealer, as required. SLELC equipment has been used more efficiently to date than similar equipment assigned to the TPTC brigades, and down-time for SLELC equipment has been much less than brigade equipment.

6. Institutional Development

A secondary objective of the original project design was to strengthen the capability of TPTC to manage and implement agricultural feeder roads programs. This was to have been achieved through assistance received from the TAMS team and experience gained through the implementation of this project.

A main element of the institutional strengthening aim of the project was the adoption by TPTC of a reorganization plan based on a study made by Louis Berger International in 1975 as part of their transportation sector analysis. A law approving the reorganization was enacted by the GOH in July 1978, and the reorganization plan is now being implemented. Emphasis is being placed on the TPTC Programming Unit, the Autonomous Transport Service, the Construction and Supervision Service, Organization and Methods, and Administration and Accounting. These services are central to the TPTC institutional capability with respect to feeder roads programs.

The TAMS team has provided assistance in several areas of institutional strengthening, although this was not their main emphasis under the scope of their contract to date. The Senior Transportation Engineer and Transportation Engineer have provided some assistance to TPTC top project management in the implementation of the project. Other assistance provided by TAMS has included the areas of planning and design, and cost and accounting systems. More importantly, the TAMS Administrative Advisor was assigned to act as consultant to the TPTC ad hoc committee which was established to evaluate and implement the reorganization of TPTC. Upon completion of his tour with TAMS, the advisor was employed directly by TPTC to continue this work. One additional aspect of institutional development - training - also was not a specific TAMS focus under their contract. Some on-the-job instruction has taken place in connection with the provision of advisory services, however.

The organization of TPTC for project implementation has been less than optimal as a means of strengthening TPTC overall. A separate unit was established to manage the project. The unit is not integrated into the main TPTC services and several of its employees are contracted specifically for this project. This has limited the degree to which the advice of the technical assistance team is utilized by the TPTC in general. Thus, TPTC's organizational strengths were not appreciably altered.

B. Project Evaluation

An in-depth evaluation of the project was conducted by Group Seven Associates in May 1979. This evaluation resulted in several far-reaching conclusions and recommendations, which formed the basis for the redesign of the project described in this PP amendment. A copy of the final evaluation report is included as Attachment A to this paper.

The principal recommendations of the Group Seven evaluation are noted below. The section(s) of this PP amendment which respond to these recommendations is noted in parentheses.

1. That objectives be redefined, realistic targets be identified and scheduled, and new costs be determined. (see pp. 13, 38 of this PP amendment)

2. That the separate project implementation entity be moved closer to TPTC physically and administratively. (see pp. 13-14)

3. That more interest, recognition, and support be given to the TPTC reorganization. (see pp. 14-15)

4. That the GOH's true abilities and intentions to finance the project be reassessed. (see pp. 41 & 47)

5. That a strategy be developed for road construction that would include both capital-intensive and labor-intensive technologies and that would program the most difficult roads for machine-intensive (heavy brigade) work and the relatively easier roads for the labor-intensive (light brigade) mode. Priority should be given for labor intensive reconstruction assistance to road segments where self-help, community action road work is already in progress. (see pp. 17-20)

6. That survey and design efforts for the brigades be re-examined to determine what is essential for their use in construction and that the effort be limited to their needs. (see pp. 16-17)

7. That two road sections designed by engineer consultants be advertised for bidding by private contractors, that the prices be reviewed for comparison to brigade unit costs, and that the project be awarded if the costs are not excessive. The experience on these two road sections can be used to determine the future of the contract construction mode in the project. (see p. 19)

8. That the light-brigade be defined as a labor-intensive lightly equipped mode and be formally authorized and adequately funded. (see pp. 17-18)

9. That greater emphasis be placed on budgeting the brigades on the basis of work units to be accomplished rather than time and materials consumed.

10. That greater emphasis be given to training and that a training specialist be included in the technical assistance team. (see pp. 20-21)

11. That baseline studies on some roads scheduled for reconstruction be conducted before construction begins in order to allow subsequent determination of socio-economic benefits. (see pp. 23-28)

12. That certain extensions be made in the technical assistance staff, including the Senior Transportation Advisor, the Transport Engineer, the Heavy Equipment Mechanic and qualified road construction engineers to work with the construction brigades. (see pp. 21-23)

C. Rationale for PP Amendment

As discussed above, the project has encountered serious problems in almost every aspect of its implementation. Procurement has been greatly delayed, construction progress has been much slower than anticipated, costs have doubled, the technical assistance has not always been timely or appropriately focussed, and the TPTC has not been optimally organized to improve its overall ability to implement feeder road construction programs. Despite these problems, however, roads are being reconstructed and, more significantly, early information indicates that these roads are providing definite benefits to the rural inhabitants within their area of influence. Much experience has been gained through the first three years of the project and the program has reached a point where greater progress can be expected in the future now that many of the principal problems have been identified and work has been begun to overcome them. Furthermore, an in-depth evaluation of the project has been completed and its major recommendations have been reviewed and accepted by the TPTC.

For these reasons, the Mission believes that the project should be continued but that it requires a substantial redesign to incorporate the lessons of this experience. This PP amendment has been prepared to reflect this redesign. It calls for retaining the present five-year implementation period

and funding level for the loan portion of the project. This necessitates a sharp reduction in the physical output of roads reconstructed because of the delays and the increased costs experienced to date. The grant portion of the project requires an increase in funding to continue the services of the technical assistance team through the end of the project, to expand this team to include a training advisor and an additional field engineer, and to finance the collection of baseline data and its use in future project impact evaluations. More fundamentally, the redesign reflects a change in emphasis in the project's objectives toward a more concerted effort to improve the institutional capability of TPTC to manage this and similar programs in the future. This focus is consistent with the emphasis of the overall AID program in Haiti and is likely to result in much greater, long-term benefits to Haiti and its rural poor. In keeping with this focus, the technical services financed by the AID grant will emphasize institutional development more strongly during the final two years of the project.

III. DESCRIPTION

A. Revised Project Goal and Purpose

The goal of the project remains unchanged, namely, to improve the standard of living and economic and social integration of the rural poor by stimulating rural employment and small farmer agricultural productivity. The redesign, with its increased focus on labor-intensive construction techniques, in fact goes further toward reaching this goal with respect to rural employment generation than did the original design. The purposes of the project are twofold: 1) to provide small farmers with all weather access to commercial market centers, to lower land transport cost for agricultural inputs, and permit delivery of essential social services to isolated rural areas; and 2) to strengthen the capability of TPTC to plan, manage and implement rural roads upgrading programs. These purposes reflect increased emphasis on the institution-building aspects of the project (which were previously a sub-purpose) while maintaining the focus on improved rural transportation infrastructure.

B. Institutional Development

One of the principal elements of this redesign is the expanded emphasis on institutional development of the TPTC. The capability of the TPTC to expand rural public works will be a key factor influencing long-term development in rural Haiti. In the absence of a strengthened TPTC capable of constructing rural access roads and related infrastructure, Haiti will remain dependent on the specific development projects of foreign donors which include road construction. The Agricultural Feeder Roads project, therefore, will focus on institution-building activities for the remainder of the project.

This change in emphasis will be reflected in two ways: 1) by the reintegration of the Agricultural Feeder Roads project unit into the appropriate divisions of the TPTC, and 2) by increased support for the TPTC reorganization process.

1. Reintegration into the TPTC

The original PP called for the project to be administered and implemented under the new TPTC organizational structure. The TPTC Chief Engineer was to have been directly responsible for all aspects of the project, including activities of the Autonomous Transport Service (ATS), Construction and Supervision Service, TPTC Brigades and Departmental Engineers. A Project Manager reporting to the Chief Engineer was to have

been designated and assigned to manage the technical assistance contract and to coordinate the various elements of the project. However, this was never done primarily due to delays in the enactment of the TPTC reorganization plan. Instead, a separate Agricultural Feeder Roads unit was established in a separate building away from TPTC headquarters. Certain key employees from other TPTC units were assigned to this unit which also hired directly other required personnel, mostly on a contractual basis. As a result, the Feeder Roads unit does not fit organizationally within the TPTC and many of its employees are not full-time TPTC employees. The unit has tended to operate as a semi-autonomous body. As such, the project has provided very little transfer of knowledge or experience to TPTC as a whole with the exception of the separate project implementation unit.

This situation has obvious negative implications for the long-run capability of the TPTC to manage and implement this kind of activity. Therefore, the unit will be reintegrated into the TPTC as soon as possible so that by the end of the project TPTC will be able to continue the work begun with project financing. In practical terms, this means the greater involvement of the Chief Engineer and the Regional Engineers in each TPTC region throughout the country in project activities. At present, the Feeder Roads construction brigades work independently of the Regional Engineer who, as the Minister's representative in each district, is theoretically responsible for overseeing all TPTC activities in that area. By strengthening the role of the Regional Engineer, greater decentralization and increased local participation is likely to result and activities undertaken through this project can be more closely coordinated with other TPTC activities in the same area. In addition, integration of the project unit into the TPTC will mean an absorption of employees presently contracted by the project into the TPTC, with the benefits of greater job security for them and a greater body of knowledge about feeder road construction in TPTC.

2. TPTC Reorganization

As stated in Section II above, the implementation of the TPTC reorganization plan started in mid-1978. This process will require at least two years and will result in a more rational organization of the Department and a stronger central programming and planning unit.

A limited amount of technical assistance through the TAMS contract has already been provided in support of the

reorganization. With increased emphasis generally in the project on TPTC institutional development, three TAMS advisors working at the central level (the Senior Transportation Engineer/Team Leader, the Transportation Engineer, and the Financial Advisor) will increasingly focus on ways to reinforce the reorganization process.

3. End-of-Project Status Indicators of Institutional Development

By the end of the project, the following is expected to be achieved as an indication of improved institutional capacity developed through the project:

- a) The central programming and planning unit in TPTC will be established and functioning. Guidelines will be established for the planning of future rural roads upgrading projects. While these guidelines will include procedures for establishing the economic feasibility of proposed road links, if possible, emphasis will be given to planning future programs to construct the list of road links included in the original PP.
- b) The Autonomous Transport Service of TPTC will be capable of producing improved designs including survey work and schedules for rural roads to be reconstructed by TPTC.
- c) The Construction and Supervision Service of TPTC will be capable of supervising rural road construction activities and, through the brigades, will be reconstructing rural access roads at an average rate of 5 kilometers per month per brigade.
- d) All rural road construction activities will be managed directly by the corresponding TPTC division.
- e) Training courses will be established for both operational (equipment operators, foremen, etc.) and senior management personnel.
- f) TPTC will have established a functioning heavy equipment maintenance system capable of maintaining its road construction equipment.
- g) TPTC will have an improved financial management division which will be capable, among other things, of monitoring and accounting for the costs of various road construction activities.

C. Road Construction

Road construction, while remaining an important purpose of the project, is viewed as a means for TPTC to gain experience and improve its long-term feeder roads construction capabilities. Because of the substantial delays and increases in costs of road construction over what was projected in the PP, it will be impossible to construct the full 940 kms with the loan funds available and within the present terminal date of the project. Therefore, the project's road construction outputs have been reduced to 341 kilometers. This reduction reflects what can be realistically expected within the remaining two years of the project without an increase in AID funds for construction. However, with improved TPTC implementation capacity and with the substantial useful life of project-financed equipment which will still remain (since equipment was delivered up to two years late, it will not be fully depreciated by the loan TDD), the amount of feeder roads that will be eventually constructed with the benefit of the project is considerably larger.

1. Increased Design Standards

One of the major factors contributing to the increased road construction costs experienced under the project has been the increased design standards used for the roads. As originally planned, the average road width would be 4.0 meters with two one-meter shoulders. Exceptions were expected only where traffic considerations or construction constraints warranted such changes, i.e. 6.0 meters where average daily traffic exceeded 100 or, conversely, only 3.0 meters in rocky mountain cuts. Shortly after the loan agreement was signed, however, the GOH enacted a new law which required that all roads be constructed or reconstructed to a minimum of 5.0 meters width with 0.5 meter shoulders. Due primarily to the insistence of the TPTC Chief Engineer at the time, the Mission agreed to this change. A more significant cost factor was the required increase of the thickness of the base and wearing surface from the 5 cms projected in the PP to a combined average of 35 cms. In addition, although the PP designs made no provision for river crossings, TPTC has constructed fords, culverts or multi-plate arches for other than major river

crossings in order to provide "all weather" service. Thus, whereas the PP calls for minimum upgrading, TPTC developed higher standards which they considered essential for "all-weather" roads in Haiti. The Mission concurred with these upgraded standards since past experience demonstrated that without more substantial base and surface courses and better river crossing structures, the roads reconstructed would not hold up and would fail to provide the required all weather service. However, these new design standards required a 25% increase in width, a 700% increase in surface and base courses, and significantly higher expenditures for river crossings.

2. Increased Costs

The impact of the increased design standards on overall construction costs has been great and explains the majority of the cost overruns to date. (For additional detail, see Financial Analysis, pp. 41-44.) While both TPTC and the Mission believe the present standards are generally necessary, at the USAID's urging TPTC is considering a reduction in the base and surface course where warranted by the physical characteristics of the area where the road is located in order to reduce construction costs to the extent possible. Nevertheless, design changes will continue to be the most significant factor in increased costs under the project.

In addition, procurement delays and increased labor and materials costs have contributed to per kilometer cost increases. Due to delays in receiving new equipment financed by the loan, the brigades had to operate with older TPTC equipment. This equipment was generally in poor repair and consequently broke down frequently. When one piece of equipment broke down, this often stopped or substantially slowed construction progress. However, since the brigade employees are almost all full-time employees, they continued to be paid whether the brigades were working or not. The procurement delays not only slowed production but, because operating costs were largely fixed, increased the cost per kilometer built radically. Due to inflation, the procurement delays also caused higher material and fuel costs.

One additional factor contributing to higher costs than were projected in the PP is the composition of the brigades. A large survey and design effort and extensive soils testing were undertaken as part of the brigade work. The costs of the personnel related to these activities were figured into the

costs of construction, even though most of this work was not contemplated in the PP design. Based on the findings of the Group Seven evaluation and at Mission urging, TPTC now believes that the level of effort for these activities is inappropriate for the type of construction involved. Therefore, steps are now being taken by TPTC to reduce the survey, design and soils testing work performed for each road constructed, which will lower somewhat the operating costs for the brigades without adversely affecting the quality of the construction work.

The net effect of these increases has been that cost for construction has been greater than 100% over the estimates in the PP. The actual cost of the road links completed to date combined with the costs of road sections still under construction, yield an average cost per kilometer of \$15,680 to date under the project. Projecting these costs for the next two years (i.e. through October 1981), including inflation but allowing for increased operating efficiency of the brigades, a total of 341 kilometers can be constructed prior to the TDD. These road sections and their estimated costs are listed in Table 6 on page 45.

3. Method of Construction

The TPTC is organized into three -- eventually there will be five -- brigades for feeder road construction during the remainder of the project. These now include the two heavy equipment brigades (North and South) as planned in the PP and a labor-intensive lightly-equipped brigade ("light" brigade). The "light" brigade will split in mid-1980 to form two labor intensive construction brigades. In addition, a third heavy equipment brigade will be organized using equipment from SLELC. This breakdown is reflected in Table 1. This represents a major departure from the original project design in three respects: 1) the PP did not envision any labor intensive construction work beyond the pilot project which is now completed; 2) construction by private contractors has been excluded; and 3) force account work has been significantly expanded from two to five construction brigades.

a. Light brigades

As a result of the pilot project and its examination of labor based reconstruction, TPTC has initiated the reconstruction of some 35 kms without the use of traditional heavy equipment. This method of construction has proved to be appropriate to Haiti. While not providing all of the

desired comparative cost and alternative administrative organizational information, the pilot project clearly demonstrated the feasibility of labor-based road reconstruction in Haiti. The most important lessons learned from the pilot project were the need for low cost haulage of material and increased compaction capability. To this end, TPTC has established a "light" brigade, which emphasizes labor intensive techniques but includes selected light equipment.

To date, the progress of the "light" brigade has been very encouraging. The success of the "light" brigade has led TPTC to plan to form an additional labor intensive brigade in mid-1980 as part of this project. TPTC has already established the nucleus for this second unit. Some of the trained supervisors from the first unit will be transferred to the second brigade and, depending on the delivery date of the equipment for the brigade, the IFB for which was published in late September, it will become operational in mid-1980. A field engineer advisor will be provided through the TAMS contract to the second "light" brigade to assist with its operations through June 1981.

In addition to basic hand tools and implements, each "light" brigade will be equipped with four 60 hp farm tractors, eight 2c.y. heavy duty farm-type trailers, one 1½ ton vibrating roller and necessary supervisor transportation. This equipment will provide adequate haulage and compaction capabilities which cannot be provided exclusively with hand tools. TPTC will also rebuild and have a pool of heavy equipment available for support purposes. This pool will consist of two dozers, two graders and two loaders reassigned from the two heavy brigades once the new equipment is delivered to these brigades. In addition, air compressors and rock drills assigned to the mechanized brigades will be available when one or both of these brigades is not working in rocky areas where this equipment is required.

b. Mechanized brigades

The two heavy brigades will continue to work as contemplated in the original project design. The full complement of construction equipment should be delivered to the brigades by November 1979. This should permit increases in the output of each brigade. In addition, the number of brigade personnel will be trimmed down with the reduction of the survey, design and soils testing work. These two factors

should combine to increase the productivity of the brigades. With increased efficiency and improved staffing and management, it is expected that by the end of the project, the brigades will be averaging a monthly rate of five kilometers.

A third brigade will be established by TPTC in early 1980 using equipment leased from SLELC. This brigade will reconstruct the feeder road links located in the Las Cahobas area and, in effect, replaces the private contractor component of the project.

The three heavy brigades will be integrated into the administrative framework of TPTC at the field level. Each brigade will fall under the supervision of the District Engineer of the area in which it is working, who will report to the Minister through the Regional Engineer.

c. Equipment Leasing Service (SLELC)

Experience under the project to date has demonstrated that local private contractors are not prepared at the present time to become involved in rural road construction efforts at reasonable cost levels. On the most recent bid, received in June 1979, the lowest of three bids by private contractors was \$25,000/km, as compared to a TPTC estimate of \$15,000 and the PP estimate of \$4,300/km. Private contractors in general lack experience in road construction work, few are large enough to mobilize for road work in rural areas, and they generally lack qualified personnel willing to work in isolated rural areas. In addition, there are apparently other less risky, more profitable construction alternatives (e.g. urban housing or office buildings) available to private contractors. Therefore, the inclusion of private construction firms in the project has been discontinued for the foreseeable future and the road links projected for construction by contractors in the PP are being reprogrammed to the various TPTC brigades.

This project modification directly affects the Equipment Leasing Service. SLELC has been one of the most promising aspects of the project to date. It has demonstrated its ability to maintain and operate equipment much better than the TPTC brigades and has created its own training program for operators. In addition to the equipment purchased for SLELC's capitalization under this project, TPTC and other donors have contributed construction equipment to the SLELC operation. Because of this positive experience, both the Mission and TPTC are interested in maintaining the operations of SLELC despite

the elimination of the private contractor element of the project. Therefore, the redesigned project includes the establishment of a third heavy brigade to replace the private contractor component which will lease equipment from SLELC on an as-needed basis. SLELC will also lease on a priority basis equipment not required for road construction to other GOH entities to assist with force account rural infrastructure construction work (e.g. irrigation system rehabilitation by DARNDR under the Integrated Agricultural Development project). SLELC equipment will also be leased to private contractors for road construction, if any become involved, or for other construction activities to the extent available. All leasing for other than road construction will be approved in advance by AID where project-financed equipment is involved.

D. Training

Although training was recognized as a need at the beginning of the project, there was no provision made for training per se in the composition of the technical assistance team. On-the-job training has been carried out by the TAMS advisors. However, there has been no focus to date on an overall formal training program directed at TPTC's long-term needs as a specific project activity.

There is a continuing need for trained personnel in TPTC, especially in areas which impact on the implementation of agricultural feeder roads programs. This is evidenced by the substantial amounts of equipment down-time and the relatively poor state of project management and administration. Training needs become even more important in view of the institutional development focus of this project. Progress under the project to date has demonstrated that these needs cannot be adequately met by on-the-job, technical-assistance type training alone. Therefore, the amended project includes provision for a training advisor as part of the TAMS team on a short-term basis (approximately six months over the next two years). The advisor will work with the TPTC and other members of the TAMS team to convert appropriate material now available into training materials and to design specific training course, including a management training course. Participants in these courses will include personnel who have been involved in the feeder roads project to date, as well as personnel in other units of the TPTC responsible for rural roads construction but who have not been closely involved in this project.

The majority of the courses designed for TPTC under this project will be carried out in conjunction with the new SEPRRN training facility and program being financed under the AID Road Maintenance II grant (521-0084). This facility will eventually become the National Highway Training Center and serve the training needs of all of TPTC. Through inputs provided under the Road Maintenance project, the center will be able to train practically all skilled and semi-skilled personnel required by TPTC, such as mechanics, operators, supervisors, and foremen. In addition, the center will have administrative and management seminars for mid- and high-level engineers. As a consequence, the training component of this project will be limited to the small amount of technical assistance required to convert project-specific materials into training materials and courses and to design courses for the feeder roads program in conjunction with the SEPRRN training center. The costs of the actual training courses will be borne by the TPTC.

E. Technical Assistance Requirements

The history of the technical assistance component of the project was summarized in the Background section above. The current contract is funded through December 1979.

Although the original technical assistance plan in the PP provided for the bulk of the assistance to be completed after two years, in practice this has not worked out as planned. Therefore, there has been and continues to be, a need for extensions of key advisory personnel. The refocus on institutional development of TPTC reinforces the originally-planned requirement for the senior transportation engineer (and chief of party) through the end of the project. He will continue to work with the Construction Service, providing assistance on the actual implementation of the road construction work.

The transportation engineer's tour will remain one year shorter than that of the team leader, and he will stay through September 1980. He will work principally with the Autonomous Transport Service (SAT) assisting with the planning, scheduling and design of agricultural feeder roads. Upon the departure of the transportation engineer advisor in 1980, however, the team leader will continue to advise the SAT through the end of the project. He will also work with the TPTC Chief Engineer.

In addition to these advisors, a new financial management advisory position is required to assist TPTC establish a

solid controller's office function as part of the reorganization plan and to continue assistance to TPTC in cost accounting and financial management areas related to the implementation of this project. A new advisor will be recruited under the TAMS contract to provide 18 months of services to the TPTC.

Delays in the procurement of heavy equipment have meant that the services provided to date by the heavy equipment mechanic advisor and the field engineers working with the brigades have not fulfilled their original objectives. Consequently, these advisors will also be extended an additional 18 months. This will allow at least a year and a half of services once the brigades are fully equipped. In addition, the mechanic advisor will be able to assist with the training courses to be developed by the training advisor, in conjunction with SLELC and the SEPRRN mechanics and equipment maintenance program. Although the original technical assistance plan provided for only two field engineers -- one for each mechanized brigade -- with the creation of the "light" brigade an additional engineer was recruited to provide assistance to it. This position will be continued through June 1981. An additional field engineer position will be required by mid-1980 either to assist the second "light" brigade begin operations or to assist the third heavy equipment brigade.

Several short-term advisors will also be provided during the remainder of the project. The training advisor was discussed above. In addition, assistance in specialized areas such as soils testing, computerized information and management systems and quarry operations will also be provided.

In sum, the following positions will be financed through the TAMS contract over the remainder of the project:

- Senior Transportation Engineer (team leader) - 21 wm*
- Transportation Engineer - 9 wm
- Financial Management - 18 wm
- Heavy Equipment Mechanic - 18 wm
- Field Engineers - 69 wm (3 for 18 wm each and 1 for 15 wm)
- Short-term advisors - 12 wm.

This results in a total additional requirement of 147 work months of services in Haiti. Approximately 12 wm of home office support by TAMS is also estimated, bringing the total new assistance to 159 wm. This will increase the total level of assistance under the TAMS contract to 508 wm (funding is currently provided for 349 wm) over the life of the project.

*beginning January 1, 1980

Beyond the assistance provided through the TAMS contract, two additional types of technical services are required through the end of the project for which funding is requested in this amendment. First, TPTC has requested that AID grant fund the services of a management advisor for 18 months. This position was filled for one year by the TAMS contract. When the advisor's tour under this contract expired, TPTC continued his services through a direct contract to assist with the reorganization plan. Now, unfortunately, the funding which TPTC used to employ this advisor has been exhausted and no additional funds are available. Given the renewed emphasis of this project on TPTC reorganization, the Mission believes the Department's request is consistent with the project focus and reinforces the other assistance being provided to the reorganization effort. This advisor would assist with the organization and operation of the TPTC planning and operations and methods (O&M) offices, with the reintegration of the project into the TPTC, and the establishment of field operations units. Since the advisor is presently in country and is not under the TAMS contract, the Mission believes this position can best be financed separately.

Secondly, approximately 13 wmo of technical services will be necessary to conduct the baseline data surveys and future project evaluations. These activities are described in more detail below. These services will be provided separately from the TAMS contract.

F. Baseline Data Collection

The original evaluation plan (Project Paper, pp. 94-97) stipulated that, given the virtual absence of baseline data in Haiti in all sectors of the economy, such data were to be gathered during the first 12 months of project implementation. However, such data were not gathered, with the exception of some baseline information on one of the labor-intensive pilot project road links, an activity in which certain conditions pre- and post-project were compared, i.e.: perceived community infrastructural needs; unit costs of some commodities; roadside-vender activity; participation in traditional work groups; farm-related and general investment patterns; cash purchasing, actual and planned; and participant understanding of the project. Data were also gathered to provide a limited project participant household economic and land tenure profile.

Under the present Project Amendment, baseline data will be gathered before work begins on the new roads to be constructed under the project. The roads selected for work in

1980, as of October 1979, are listed in Table 1, with link breakdowns where available, work brigades, estimated starting dates, potential research sites and the rationale for preliminary selection of those sites. Site selection will include one key site in each area, probably at end of the first link. In one area (probably that comprised by the Limbé-Anse-à-Foleur road), more than one site will be studied because of the variety of ecological zones in that area which determine a concomitant variety in subsistence patterns.

1. Research Design

The baseline research design described in the PP (p. 97) stipulated that control sites would also be selected outside the project areas, to provide comparative data in areas without such infrastructural intervention. Given the problems of contamination from other development activities in these areas, the difficulties in matching communities according to even a minimal set of criteria, and the increased time and cost of such an expanded effort, the decision was made to eliminate the control sites from the present research design. The essential control will be hypothesized to exist in the sites themselves: the baseline will be read as zero (before project) and subsequent evaluations in the first and second years after the roads are completed using the same core instruments and research strategies, will project changes against that baseline.

2. Methodology

A Créole-speaking anthropologist with quantitative skills and field experience in Haiti will spend one month in each of the four project areas. Information on a core of indicators will be collected, including: a) a basic set of questions (see data categories in the next section); b) a topical outline for open-ended queries and discussions; and c) a standard observational guide. A sample survey will be combined with structured and unstructured participant observation to achieve quantified breadth and qualitative depth. Field work should begin in January 1980. Funding will also be provided for a Haitian social scientist to work with the anthropologist as a counterpart.

3. Data Categories

A preliminary outline of the categories to be explored are listed below. They are based on the indicators set forth in the PP as well as on selected attitudinal sets and project beneficiaries' own perceived "social gains".

Table I. ROADS SELECTED FOR BALANCE OF AGRICULTURAL FEEDER ROADS PROJECT

<u>Road Links</u>	<u>Kilometers</u>	<u>Estimated Starting Date</u>	<u>Brigade</u>	<u>Possible Research Sites</u>	<u>Rationales For Research Site Selection</u>
Blockhaus- Grand Goave	30.0 (est)	1/80	Light	To be selected from IICA markets list	There will be two links. Site will be at juncture.
{ Limbé-Le Borgne Le Borgne-Anse a Foleur	28.6	1/80	North Brigade	Port-Margot	Market town, location half way between Limbé and Le Borgne. Limbe - Port Margot, acceptable road; Port Margot - Le Borgne wide shallow river.
	<u>13,5</u> 42.1			Le Borgne	Market town. Le Borgne-Anse a Foleur road bare trace.
				Petit Bourg au Borgne	Regional market town, 5-6 kms. in the hills, not on road.
{ Mirebalais -Dini - Las Cahobas Las Cahobas- Belladère -Frontiere	22.6	4/80	Minister's Third Brigade	Las Cahobas Belladère (?)	First major break in road.
	37.9			Baptiste	Site of Coffee Center. Belladere-Baptiste major coffee area.
	<u>60.5</u>				
Barradères(Carrefour Charles)-Avocat-Pestel	33.0	3/80	South Brigade	Carrefour Charles Avocat Pestel	Market sites to be determined by examination of IICA market lists. No existing road (bare trace). Area dependent on boat transport. Essentially a penetration road. The constant variable will be market locations, institutional presence, existing transport, major ecological and cropping patterns will be further discriminants.

These categories will include:

Area Characteristics

- Description of existing road link to be studied
- Area of influence and its natural boundaries
- Estimated total population in area of influence
- Estimated number of small farms in area of influence
- Value of land along road

Transport Costs

- By headload, animal, truck, bus
- Extent to which vehicle road use has increased
- Increase/decrease in 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

- Market locations: distance from road midpoint
- Conversions of headloads to trucks
- Sex of marketers, transport type used
- Increase/decrease in 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
- Percentage of net farm surplus sold in local and distant markets

Accessibility of Social, Educational, Health Services

- Distance of each from road mid-point
- Number of visits of agricultural extension workers
- Number of teachers assigned to rural areas, grade levels available
- Number of doctors, other medical personnel, or access of supplies to rural areas
- Number of other social services available

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
- Use/availability of fertilizer
- Extent to which new tools in technology introduced with road construction (hand tools) have been adopted for use on the farm
- Use/availability of credit
- 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
- Presence of selected consumer durables
- Extent to which employment/marketing generated by roads increases nutritional level

Production

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

Traffic

- What moves (including transport, power machines)
- With what frequency
- To and from where

Values

- Which of the following would people be most likely to increase if they had more time or money? (put in rank order)

Investment in land
Investment in other commodity

(If other, what most often?)

Ritual expenditure: funerals
ritual services
church
other

Pleasure expenditures: travel
drinking
other activities
what?
not doing work (leisure)

Social activities: weddings
additional wives
other (if other, what?)

Community development activities

Emigration

Perceived Social Gains

- Free response

IV. PRELIMINARY INDICATIONS OF PROJECT EFFECTS

No baseline data were gathered at the initiation of this project, and the roads analyzed have only recently been completed. Since evaluative activities to date in this area have been quite informal, the conclusions of this section are tentative. Its principal value lies in the extent to which it provides guidance for the planning for baseline research and evaluation components described in this amendment. Together with a study now being completed of the relative merits of PL 480 food vis-à-vis cash for work, and the recent evaluation of labor-intensive road construction under the Small Farmer Development project (521-0073), this analytical activity has also suggested modifications in project implementation. The section is based on a brief socioeconomic evaluation performed as part of the Group Seven project evaluation, which focused on the North Brigade activity in the area of the Barrière Battant-Carrefour Ménard-Dondon-St. Raphael-Pignon road and on the labor intensive pilot project (LIPP) in the area of La Vallée de Jacmel, which comprised the road-building activity for Carrefour St. Antoine-La Vallée-Blockhaus. In no instance are we dealing with either a large or random sample or a profound ethnographic exploration, nor is there sufficient information to respond to all the hypotheses of benefits set forth in the Project Paper.

A. User Cost Savings

There is good reason to believe that, in the two sites analyzed, there have been considerable user cost savings, in time and fuel consumption, e.g., the Bainet-Port-au-Prince trip which once could take as much as 3 days now takes 8 to 10 hours and the Port-au-Prince-Pignon trip which formerly used 35 gallons of fuel now consumes only 18 gallons.

The assumption that these savings would be passed on to transport system clients appears valid. Passenger fares in the Northern area have dropped substantially, even after accounting for seasonal variations. There has not yet been any reduction in the cost of transporting agricultural goods, however.

	<u>Bus Fare in Gourdes*</u>	
	<u>Former</u>	<u>Present</u>
Pignon - Cap-Haitien	7.50 - 8.50	2.50 - 3.50
St. Raphael - Cap-Haitien	6.50 - 7.50	2.50 - 3.00
Dondon - Cap-Haitien	2.50 - 3.50	2.00
Barrière Battant - Dondon	2.00 - 3.00	1.50 - 2.00

*One Gourde = U.S. \$.20

The heavy trucks that make the Bainet-Port-au-Prince trip have also dropped their passenger rates from 10 gourdes to 7; since most of the passengers on these trips are Madam Sara, who are charged 2 to 3 gourdes per sack of produce, the cost diminution is meaningful.

B. Increased Traffic

Similarly, there is little doubt that traffic has increased. In the North, a one-week traffic count of the Carrefour Ménard-Dondon-St. Raphael-Pignon link encountered a seven fold increase in average weekly vehicular traffic volume compared to 1975, from 60 to 287. Traffic is particularly intense on market days, and there is a decided intercity traffic movement focussing on Cap-Haitien, an important step in secondary-city development. In the South, before the Blockhaus-Carrefour St. Antoine link was reconstructed, perhaps a dozen trucks a year and an occasional rented bus went into Ridoré, the center of La Vallée; now there are at least five or six busses a day and a comparable number of trucks. The former serve large-scale intermediaries or farmers. The variety in available vehicles has expanded to include different types of busses, trucks, and private passenger cars. Data on vehicle ownership are not available, but could serve as a useful indicator of project effect.

C. Accident Reduction Benefits

No formal queries were made in this area but bus and truck drivers referred to sections of the rebuilt roads (La Vallée: Tiguita, Nan Midi, St. Antoine, Morne Moise; North: Bouyaha River ford) as still perilous.

D. Change in Volume and Character of Production and Trade

Anecdotal evidence suggests that adjustments in production, harvesting and marketing are already being made in response to newly perceived opportunities. This, in turn, suggests that peasants, contrary to theories about their supposed conservatism and innovative sluggishness, are quick to seize an opportunity if they see one. In La Vallée, good grapefruit, formerly left to rot for lack of easy market access, are being sold and individuals are planting more grapefruit trees. There has also been an increase in the marketing of pigs, partly due to an IDAI swine-raising project but partly because a truck could be hired to come into the Ridoré market every Saturday to transport pigs to Port-au-Prince. Both cases respond to the PP hypothesis that improved roads would lead to

changes in production patterns to more perishable, high-value crops with better profit margins and that there would be reduced spoilage and post-harvest food losses due to field rot or transit damage. The opportunities for vegetable production have been noted, by community leaders but to date such production is scant and, with the exception of cabbage production, where some increase has been noted, vegetables are so far produced solely for local consumption. A full agricultural cycle will be needed for an acceptable reading on this count. It does appear, however, that while there is still a desire to maintain local marketing arrangements because of zero transport costs and pratik relationships (equivalent to the assurance of regular clients), a trend toward urban marketing has begun.

In the North, traffic increase has generated a clear expansion in the volume of trade and market options. Tobacco grown in Pignon is sold to middlemen in Hinche and Las Cahobas, and white rum (clairin) and sugar cane syrup are purchased from businessmen from Léogâne. There are reportedly more middlemen in the area and, while prices to the producer are not yet improved, s/he has greater security in being able to sell either to middlemen or market the goods directly.

On the contrary, farmers in the La Vallée area are already receiving better prices for produce sold to intermediaries in local markets since the opening of the road, due simply to the fact that more intermediaries have been coming to the La Vallée markets, thus increasing competition among buyers and raising prices paid to local farmers. Since no quantitative data were gathered in this area, there is no way of gauging the dimensions of the price rise and discounting for inflation to calculate real increases. However, if peasants thought they were getting truly higher prices, they probably were.

F. Income Benefits and Redistributive Aspects

Because the road-improvement project in the North was essentially capital-intensive and generated little local employment, and because no baseline data were available, no attempt was or could be made to appraise income benefits deriving from the project.

In the South, on the other hand, three potential major sources of impact on economic well-being deriving from the road-building activity were identified. One already discussed, comprised rewards to producers and marketers. Second, there was both the primary employment (day workers, foremen; supervisors, controllers (all male), water distributors and meal

preparers (all female)), and secondary employment expressed in hired agricultural labor and project-site vendors. Another was the increased incomes and consequent cash flow coming off both expanded market volumes and from the cash-for-work aspect of the LIPP. The third was the related effect of these increases on the prices of retail commodities and the local cost of wage labor.

In theory, the LIPP was to have paid workers the minimum wage, at the time 8 gourdes/day (US \$1.60), over two times the market rate for labor at the beginning of the project. In practice, the workers did not receive that amount since 2 gourdes were withheld in the form of savings returned to workers at end of project and 1.5 gourdes constituted a contribution to a community fund. The net take-home pay was 4.5 gourdes, or US \$.90/day, paid for four days a week, Monday through Thursday. Saturday work was volunteered and theoretically reimbursed to the community organization, although this did not occur in all cases. Thus the average net take-home pay per week per worker for a five-day week was 18 gourdes, only 3 gourdes more than what a locally-hired wage laborer would make for a 5-day week ($5 \times 3 = 15$), assuming full-time employment. Thus the potential for inflating local retail prices and costs of hired labor was blunted because the real cash flow into the community was restrained by the savings and community-contribution mechanisms. Some bonuses were paid for piece work on very arduous tasks, but no record appears to have been kept on amounts, frequency or number of individuals benefitting.

At the same time, jobs on the pilot project were still seen as being worth more, a perception which had economic and social spinoffs. The anticipated effect of inflating the labor market did not occur; while the cost of escouade labor did go up during the project life from 2 to 3 gourdes, the increase was most likely related to coincidence with harvest season demands for agricultural labor. Project work was also seen as valuable enough for workers to prefer that activity to agricultural labor on their own plots, for which they in turn hired local labor. In the absence of labor shortage, this is perfectly economic and reflects the narrow margins of the peasant calculus.

Other effects of the increased cash flow into the community (and it must be remembered that other project workers -- foremen, supervisors, controllers -- earned higher salaries, some portion of which flowed into the communities along the road) was an inflationary effect on retail items: currently harvested commodities in greater supply did not rise in price, but the cost of luxury items increased (notably powdered milk, 36%; rum, 25%; bath soap, 17%; and sugar, 11%). There were lesser increases in the costs of butter, oil, rice and clairin.

Nonetheless, because these increases were not projected against national-level price gains in the same time period and because the "measures" are not defined, it is impossible to determine how much of the "inflation" was project-specific.

There is no question that there was a greater volume of cash sales in local boutiques, with higher sales increases in Kola, bread, cigarettes, and clairin; expansion of store hours to accommodate worker schedules; and some proliferation of roadside merchants, usually female, of whom one-third were enabled to capitalize their enterprises through either their own project salaries or their husband's. Most transactions between such vendors and project workers were conducted on a no-interest credit basis whereby laborers could pay on their biweekly paydays. This aspect of the project was perceived as a benefit by many of the project participants although the reasons for this and vendor attitudes were not explored.

While the consumption pattern described above suggests a certain amount of "high life", there were benefits to individuals and to farm households. Participants and merchants both noted that project workers sold less of their produce than usual, i.e., they consumed or saved more of their own crop (40% of the sample) which seems to have improved family dietary quality in undefined degree, and to some extent, again undefined, improved crop yields since workers could afford to let crops reach full maturity. There was some evidence of use of project salaries for farm investments in either actual or planned purchase of animals, plants and seeds, tools, and land. Women were particularly committed to the purchase of pigs, plants, seeds and, very importantly, land.

F. Community Benefits

The whole issue of project participation by outsiders is central to both preliminary appraisal of community development and participant perceptions of the project. There was decided resentment toward the institutional outsiders, i.e., TAMS and/or TPTC or simply the pilot project, partly due to their permitting and even supposedly attracting outside labor to what was purported to be a local community effort and benefit, even in the North where labor needs were relatively small. Resentment also grew out of some bureaucratic clashes and from a set of experiences and behaviors which led some communities to feel ignored, spectators at an event in which they were presumably to have been participants. One community organization felt that the LIPP has produced division within

and between communities, but the circumstances suggest a special case, albeit a phenomenon worth watching. The same organization claimed major difficulties over the issue of project tool use and ownership.

The hoped-for benefits to communities in the form of creation of new Community Councils and strengthening existing groups, and the generation of capital bases and motivation for infrastructure, must receive a mixed, although on balance positive, review. The experience with Community Councils demonstrated not only a fairly full range of human behavioral possibilities but a wide range of relative organizational competence. The best case was the Council which was actively and democratically a participant from the outset; labor recruitment/revolvement procedures were properly conducted; members willingly donated part of their salaries to a well-administered community fund for tool purchase and infrastructure; supervision of work was excellent; and follow-up activities are thriving. The worst case involved power struggles between two leading local families, partisanship on the part of the animateur, abuses of the recruitment/revolvement process, and cessation of the working relationship.

The conclusions reached by the LIPP social analyst were that crucial components of subsequent efforts of this genre are good animation, community initiative and response thereto, constant surveillance, good communication between group members and program authorities, avoidance of partisanship, and disposition to terminate contracts with groups whose performance is unsatisfactory.

Two of the hypothesized benefits of the project, generation of a capital base for community projects and enhancement of the status and effectiveness of Community Councils, appear in some cases to have occurred. In addition to individual contributions in cash and labor, communities have been mobilized to assume responsibility and costs for planting trees at roadside to control erosion, provide use of community or private buildings for tool and material storage, grant permission to walk through and collect local material on private property, and offer use of community vehicles where available. Funds which have accrued to communities from the project have been used for the building of a social center, a storage depot, a river crossing, tool purchases, road maintenance, and a savings bank. The availability of such funds

seems to be much appreciated and there is to date no evidence of misappropriation. Furthermore, with the road need satisfied, community priorities have shifted to potable water and school and clinic construction for which technical assistance and human resources are now presumed to be available.

A very incomplete, preliminary reading indicates that the hypothesized expansion of community access to more health and education services and to agricultural inputs does occur because of the road improvement and is clearly perceived as a benefit by the communities affected. Some community groups have already solicited more teachers, a full-time doctor, and agricultural extension services. The Bureau de Crédit Agricole (BCA) has also conducted a survey in the project area to appraise the feasibility of expanded credit and fertilizer opportunities. Roads are clearly viewed as sine qua non's for development, particularly in their potential for in-flows of assistance, for outsiders to be able to see what communities have managed to do on their own, and for the opening up of linkages to whole areas, including secondary cities, through the growth of commerce.

G. Negative Effects

Beyond the various community - project stresses described above, there were some negative spin-offs (defined as impact which is prejudicial to any group of individuals) from the activity:

1) Members of the communities on which the road had a net positive impact noted that other links, i.e., Blockhauss - Trouin - Fauché, had suffered from the effects of the new primary road to Jacmel; how much of the total effect can be ascribed to the LIPP is questionable.

2) The completion of the Blockhauss-Bainet link (estimated date, December 1979) is perceived as potentially prejudicial to the Bainet truckers who have hitherto had a monopoly on traffic to and from Bainet. However, this is sheer speculation and the economic and geographic logic for the claim is elusive. Furthermore, increased competition among truckers might well produce some transport savings.

3) If La Vallée develops as an economic and social service center as a result of the road, that developmental fact will mean reduced dependence on Jacmel for manufactured goods and some services. This will dilute Jacmel's current monopoly on such activities and their corresponding high prices. Furthermore, the costs to Jacmel residents for La Vallée agricultural products will rise, since Jacmel will no

longer be the sole market focus for the area. This is not objectively a necessarily negative effect; it is, however, in the perception of Jacmel merchants.

4) Amidst complaints about the technical quality of the LIPP, and some questions about the need for any road improvement on one of the links already considered of acceptable quality, there were complaints that trees at roadside were often unnecessarily cut and without the permission of their owners.

5) Laborers were informed that they could participate beyond the revolvment period, established to maximize distribution of the income and employment generated by the LIPP, and were also told they could be promoted to a higher level and better position if their work were deemed exceptional. The first element created problems stemming from favoritism on the part of local supervisors and foremen who recommended workers for exemption from revolvment out of the project; this procedure was persistently undermined and required constant surveillance and motivation to sustain it. On the other hand, merited promotion to higher-level, better-paid, and non-revolving positions did elicit greater effort and apparently little dissent.

6) As indicated earlier (see Income Benefits and Redistributive Effects), project participation was so appealing (or necessary) that considerable vigilance was required to avoid payroll abuses. When the gross daily wage is well above the market wage, as in the case of the LIPP, individuals in control positions can supplement their own incomes by acting as illegal subcontractors and charging a levy on selected or self-selected workers. In order to deal with this, the LIPP intensified communication and motivation activities and elaborated a labor contract, thus reducing the dimensions of the problem.

H. Undetermined Effects

1. Migration

The project has not yet produced any proven increase in rural-to-urban or rural-to-rural migration, although there is a perceptible increase in overall temporary mobility. There is a hint that rural-to-urban migrants are more likely to come from census districts on or near main roads, but there

V. FINANCIAL ANALYSIS

A. Analysis of Expenditures to Date

1. Loan Disbursements

Table 2 illustrates total disbursements and commitments under the loan portion of the project through September 30, 1979, broken down by the categories included in the original PP financial plan. As this table demonstrates, approximately 65% of loan funds were disbursed as of that date. Of the remainder \$649,000 is designated for equipment. Approximately \$160,000 of this amount will be used to purchase the light equipment for the labor intensive brigades through the recently-published IFB #3. The balance will be used for additional equipment purchases to support the brigades. Other than equipment, \$1,090,000 remain under the loan to cover materials and operating costs associated with road construction.

2. Grant disbursements

Table 3 presents expenditures under the grant portion of the project. Of the \$317,000 remaining undisbursed as of September 30, 1979, approximately \$23,000 is earmarked for activities other than the TAMS contract which have already been performed, an estimated \$3,000 will be required for start-up costs related to the baseline data collection study, and \$177,000 will be required by TAMS through December 31, 1979, the current terminal date of their contract. This leaves approximately \$114,000 available for funding for long-term technical assistance beyond the end of this year. This figure is higher than the projections made in PP Amendment #1 due to the following factors: the provision for contingencies was not used to the extent projected, separation costs were not required because the contract will be continued, and actual work months provided will be less than projected due to the departure of two advisory personnel and slight delays in filling these positions.

3. GOH Counterpart

According to the original PP, GOH counterpart was to have come from two sources: the regular budget to cover central TPTC costs and materials and operating costs for force account construction efforts, and PL 480 Title I counterpart generations for the operations of the equipment leasing service and contract work. In addition, TPTC central operating costs

Table 2

AGRICULTURE FEEDER ROADS
LOAN NO. 521-T-007
STATUS AS OF SEPTEMBER 30, 1979
(\$ thousands)

<u>Inputs</u>	<u>Original PP Amount</u>	<u>Disbursed & Committed thru 9/30/79</u>	<u>Available</u>
Brigade Equipment	\$ 2,000	\$1,374	\$ 626
Materials	450	78	372
Operating Costs	750	545	205
Pilot Project	200	198	2
Leasing Equipment	1,000	977	23
Contract Work	600	89*	511
	<u> </u>	<u> </u>	<u> </u>
Total	<u>\$ 5,000</u>	<u>\$3,261</u>	<u>\$ 1,739</u>

* Includes costs of Light Brigade.

Table 3

AGRICULTURAL FEEDER ROADS

Grant No. 521-0074

CURRENT STATUS & ADDITIONAL REQUIREMENT

As of September 30, 1979

(\$ Thousands)

Total Grant per PP Amendment No. 1		\$2,706
Less: Expenditures through 9/30/79:		\$2,389
I. Technical Services:	\$2,378	
TAMS contract	\$2,271	
Group Seven Evaluation	35	
L. Berger contract	16	
Planning Research Corp.	44	
Miscellaneous	<u>12</u>	
II. Participant Training	7	
III. Other Costs	<u>4</u>	
Less: Estimated Costs of Technical Services Contract from Oct. 1 to Dec. 31, 1979		177
Less: Amounts committed to activities other than TAMS		23
Less: Start up costs for baseline survey		<u>3</u>
Available for Funding beyond December 31, 1979		\$ 114
Grant Requirements for Period 1/1/80 to 9/30/81:		
I. Technical Assistance	\$1,721	
II. Baseline Data Gathering & Evaluation	<u>93</u>	<u>\$1,814</u>
Net Additional Grant Requirement		<u>\$1,700</u>

were to come from the GOH budget, but were not calculated as part of the GOH counterpart contribution to the project. The status of GOH contributions to the project to date is presented in Table 4. USAID approved release of Title I generations to cover materials and operating costs, although not for the central bureau costs or for cost incurred on feeder roads before they were included in the program. The GOH will reimburse the \$89,000 spent from PL 480 generations to cover the shortfall in the required direct contribution from the TPTC budget (\$31,000) and \$58,000 corresponding to costs associated with the construction of the Cavailon - Barradères road before it was included in the project. This will leave a total of \$2,459,000 of the GOH contribution undisbursed of which \$2,202,000 will be available for future construction activities under the project.

4. Road cost per kilometer

Table 5 presents a cost analysis of the road construction activities financed through September 30, broken down by individual road link. The table presents the originally estimated cost for each road, compounded at a 15% annual rate of inflation over the three years of the project, compared to the actual or estimated costs of construction. In general terms, for the roads which were included in the PP, this analysis demonstrates an increase in the average cost per kilometer constructed from \$7,176/km to \$15,680/km, an increase of 118%.

As described in Sections II and III of this PP amendment, the construction cost increases have been due to a number of factors. The most significant of these factors was the impact of road design changes. Three types of additional costs were incurred: increased materials costs due to the widening of the road surface from 4.0 to 5.0 meters and to thickening the base and surface course from 5 cms to 35 cms; increased operating costs (primarily fuel and labor for haulage and surface placement) due to the widening and thickening of the road surface; and increased costs due to the necessity to construct substantial drainage works that were necessary to provide all-weather service but which were not contemplated in the original PP design. TAMS advisors calculated the actual materials costs for the roads constructed to date to be 102% of the PP cost/km estimate. Since materials account for approximately 28% of the total construction costs, based on overall estimates for the project, this increase explains approximately 28.5% of the increased costs of the roads.

Table 4

AGRICULTURE FEEDER ROADS PROJECT
STATUS OF GOH COUNTERPART CONTRIBUTIONS
AS OF AUGUST 31, 1979
(\$ thousands)

<u>Inputs</u>	Original PP <u>Amount</u>	Disbursed thru 8/31/79	<u>Available</u>
Materials	\$ 250	\$ 131	\$ 119
Operating Costs	1,000(a)	815(a)	185 + 58 = 243 (a)
Equip. Pool Overhead	270	270	-0-
Contract Work	1,950	183	1,767
Contract Engineering	280	238	42
Central TPTC Operations	<u>(b)</u>	<u>307(b)</u>	<u>288(c)</u>
Total	<u>\$ 3,750</u>	<u>\$ 1,944</u>	<u>\$ 2,459</u>

- (a) Expenditures in this category include \$58,000 disbursed for Cavailon-Barradères road link before it was included in project. This amount will be reimbursed to the project by TPTC and, therefore, added to the GOH contribution.
- (b) Not quantified in original PP financial plan since these costs were to be covered by the regular GOH budget. Expenditures in this category have exceeded actual contributions from the budget by \$31,000 to date. This deficit will be made up by the TPTC.
- (c) Revised project financial plan (Table 7) includes \$595,000 for this category. Amount available is therefore \$288,000.

Table 5
AGRICULTURAL FEEDER ROADS - PROJECT
Cost Analysis of Road Construction
As of September 30, 1979

<u>Road Link</u>	<u>Construction</u>		<u>- Kms -</u>		<u>- Costs (\$000) - (a)</u>		<u>Difference</u>
	<u>Brigade</u>	<u>No.</u>	<u>Completed</u>	<u>Inflated</u>	<u>Actual</u>	<u>Actual</u>	
				<u>Per PP</u>	<u>(Estimated)</u>	<u>(Estimated)</u>	
A. Completed Construction:							
St. Raphael-Barrière-Dondon	North	24.0	24.0	\$ 286	\$ 423	\$ 137	
St. Raphael - Pignon	North	16.3	16.3	66	329	263	
Carrefour Houck-Port Salut	South	18.1	18.1	110	226	116	
Sub-Totals:		58.4	58.4	462	978	516	
B. In Process - Incl. in PP:							
Grande Rivière - Bahon	North	15.5	9.5	83	(320)	(237)	
Les Cayes - Camp Perrin	South	22.2	6.7	120	(300)	(180)	
Carrefour - Thomazeau	Contract	7.0	6.1	67	(85)	(18)	
Sub-Totals:		44.7	22.3	270	(705)	(435)	
C. In Process - Not in PP:							
Cavaillon - Barradère	South	36.1	21.0	-	(532)	n/a	
Carrefour St. Art - Bainet (b)	Light	35.5	28.8	-	(525) (c)	n/a	
Sub-Totals:		71.6	49.8	-	(1,057)	-	
Totals:		174.7	130.5	-	\$2,740		

- (a) - Costs include a calculation for depreciation of equipment.
(b) - Only Blockhaus- Bainet portion was in PP; rest was done under LIPP.
(c) - Includes cost of LIPP (\$198,000)

It was not possible to estimate accurately the increased operating costs due to these changes, but it is obvious that some resulted. Furthermore, TAMS estimated that the actual cost of drainage works amounted to 73% of the PP construction cost estimate for the particular road. While a comparison with originally planned costs would require a road-by-road analysis, which we were unable to perform for this PP revision, it is clear that the costs of the drainage works accounts for a significant portion of the overall cost/km increases.

5. Cost Projections

Table 6 provides the projected utilization of the remaining funds under the project. A total of \$3,292,000 is available for road construction activities. An estimated \$597,000 of this amount will be required to complete the roads presently under construction. The remainder will allow construction of an additional 165.9 kilometers at an estimated rate of \$16,250/km (includes inflation over next two years but not equipment depreciation which is not relevant to future projections of roads to be built since all equipment has been procured). The breakdown of the roads to be built is shown in Table 6. Thus, only 340.6 kilometers of agricultural feeder roads can be constructed with current loan funding and within the life of this project.

B. Revised Financial Plan

The revised financial plan for the project is presented in Table 7. As this table demonstrates, all undisbursed funds under the AID loan except those designated for equipment purchase have been reprogrammed for materials and operating costs of the various TPTC brigades. The same has been done with the remaining GOH contribution. The table also shows an increase in the total grant budget from \$2,706,000 to a new level of \$4,406,000, an increase of \$1,700,000.

1. Additional Grant Requirements

In Table 3, disbursements under the grant through September 30, 1979, were presented, together with a summary of additional requirements for the January 1980 - September 1981 period. These requirements are further detailed in Table 8 (Consulting services to TPTC) and Table 9 (baseline data collection and follow-up and evaluation). These tables demonstrate additional requirements of \$1,814,000 over this period,

Table 6

AGRICULTURE FEEDER ROADS PROGRAM

PROJECTED UTILIZATION OF PROJECT FUNDS SUBSEQUENT TO SEPTEMBER 30, 1979

Current and Projected Road Construction Funds Available as of
September 30, 1979

	AID Loan	\$1,090 (a)	
	GOH	2,171 (b)	\$ 3,261.
Plus additional GOH contribution covering Bureau Central deficit			
			31
Total Availability			\$ 3,292
Estimated Cost to complete 44.2 kms in process at 9/30 at average of \$13,500 (c) per km.			(597)
Projected availability for new construction:			\$ 2,695

Road Links Planned for Construction (1/80 to 10/81):

	Kms	Costs (d) (\$16,250/km)	
Limbe-Le Borgne	28.6	\$ 465	
Le Borgne-Anse-a-Foleur	13.5	218	
Mirebalais-Dini-Las			
Cahobas	22,6	368	
Las Cahobas-Belladère-			
Frontier	37,9	616	
Barradères - Pestel	33.3	541	
Blockhaus-Grand Goave	30.0 (est.)	487	\$ 2,695
Total	<u>165.9 kms</u>		<u>\$ -0-</u>

- (a) Excludes allocations for equipment
- (b) Excludes allocations for central TPTC operations
- (c) Current cost per km. without considering depreciation of equipment, i.e. for operation and materials costs.
- (d) Cost estimates based on average historic cost per km. adjusted for inflation (15 per annum compounded). Cost estimates do not include equipment depreciation.

Table 7

AGRICULTURAL FEEDER ROAD PROJECT
REVISED FINANCIAL PLAN

<u>INPUTS</u>	<u>YEARS</u> <u>1-3</u>	<u>YEAR</u> <u>4</u>	<u>YEAR</u> <u>5</u>	<u>TOTAL</u>
<u>Brigade Equipment</u>				
AID	1,374	549	100	2,023
<u>Materials</u>				
GOH	131	202	232	565
AID	78	192	222	492
<u>Operating Costs</u>				
GOH	815	808	929	2,552
AID	545	316	360	1,221
<u>Pilot Project</u>				
AID	198	-	-	198
<u>Leasing Equipment</u>				
AID	977	-	-	977
<u>Equipment Pool Overhead</u>				
GOH	270	-	-	270
<u>Contract Work</u>				
GOH	183	-	-	183
AID	89	-	-	89
<u>Contract Engineering</u>				
GOH	238	-	-	238
<u>Central TPTC Operations and Training</u>				
GOH	307	144	144	595
<u>Total Loan Package</u>				
GOH	1,944	1,154	1,305	4,403
AID	3,261	1,057	682	5,000
<u>Technical Assistance</u>				
AID (GRANT)	2,389	1,071	946	4,406
<u>Total Program</u>				
GOH	1,944	1,154	1,305	4,403
AID	5,650	2,133	1,628	9,406

of which \$1,721,000 are needed to cover the costs of the long-term consultants to TPTC and \$93,000 is required for baseline data collection and evaluation efforts (plus \$3,000 for initial design work which will be funded with available resources). Deducting the \$114,000 calculated to be available from presently approved funding on January 1, 1980, the total additional grant funding requested in this amendment is \$1,700,000. It is requested that the total amount of these resources be made available for obligation during the first quarter of FY 1980.

2. GOH Requirements

By adding the operational budget support for central TPTC operating costs to the project financial plan, the total GOH contribution to the project increases to \$403,000 or 32% of total project costs. Annual GOH contributions raise to \$1,154,000 in FY 1979-80 and \$1,305,000 in FY 1980-81.

Table 8
AGRICULTURAL FEEDER ROADS PROJECT
Estimated Costs of Consulting Services
From January 1, 1980 to September 30, 1981

I. TAMS CONTRACT

A. Long-Term Advisors

	Monthly Amount	Work Months	<u>TOTAL</u>
Senior Transportation Engineer	\$ 3,300.00	21	\$ 69,300
Transportation Engineer	\$ 2,800.00	9	25,200
Field Engineer 1	2,650.00	18	47,700
2	2,200.00	18	39,600
3	2,450.00	18	44,100
4	2,450.00	15	36,750
Financial Management	2,800.00	18	50,400
Mechanic	<u>1,950.00</u>	<u>18</u>	<u>35,100</u>
Subtotal.....		135	348,150
Inflation Factor: 15%			<u>52,222</u>
Subtotal			400,372
Overhead (80%).....			320,298
Insurance (12%).....			<u>48,045</u>
Total		<u>135</u>	<u>768,715</u>

B. Local Office Costs

Salary, Local Staff	4,000.00	21	84,000
Rent	1,000.00	21	21,000
Other (Per-Diem, supplies, etc.)	6,000.00	21	<u>126,000</u>
Total			231,000

C. Home Office Costs

Project Coordinator 10 days/ month x 21 months	2,350.00	7	16,450
Other Staff	2,100.00	5	10,500
Partner (1.25 days/mo @ \$400.00/day)	500.00		10,500
Short Term Advisors (\$150/day)	3,000.00	12	36,000
Subtotal			73,450
Overhead (125% excluding partner)			78,687
Insurance (12% of all home office personnel)			8,814
Per Diem & Travel (\$50/day)	1,500.00	12	18,000
Misc. Expense.....	500.00	19	<u>9,500</u>
Total			<u>191,451</u>

Table 8 (con't)
AGRICULTURAL FEEDER ROADS PROJECT
Estimated Costs of Consulting Services
From January 1, 1980 to September 30, 1981

	Monthly Amount	Work Months	TOTAL
D. <u>Moving Expenses</u>			
4 leaving @ 1500 :			\$ 6,000
4 Round trip @ 3000 :			12,000
Excess Bagage & Air Freight			4,000
E. <u>International Travel</u>			
4 Employees plus 3 Dependents each Return to US	\$ 250.00/person		4,000
4 Employees plus 3 Dependents each Round Trip	500.00/person		8,000
R&R Travel: 7 employees+ 3 dependents each	500.00/person		10,500
Home Office:10 Round Trips	500.00/each		5,000
F. <u>Education Allowance</u>			
\$2,000/yr/child			32,000
G. <u>Housing Allowance</u>			
Housing	600.00	135	81,000
Subtotal		1,351,666	
H. 10% Contingency		135,167	
I. 10% Fixed Fee		135,167	
TOTAL TAMS CONTRACT		\$1,621,000	
II. <u>ADMINISTRATIVE ADVISOR</u>			
18 months at \$5,000/month*			\$ 90,000
Contingency			10,000
Total			\$100,000

* rate of current contract plus provision for inflation; includes all applicable costs.

Table 9

AGRICULTURAL FEEDER ROADS PROJECT

Baseline Data Collection and Evaluation Costs

I. Baseline Data Collection Design

Technical Services: 12 days @ \$90/day	\$1,080
Per Diem: 14 days @ \$56/day	784
Local Travel & Other Direct Costs	300
International Travel: NYC - PAP - NYC	500
Miscellaneous	<u>336</u>
	\$3,000

II. Baseline Data Collection

1 Anthropologist: 120 days @ \$90/day	\$10,800
Workmans comp/DBA: 100 days @ \$8/day	800
Haitian Social Science Counterpart:	
Salary: 120 days @ \$50/day	6,000
Per Diem: 20 days @ \$28/day	560
Per Diem: 30 days @ \$56/day	1,680
90 days @ 28/day	<u>2,520</u>
Local Field Assistance (guides, informants, miscellaneous data gatherers)	300
Local Transportation	500
International Transportation (NYC-PAP-NYC)	500
Other Direct Costs (secretarial, telephone, reproduction, translation)	1,000
Contingency (9%)	<u>2,340</u>
Total	\$27,000

III. Follow-up Data Collection Effort one to one-and-a-half years after initial baseline data collected

Costs as in II above plus 15% inflation \$31,000

IV. Evaluation to be conducted in late 1980 \$35,000

TOTAL COSTS: I: \$3,000 + II: \$27,000 + III: \$31,000 + IV: \$35,000 = \$96,000

VI. ECONOMIC AND ENVIRONMENTAL ANALYSES

A. Economic Analysis

The original PP contained a sophisticated and innovative economic analysis that was the basis for the selection of the road sections included in the project. The roads to be constructed during the remainder of the project were selected from this list. However, due to the increased construction costs experienced under the project to date, a re-validation of the original economic analysis will be required.

There are indications that, although construction costs have increased substantially, anticipated benefits may also have increased and additional benefits not calculated in the original economic analysis may be substantial. First, it can be estimated that cost increases due to inflation have been paralleled by increases in the value of expected benefits also due to inflation. Secondly, the increased design standards to which the feeder roads are being constructed have most likely also increased the benefits (by permitting some regular and continual access to the regions served) and decreased the longer term maintenance costs of the roads. In addition, although the original calculation of benefits did not include indirect benefits such as changing crop patterns in the direction of higher value, more perishable items, it appears from the discussion of project impacts to date in Section IV above that there have been some of these impacts. These benefits could be estimated on the basis of experience to date and their inclusion in the benefit cost analysis would be favorable.

Based on these factors, the Mission believes that the conclusions of the original economic analysis remain valid for the road links selected for the remainder of the project despite the higher costs. Nevertheless, in order to assure that this is the case, an updated benefit/cost analysis will be performed for each road link before construction activity is begun. If this analysis demonstrates that a particular link is no longer economically feasible, that link will be excluded from AID loan financing under the project and a different road section which is economically viable will be selected to replace it in the program.

B. Environmental Analysis

No major change in the nature of the roads to be constructed or the manner of construction is called for in this PP amendment. Therefore, the conclusions of the environmental analysis contained in the PP remain valid. The one

change reflected in the project - increased road design standards calling for more and higher quality drainage structures - is expected to have a more positive impact on the environment than would have been the case with the original design.

Nevertheless, one indirect negative environmental impact that has been associated with rural road construction efforts in general, and in the case of Haiti in particular, is the prospect of greater deforestation in the areas adjacent to the roads. This occurs through the provision of greater access by trucks and loggers to areas previously inaccessible via the existing road. This potential indirect impact is of considerable concern, particularly in Haiti where deforestation is already advanced. Consequently, the Mission will monitor the incidence, if any, of increased cutting of trees in areas opened by the roads constructed under this project. We will work with the TPTC and other GOH agencies to minimize this potential negative environmental effect of the rural roads.

This notwithstanding, the Mission believes that the only viable, long-term solution to the deforestation problem in Haiti is an increased awareness on the part of the GOH of this problem and an increased GOH capability to address it. A start in this area is being made through the soil conservation component of the Integrated Agricultural Development Project. Beyond this beginning, the Mission will be working with the GOH and other donors over the coming year to develop a coordinated program aimed directly at the deforestation problem in Haiti.

VII. IMPLEMENTATION PLAN

A. Schedule of Major Events

The project will be implemented within the present estimated completion date of October 1981. The following is the schedule of major events for the remainder of this period:

1. PP amendment submitted to AID/W 11/02/79
2. Grande Rivière-Bahon, Carr. St. Antoine-Bainet, and Carr. Thomazeau-roads completed 11/30/79
3. Baseline data collection effort begun for new roads to be constructed 12/1/79
4. AID/W review and approval process, including Congressional Notification, completed and additional FY 80 funds allotted to Mission 12/15/79
5. Project Agreement Amendment reflecting project redesign and additional grant funding signed with GOH 12/31/79
6. TAMS contract amendment/extension signed by TPTC with USAID approval 12/31/79
7. Limbé-Le-Borgne-Anse-à-Foleur and Blockhauss-Grand Goave roads begun 1/15/80
8. Cavailon-Barradères and Cayes-Camp Perrin roads completed 1/31/80
9. Baradères-Pestel road begun 3/15/80
10. Mirebalais-Dini-Las Cahobas-Belladère-Frontière road begun 4/30/80
11. Baseline data collection effort completed 5/31/80
12. Second "light" brigade established and operational 6/30/80
13. Evaluation completed 9/30/80

- | | |
|--------------------------------------|----------|
| 14. TAMS advisory services completed | 9/30/81 |
| 15. All road segments completed | 9/30/81 |
| 16. PACD | 10/29/81 |

B. Procurement and Contracting Plans for Remainder of Project

1. Procurement

The only remaining procurement activity will be the purchase of light equipment (farm tractors, wagons, compactors) and hand tools for the labor-intensive brigades. The equipment is included in IFB No. 3 which has been published. Bids will be received until November 5, 1979. Assuming sufficient responsive bids, this equipment should arrive in Port-au-Prince and be assigned to the labor intensive brigades no later than June 30, 1980. Hand tools not included in IFB No. 3 will be procured locally, off-the-shelf, as required to support field operations.

2. Contracting

The Mission and TPTC have decided to extend the present technical assistance contract with TAMS. This decision was reached in the interests of avoiding a break in the provision of technical assistance and the lengthy delays that would most likely occur if the contract was re-bid. TAMS has built up a certain expertise on the project to date and will take steps to improve its contribution to the institutional development aspects of the project which are reflected in this PP amendment. TAMS will recruit replacement personnel for at least two of the field positions for which the incumbents have taken other jobs. The labor-intensive field engineer positions will be filled with advisors experienced in this type of construction work. An amendment extending the TAMS contract will be signed by the TPTC prior to the present expiration date of the contract, December 31, 1979.

The technical services for the baseline data collection effort will be contracted separately from the TAMS contract, since TAMS has no particular expertise in this area and the Mission and TPTC believe that qualified personnel are readily available elsewhere. A contract will be entered into with one U.S. anthropologist/social scientist with field survey

experience in Haiti and Creole and French language facility. If possible, s/he will be assisted by a Haitian researcher with prior survey experience. They will work in each of the four areas where baseline data will be collected. All contracting for the baseline data gathering study will be performed directly by USAID/Haiti at this stage. Subsequent services to assess the impact of road construction one, two and more years after completion of construction will most likely be contracted by TPTC.

The administrative advisor to TPTC will be contracted by the Ministry using grant funds. TPTC is presently contracting with the person who will continue to provide these services and it is expected that they will experience no problems administering the contract under this project.

C. Evaluation Plan

Two types of evaluation are envisioned. The baseline data collection survey will be the beginning of a long-term effort to measure the socio-economic impact of agricultural feeder road construction on rural areas and households. As described more fully in Section III. F. above, this initial survey will be followed up with additional surveys in the same communities/areas on a regular basis after each road segment is completed. This is expected to be a continuing activity over the next several years and should yield valuable firm information of the various intended and unintended socio-economic impacts of rural roads which will provide guidance for future activity of this type in Haiti.

Secondly, an evaluation will be conducted approximately 8 months from the date of this revision to assess progress against the implementation plan and objectives described in this PP amendment. Particular attention will be devoted to evaluating the performance and quality of the TAMS technical services and to the condition of the roads constructed under the project one year or more after their completion. Based on the recommendations of this evaluation, other necessary mid-course adjustments to the project will be made and a decision will be reached regarding whether one additional, final project evaluation should be conducted prior to or immediately following the PACD. It is expected that these evaluations will be carried out by external consultants, such as the one performed by Group Seven Associates in mid-1979.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK (Amended)

Life of Project:
From FY 1976 to FY 1981
Total U.S. Funding \$9,406,000
Date Prepared: Dec. 1979

AID 1980-28 (1-78)
SUPPLEMENT 1

Project Title & Number: Agricultural Feeder Roads 521-0074

NARRATIVE SUMMARY	OBJECTIVELY MEASURABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broad objective to which this project contributes: (A-1)</p> <p>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: (A-2)</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. 	<p>(A-3)</p> <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: (A-4)</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.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK (Amended)

AID 1020-20 (1-72)
SUPPLEMENT 1

Project Title & Number: Agricultural Feeder Roads, 521-0074

Life of Project:
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>B. PURPOSE:</p> <p>1) 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>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <p>1) Reduction TON/KM cost from \$0.15 to \$0.07 for average cargo transportation in areas served by roads built by project within 3 years following road construction.</p> <p>2) Increase of sales and transport of perishable foods such as vegetables, fruits, plaintain and bananas will increase 25pct in areas served by roads built by project within 3 years following road construction.</p> <p>3) Improved delivery of agricultural inputs to small farmers within areas served by reconstructed feeder roads as evidenced by greater use of modern inputs (fertilizer, seed, credit) following road construction.</p> <p>4) TPIC capable of reconstructing 240 KM. of feeder roads per year.</p>	<p>(B-3)</p> <p>1) to 3) baseline and follow-up studies in areas where roads will be built; survey of local truckers; project evaluations. 4) TPTC records.</p>	<p>Assumptions for achieving purpose: (B-4)</p> <ul style="list-style-type: none"> - GOH programs to increase agricultural productivity are implemented. - Internal tax on movement of goods will not be reinstated. - Road maintenance program exists and becomes increasingly effective.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK (Amended)

Life of Project: _____
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared: _____

AID 1970-20 15-721

Project Title & Number: Agricultural Feeder Roads, 521-0074

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>B. (Cont'd.)</p> <p>2) To strengthen the capability of TPTC to plan, manage and implement rural roads upgrading programs.</p>	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <p>1) TPTC has three functional heavy road construction brigades capable of reconstructing 60 KM/year each.</p> <p>2) TPTC has two functional labor-intensive, light-equipment assisted brigades capable of reconstructing 30KM/year each.</p> <p>3) TPTC central programming and planning unit established and functioning.</p> <p>4) ATS capable of producing improved designs for rural roads to be reconstructed.</p> <p>5) TPTC heavy equipment maintenance system functioning.</p> <p>6) TPTC has improved financial management division.</p>	<p>(B-3)</p> <p>- Project evaluations and TPTC records.</p>	<p>Assumptions for achieving purpose: (B-4)</p>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK (Amended)

Life of Project:
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared _____

AID 1979-28 (1/79)
SUPPLEMENT 1

Project Title & Number: Agricultural Feeder Roads, 521-0074

NARRATIVE SUMMARY	QUANTITATIVELY MEASURABLE INDICATORS	MEASUREMENT UNIT	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Outputs: (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
C. OUTPUTS:			
1) Reconstruction of 340 KM of agricultural feeder roads in rural areas.	1) YEAR 1 2 3 4 5 KM 15 45 70 125 85	TPTC and leasing operation records; project evaluations.	1) Berger recommendations on TPTC reorganization given full consideration and, where appropriate, adopted.
2) Establishment of labor intensive, light equipment assisted construction brigades.	2) 2 by 1980		
3) Establishment of an equipment leasing pool.	3) Pool equipment rented an average of 1,080 hours/yr.		
4) Guidelines established for planning future rural roads upgrading projects.	4) 1		
5) Training courses established for operational and management personnel.	5) 3 courses for operational personnel; 1 for senior management established by 1981.		
6) Improved cost accounting system in place at TPTC.	6) 1		
D. INPUTS:			
See Financial Plan, Table 7, p. 46 of PP Amendment.			Continued availability of AID grant and GOH counterpart funds.