

PROJECT DATA SHEET

TRANSACTION CODE  
 A = Add  
 C  
 D = Change  
 E = Delete  
 Amendment Number 1  
 DOCUMENT CODE 3

COUNTRY/ENTITY: Liberia  
 RELAC/OFFICE: AFR  
 [06]

3. PROJECT NUMBER: [669-0200] PDBBJ537  
 5. PROJECT TITLE (maximum 40 characters): Liberia Road Maintenance

OBJECT ASSISTANCE COMPLETION DATE (PACD)  
 MM DD YY  
 1 2 31 8 9

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4)  
 A. Initial FY [85] B. Quarter [4] C. Final FY [88]

8. COSTS (\$000 OR EQUIVALENT \$) =

A. FUNDING SOURCE	FIRST FY 85			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
(D) Appropriated Total (Grant)	( 700 )	( 300 )	( 1,000 )	( 5,649 )	( 0 )	( 5,649 )
(Loan)	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
1.						
2.						
Country	0	30	30	0	2,474	2,474
Net Donor(s)						
<b>TOTALS</b>	700	330	1,030	5,649	2,474	8,123

9. SCHEDULE OF AID FUNDING (\$000)

PRO- TION PURPOSE CODE	B. PRIMARY TECH CODE	C. PRIMARY		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
ARDN 79				4,300	0	1,349	0	5,649	0
<b>TOTALS</b>				4,300	0	1,349	0	5,649	0

11. SECONDARY PURPOSE C

To (1) provide selected rural areas with cheaper, more reliable transportation for marketing agricultural produce and obtaining consumer goods and services. and (2) develop the capabilities of construction contractors to perform road maintenance.

12. RELEVANT EVALUATIONS  
 Stream MM YY 0 6 86 Final MM YY 0 3 89

13. SOURCE/ORIGIN OF GOODS AND SERVICES  
 000  941  Local  Other (Specify) Country Host

14. CHANGES/NATURE OF CHANGE PROPOSED (This is page 1 of a \_\_\_\_\_ page FP Amendment)  
 The extension will add funds required to complete the regraveling contracts, extend the long-term technical assistance team, and add 13 months to the PACD.  
 Concurrence on methods of implementation and financing.  
 Signature: *M. Hunter*  
 CON: Hunter

APPROVED BY: *Mary C. Kilgour*  
 Title: Mary C. Kilgour, Director, USAID/Liberia  
 Date Signed: MM DD YY 1 1 2 1 87  
 15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

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UNITED STATES AID MISSION TO LIBERIA



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October 29, 1987

ACTION MEMORANDUM TO THE DIRECTOR

FROM: George Hazel, Chief SPPD *[Signature]*  
SUBJECT: Project Amendment Authorization - Liberia Road  
Maintenance Project (669-0200)

PROBLEM:

Your approval is required to authorize a project amendment which will add \$1,349,000 required to complete road rehabilitation and to extend the PACD by 13 months to December 31, 1989.

DISCUSSION:

A. Background

The Liberia Road Maintenance Project (669-0200) was authorized on August 19, 1985 as part of the IBRD's \$21.28 million Fifth Highway Project. The \$4.3 million dollar A.I.D. funded component is devoted to rehabilitating the Zwedru-Pleebo highway, a 155 mile road crucial to the economic condition of Grand Gedeh and Maryland Counties. The project utilizes private sector contractors and trains Ministry of Public Works (MPW) supervisory personnel to provide an effective alternative to force account maintenance for periodic work such as road rehabilitation and regravelling.

- The Pleebo-Zwedru Highway was divided into 6 construction segments, each approximately 25 miles long. The implementation schedule specified that two segments be let each year. However, political events, slow mobilization and management problems of the construction firms, as well as unusually bad weather caused a delay of one construction season and slower progress than was expected. Currently, Segments 3 and 4 are approximately 30% completed while segment 5 is 5% completed. Segments 3 and 4 will be finished by January 31, 1988 and Segment 5 will be finished by March, 31, 1988. Segment 6 will be let in mid-December and construction will begin February 1, 1988. Segments 1 and 2 will be awarded in mid-January, provided Brooke sanctions are not in effect, with construction beginning April 1, 1988.

B. Project Description

The purpose of the project continues to be (1) to provide selected rural areas with more reliable road transportation for marketing agricultural produce; and (2) to develop capabilities of private construction contractors to perform road maintenance.

Technical assistance and training are provided by the Organization for Rehabilitation through Training (ORT), a PVO experienced in infrastructure projects in Africa. Two engineers from ORT are responsible for supervising contract regravelling, training MPW personnel to carry out contract supervision and developing and implementing other training programs for contractors and MPW managers.

The revised outputs and end of project status are: a rehabilitated and regravelled road between Zwedru and Pleebo which provides year-round access for residents of Maryland and Grand Gedeh Counties; a MPW Contractor Maintenance Supervision Unit capable of supervision, inspection and planning for road maintenance; 31 trained MPW personnel in contractor supervision and road maintenance/rehabilitation management, 15 of which will have received practical experience at the IBRD and USAID project sites; and at least four Liberian construction firms will have the construction and management experience necessary to carry out future road construction jobs without assistance.

C. Rationale

There are two primary reasons for this amendment: delays requiring an extension of the PACD by thirteen months until December 31, 1989 and the original cost estimate was too low, requiring a budget increase of approximately \$1.3 million.

The delay in beginning construction of one season was followed by various delays caused by the inability of firms to mobilize in the 30 days, management problems and bad weather.

Due to road rehabilitation costs being approximately 50% higher than originally estimated, this amendment requires an increase in the regravelling budget.

Furthermore, an additional \$351,000 will be required to extend the ORT contract by 19 person months so the engineers can continue their supervision of construction and complete the training program.

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In addition, several minor implementation details have been changed, such as the GOL project manager will now be required to spend 100% of his time at the project site; Conditions Precedent to third year regraveling contracts are deleted; one Covenant to guarantee routine MPW maintenance of the Zwedru-Pleebo road is added; and the Socio-Economic Baseline Study follow-up will be combined with the final evaluation.

D. Financial Summary

The revised cost of project is now \$5,649,000, up from \$4,300,000. The extension cost is as follows:

Summary AID Budget (000)			
	Original Budget	Extension Amount	Total
Regraveling Contracts	2,430	1,242	3,672
Technical Assistance Commodities, Evaluation Project Support,	1,180	351	1,531
Contingency & Inflation	690	-244	446
Total	4,300	1,349	5,649

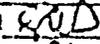
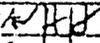
The GOL's contribution includes in-kind, road maintenance and rehabilitation and its participation in the IBRD Fifth Highway project has increased from \$1,800,000 to \$2,474,000.

E. Environmental Monitoring

AID/Washington required the REDSO/Environmental Officer to evaluate the effect rehabilitating the Zwedru-Pleebo road would have on forests in the Southeast. His report concluded that environmental monitoring would not be necessary as "The USAID/Liberia Road Maintenance Project should have no direct, and no significant primary indirect impact on regional deforestation rates or extents."

- Recommendation: That you approve this amendment to increase the life of project funding from \$4,300,000 to \$5,649,000 (an increase of \$1,349,000) and to extend the PACD by 13 months from November 30, 1988 to December 31, 1989 by signing the attached amendment to the project authorization.

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Clearances:  
SPPD:RRose   
SPPD:ESiebu   
DP:BPerez draft  
CON:HHunter 

  
Drafter:JBiegard:0546T:10/21/87

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AMENDMENT NO. 1 TO PROJECT AUTHORIZATION

NAME OF COUNTRY: Liberia  
NAME OF PROJECT: Road Maintenance Project  
NUMBER OF PROJECT: 669-0200

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, the project authorization for the Road Maintenance Project (669-0200) with the Republic of Liberia (the "Grantee") was signed on August 19, 1985. This authorization is hereby amended as follows:

A. Paragraph 1) is deleted in its entirety and the following paragraph inserted in lieu thereof:

"Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, and the authority vested in me under DOA 551, I hereby authorize the Road Maintenance Project for Liberia (the "Grantee") involving planned obligations of not to exceed \$5,649,000 in Grant Funds over a four year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D./OYB/allotment process to help in financing offshore and local costs of the project. The Life of Project is four years and three months."

B. Under Section 3B Conditions Precedent: (1) Paragraph B is amended by changing the words "six trainee contractor supervisors" to "four trainee contractor supervisors"; (2) to paragraph B is added the following additional condition: "evidence that the Grantee's Project Director has been assigned full time to the project site and has assumed supervisory responsibilities and is acting as the counterpart to the ORT Senior Engineer;" and (3) paragraph C entitled "Disbursement for Third Year Regravelling Contracts" is deleted in its entirety.

C. To Section C, Covenants, is added the following Covenant:

"The Minister of Public Works will perform annual routine maintenance on the 155 Zwedru-Pleebo Road. A minimum of \$300,000 from the 1989-1990 Development Budget will be devoted for this purpose."

2. Except as amended herein, the authorization remains unchanged and in full force and effect.

Date: Nov. 21, 1987

Mary C Kilgour  
Mary C. Kilgour  
Mission Director  
USAID/Liberia

Drafted: RLA A. Williams: 11/6/87

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I. SUMMARY AND RECOMMENDATIONS

- A. Project Title: Liberia Road Maintenance  
B. Project Number: 669-0200  
C. Grantee: Government of Liberia  
D. Implementing Organization: The Organization for Rehabilitation Through Training (ORT)

E. Total Project Cost: (000)

	Original	This Amendment	Total
AID	4,300	1,349	5,649
GOL	1,800	674	2,474
Total	6,100	2,023	8,123

- F. Life of Project: Revised from 11/30/88 to 12/31/89
- G. Goal: To maintain infrastructure essential to Liberia's productive capacity and to improve access of the rural population to income opportunities, goods and services.
- H. Purpose:
- 1) To provide selected rural areas with cheaper, more reliable transportation for marketing agricultural produce and obtaining consumer goods and services.
  - 2) To develop the capabilities of private Liberian construction contractors to perform road maintenance.
- I. Project Description: This project is part of the World Bank/GOL/USAID Fifth Highway Project. The USAID component is to rehabilitate the 155 mile primary road between Zwedru, Grand Gedeh Co. and Pleebo, Maryland Co. using private Liberian contractors. This provides an alternative to force account maintenance thereby improving the capability of the Ministry of Public Works (MPW) to maintain the roads of Liberia.

Technical assistance is provided by two engineers from ORT. They are responsible for supervising contract regravelling, training MPW personnel to carry out contract supervision and developing and implementing other training programs for contractors and MPW managers.

Currently, three segments of the road are partially completed, with three remaining. Due to road rehabilitation costs being approximately 50% higher than originally estimated, this amendment requires an increase in the regravelling budget.

Due to delays caused by political events, slow mobilization and management problems of the construction firms, as well as unusually bad weather, the PACD is extended by 13 months allowing adequate time for completing construction and any slippage in the implementing schedule.

J. Recommendations:

That this amendment be approved to increase funding by \$1.349 million and to extend the PACD by 13 months to December 31, 1989.

## II. DESCRIPTION OF THE PROJECT

### 1. Background:

The Liberia Road Maintenance Project (669-0200) was authorized on August 19, 1985 as part of the IBRD's \$21.28 million Fifth Highway Project. The overall goal of the Fifth Highway Project is to strengthen the Liberian Ministry of Public Works' (MPW) ; ability to rehabilitate and maintain the existing primary road network. The purpose of the \$4.3 million dollar A.I.D. funded component is to develop a private sector alternative to force account maintenance for periodic work such as road rehabilitation and regravelling.

The Fifth Highway Project is multidonor funded through the World Bank. In 1984, the Government of Liberia (GOL) committed itself to provide \$5.58 million in budgetary and in-kind support and carry out periodic and routine maintenance. The World Bank's funding commitment was a loan of \$11.4 million to the GOL. This loan was to finance a technical assistance team, purchase a small amount of heavy and light equipment, introduce improved management and administrative systems and provide a percentage of operating costs (excluding salaries). While the IBRD portion of the project continued well into 1985, high debt arrears halted disbursements at \$7.2 million to this project in February 1986. The Government of Liberia (GOL) continues to devote approximately \$1.25 million annually from its development budget for the Fifth Highway project.

### 2. Goal:

The goal of the project remains unchanged; that is, to maintain infrastructure essential to Liberia's productive capacity. The secondary goal is to improve access of the rural population to income opportunities, goods and services.

### 3. Purpose:

The purpose of the project continues to be (1) to provide selected rural areas with more reliable road transportation for marketing agricultural produce; and (2) to develop capabilities of private construction contractors to perform road maintenance.

### 4. Revised Outputs:

The outputs have been revised. They are: 1) A rehabilitated 155 mile highway between Zwedru and Pleebo; 2) 31 trained MPW personnel in contractor supervision and road maintenance/rehabilitation management. 15 of the 31 received practical experience at the IBRD and USAID project sites; and 3) Construction management advisory service provided to Liberian construction firms participating in the rehabilitation of the Zwedru-Pleebo road.

5. Revised Inputs:

The grant is divided into two parts, the first is obligated to the GOL and the second to the Organization for Rehabilitation Through Training (ORT) to provide technical assistance and training.

The GOL component covers the regravelling contracts, vehicle procurement, baseline study/evaluation, the USAID project support and contingency/inflation allowances. Due to low original estimates of the contracting cost an additional \$1,241,000 is required. Under this amendment, no new vehicles will be procured, however, an additional \$4,000 is necessary for spare parts. The Socio-Economic Baseline study cost was higher than originally expected, therefore, an additional \$50,000 is required to fund the follow-up of the baseline study which will, under this amendment, be combined with the final evaluation. The USAID project support consists of half the time of the assistant engineer, which will be increased by \$37,000 to cover expenses up to the new PACD.

ORT's responsibilities include supervising contract regravelling, training MPW personnel to carry out contract supervision and developing and implementing other training programs for contractors and MPW managers. For this purpose both engineers will be extended, the Chief of Party by 9 person months and the other by 10 person months. Originally, the PP envisioned more sophisticated MPW trainees and more experienced contractors thus enabling the second engineer to depart in the middle of the project. Based on experience working with the trainees and contractors, the second engineer will stay on until most construction is completed. The COP will remain until all construction and close-out activities are completed.

The GOL provides the trainees and their salaries, office space at the MPW, maintenance support from the Grand Gedeh and Maryland MPW offices and road maintenance contracts for private Liberian firms amounting to \$300,000 in the final year of the project. In addition, 29% of the GOL development budget contribution to the IBRD/GOL/USAID Fifth Highway Project is attributed to the USAID portion of the project.

6. Revised End of Project Status:

The revised end of project status will be: 1) A rehabilitated and regravelled road between Zwedru and Pleebo which provides year-round access for residents of Maryland and Grand Gedeh Counties. 2) A Contractor Maintenance Supervision Unit capable of supervision, inspection and planning for road maintenance and 3) At least four Liberian construction firms will have the construction and management experience necessary to carry out future road construction jobs without assistance.

7. Current Status:

After obligation, the project was delayed by one construction season for several reasons.

First, the project was delayed because of the political climate: The attempted coup in November 1985 and the possibility that Eastern Bloc countries would pave the Ganta-Harper Highway of which the Zwedru/Pleebo Road is a sub-segment meant that only one contract was let in 1986 (September) instead of two (January and September).

Second, the Liberian construction firms mobilized slower than anticipated. At the beginning, the firms had problems in providing logistical support for the work teams at the project site and were slow in delivering the equipment on the site. The firms are using old equipment because the size of the contracts are insufficient to make large capital investments. In as much as foreign exchange is scarce, dealers do not have stocks of spare parts; orders from abroad take one to three months to arrive.

Third, the construction season is based on a November-May six month dry season. The final delay occurred when unexpected heavy rains came in February and March 1987 and caused a loss of two months of construction. Because there were only two engineers from ORT, at least one uncompleted segment must be finished before any new segments can begin. Therefore, it was not possible to accelerate the schedule by increasing the number of segments under construction. This capability will be increased under the amendment since the GOL project manager will now be required to spend 100% of his time on the project rather than 25%. He will take on a supervisory role and act as counterpart to the senior ORT engineer.

A two person team from Earth Engineering and Sciences, Inc. (E2SI) conducted the interim evaluation in May/June 1987. This time was chosen because it was just prior to the end of the construction season and before the rainy season.

The evaluation assessed the overall project; compared the plans of the PP to the actual work accomplished; identified problems and suggested recommendations; and noted accomplishments. The team visited the construction site to examine the work of the Liberian contractors and reviewed and evaluated the MPW training programs. Overall, the project was deemed a success in meeting project objectives.

#### A. Rehabilitation and Regraveling

The Pleebo-Zwedru Highway was divided into 6 construction segments, each approximately 25 miles long. Instead of letting two contracts each year for three years, in late 1986 and early 1987, three construction contracts were awarded in an effort to make up for the lost season.

At start of the November 1987 dry season, Segments 3 and 4 are approximately 30% completed while segment 5 is 5% completed. Segments 3 and 4 will be finished by January 31, 1988 and Segment 5 will be finished by March, 31, 1988.

USAID is currently in the process of preparing bid documentation for Segments 1, 2 and 6. Segment 6 will be let in mid-December and construction will begin February 1, 1988. Segments 1 and 2 will be awarded in mid-January with construction beginning April 1, 1988.

The evaluation team concluded that although the work is going slower than envisioned in the PP, the quality is good. Furthermore, the laterite quality required by contract documents is being met. Even after 12 hours of heavy rain, there were no puddles or standing water on the road.

#### B. MPW Training

When actual construction could not begin as anticipated, ORT accelerated its training program instead. Of the 25 MPW personnel that participated in the 13 week classroom training, five went to work for the World Bank project and six stayed with the USAID project to undergo on-the-job training. The other 14 trainees returned to MPW. Currently, six new technicians have completed the six week classroom training. Four will be selected for on-the-job training which will begin when the construction season starts in November. The six trainees from last year (two engineers and four technicians) are undergoing advanced training.

The PP envisioned six new trainees receiving on-the-job training each year. Based on the revised training schedule and the needs of the MPW trainees, this number has been reduced from 18 to 10 enabling them to have more on-the-job training. Hence, the six trainees from the first construction season and the four from the second will be retained until the end of the project. This ensures that they will be capable of supervising future contractor construction for the MPW. There will not be

enough work or training time for the final six planned for the third year so that requirement has been eliminated from the Conditions Precedent.

The evaluation team concluded that the training of MPW personnel is proceeding smoothly. The MPW inspectors are keeping good daily reports and lab test results are reasonable, indicating that technicians are being properly trained. The evaluation team pointed out that two items under the training need improvement -- more emphasis should be put on laterite studies as it is the most abundant material used for roads in Liberia and secondly, that the subject of road maintenance needs to be treated in greater detail. Both recommendations have been incorporated by ORT in the current training program.

The trainees told the evaluators that they wanted to gain more experience in quantity measurement during the next construction season. Therefore, the trainees will participate in quantity measurements and review and make recommendations for approval of work progress estimates and the contractor invoices. The team found the quality of the trainees high and with more experience they will be prepared to take on more responsibility.

#### C. Contractor Supervision Unit

Excluding the IBRD Fifth Highway Project, all maintenance work presently being done by the MPW is through force account. The Road Maintenance Project, through the Operations Bureau, is establishing a Contractor Maintenance Supervision Unit. Its purpose is to expand maintenance operations of the GOL through minimalizing the MPW's expenses. In particular, this method will reduce the requirements for new equipment and expensive personnel. Competitive bidding should also ensure low cost contracting.

MPW is in the process of transferring maintenance work from the force account method to using contractors. Once this unit is established, it will be able to supervise the contractors' work. ORT has already identified a group of candidates from which six technicians will be selected to comprise the unit.

The unit will become fully operational before the end of the project. USAID, ORT and the MPW will hold a meeting in late October, 1987 to develop the long range road rehabilitation plan.

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#### D. Training Liberian contractors

The secondary purpose of this project is to develop the capability of Liberian firms to build and maintain laterite roads. Two firms are now capable of successfully completing any road maintenance jobs offered by the GOL, and at least two more firms are expected to be similarly trained during the final 1988-89 construction season.

The team found that Liberian contractors have the basic technical ability but lack management and administrative skills. They suggested hiring an expatriate as an advisor to work with the Liberian construction contractors as they believed that the dual role of ORT in supervising the trainees and the contractors was creating a conflict of interest. At this point in the project, the Mission prefers the current system. This recommendation will be considered in future design of roads projects.

Thus far, the project has been able to find a sufficient number of Liberian firms to carry out the rehabilitation work. Although there have been delays in start-up time (this has been corrected by adding 15 days to the mobilization period) the firms' overall progress is acceptable and the quality of work meets the standards of the construction contract.

#### E. Technical Assistance--ORT

A U.S. registered PVO, the American Organization for Rehabilitation Through Training (ORT) Federation, a branch of the Geneva based ORT, was selected to implement the project. USAID/Liberia requested and was granted authority to limit proposals to ORT in light of ORT's extensive road maintenance and training experience, having concluded similar programs for A.I.D. in Zaire and Chad and for the World Bank in several African countries. Two engineers arrived in December 1985 to serve as the technical assistance team to train MPW personnel and supervise the contractors.

#### F. Socio-Economic Baseline Study

The socio-economic baseline study was required to develop baseline transportation, marketing, trade pattern and other socio data in the road impact area. It, like the other components in the project, has been subject to considerable delays. The contract with a local firm began in June 1986 and was to be completed by June of 1987. Problems with collecting data on the project site and from the GOL, especially the 1984 census data, have created the delay. The draft of the final report is now at the Mission and is expected to be finalized in December, 1987.

The data collection follow-up will be incorporated in the final evaluation to measure project impact.

### E. Environmental Monitoring

In the PP the Initial Environmental Examination (IEE) called for on-going monitoring of the effect rehabilitating the Zwedru-Pleebo road would have on forests in the Southeast. In particular, whether increased road access would contribute to deforesting primary forest either by timber companies or small-holder slash-and-burn farmers.

The initial IEE response from AID/Washington was to require the REDSO/Environmental Officer to evaluate the road. His report concluded that this environmental monitoring would not be necessary:

"The USAID/Liberia Road Maintenance Project should have no direct, and no significant primary indirect impact on regional deforestation rates or extents. Under maximum cause-effect conditions, it would increase target corridor deforestation rates and decrease non-target corridor and perhaps regional rates over "no project" conditions. The net indirect deforestation impact is quantitatively incalculable given data limitations, but it is expected to be ecologically insignificant. More important from the ecological perspective, the project should have substantial impact by drawing down traffic volumes off of the non-target routes transecting one of the largest, most unimpacted, and most ecologically important blocks of forest remaining in West Africa." 1/

The environmental officer's recommendation at that time was to take the funds previously earmarked for assessment of project impacts on tropical deforestation (\$30,000) and reprogram it to obtain satellite imagery of eastern Liberia at or near the end of the project. However, a year and a half later, the Environmental Officer noted in a memorandum to the files that given the quality photographic coverage of the region in 1979/82, the extremely high costs for obtaining appropriate satellite imagery at the current time and the difficulty in obtaining 'cloud and haze-free' imagery of suitable quality, the use of these funds for this purpose no longer appears advisable. Therefore, in this amendment these funds have been released.

1/ Road Development and Tropical Deforestation in Eastern Liberia, Regional Science and Technology Officer, September 1986.

### III. RATIONALE FOR THE EXTENSION

There are two primary reasons for this amendment: delays requiring an extension of the PACD by thirteen months until December 31, 1989 and the original cost estimate was too low, requiring a budget increase of approximately \$1.3 million.

The delay in beginning construction of one season was followed by various delays such as the inability of firms to mobilize in the 30 days and bad weather.

When the project was originally planned, estimates for the construction, done two years prior to the issuance of a contract, were approximately \$15,000 per mile. After a year's experience, however, actual costs are closer to \$25,000. The higher costs differed from the original estimates due to the following factors: 1) The year's delay at beginning the project meant construction costs had increased; 2) Estimated quantity figures were different from those submitted by the construction firms; and 3) The unit cost figures were also different from those submitted. Bids came in 20-40% higher than expected. All of these factors result in a construction shortfall of \$1,241,000 (See Table 2).

Furthermore, an additional \$351,000 will be required to extend the ORT contract by 19 person months so the engineers can continue their supervision of construction.

In addition, several minor implementation details have been changed:

- The GOL project manager will now be required to spend 100% of his time at the project site;

Total MPW trainees receiving on the job training will be 10 out of the 31 trainees who received classroom training rather than 18 as originally planned. Thus the CP requiring an additional six trainees in the third year is deleted;

The remaining three segments will be let in the second year rather than two in the second year and two in the third year. Therefore, third year conditions precedent are converted into covenants;

The environmental monitoring component of the project is deleted; and

The Socio-Economic Baseline Study follow-up will be combined with the final evaluation.

IV. FINANCIAL PLAN

Total cost of the Roads Maintenance Project is now \$8,123,000. Funding derives from three sources: \$5,649,000 from the AID Agriculture, Rural Development and Nutrition (ARDN) Assistance Account; \$1,704,000 from the GOL Development Budget contribution to the World Bank/GOL/USAID Fifth Highway Project; and \$770,000 from the MPW recurrent budget.

Table 1 provides a summary budget of the total project costs and the GOL/World Bank/USAID Fifth Highway Project.

Table 1  
World Bank/GOL/USAID  
Fifth Highway Project.  
(000)

Item	World Bank	GOL	AID	Total Project
Original Participation in the Fifth Hwy Proj	11,400 (53%)	4,810* + 770** 5,580 (26%)	4,300 (21%)	21,280
Revised Participation in the Fifth Hwy Proj	7,200 (37%)	5,875* + 770** 6,645 (34%)	5,649 (29%)	19,494

\*GOL general contribution to the overall Fifth Highway Project for: Equipment and Workshop Rehabilitation; Force Account Regraveling; World Bank Technical Assistance Support; and Incremental Budgeting for Routine Maintenance.

\*\*GOL specific contribution to the USAID component of the project includes:

Equipment	20,000
Facilities	100,000
Regraveling contracts let in 1988/89	300,000
Salaries for trainees and counterparts	350,000
Total	770,000

In the PP, the formula used to allocate a portion to the USAID component of the overall \$5,580,000 GOL contribution to the Fifth Highway Project was not explained fully. The design team took \$1,030,000 and added \$770 to get the GOL contribution of \$1,800,000 the project. Two years later the Fifth World Bank Project has changed considerably. The USAID component has increased by \$1,349,000, the World Bank contribution has decreased by \$4,200,000, and the GOL's commitment has increased by \$1,065,000. The new total Fifth Highway Project has gone from \$21.28 million to \$19.494 million. The USAID component now represents 29% of the total Fifth Highway Project, thus taking 29% of the development budget contribution of \$5,875,000 yields the contribution to the USAID project:

$$5,875,000 \times .29 = 1,704,000$$

$$+ 770,000$$

$$\hline 2,474,000$$

Table 2 represents a summary budget of the USAID project.

Table 3 illustrates the difference between the original regravelling cost estimates and the actual cost. The new estimate of cost per mile is approximately \$25,000.

Table 4 is the Technical Assistance Budget for completion of the project.

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Table 2  
Summary Budget  
(000)

Item	Original Budget	Extension Amount	Total AID	Revised GOL	Total Project
1. Regraveling Contracts	2,430	1,242	3,672	300	3,972
2. Technical Assistance	1,180	351	1,531	470	2,001
3. Vehicle Procurement	85	4	89	--	89
4. Evaluation/Socio-Econ Baseline Study	100	56	156	--	156
5. Environmental Monitoring	30	-30	--	--	--
6. USAID Project Support	54	37	91	--	91
7. Contingency/Inflation	421	-311	110	--	110
8. Participation in the Fifth Hwy Proj	--	--	--	1,704*	1,704
<b>TOTAL</b>	<b>4,300</b>	<b>1,349</b>	<b>5,649</b>	<b>2,474</b>	<b>8,123</b>

\* Note: This number is 29% of the GOL contribution from the development budget to the IBRD/GOL/USAID Fifth Highway Project.

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Table 3  
Construction Costs and Shortfall

Name of Section	Segment Number	Length (mi.)	Est. Unit Cost per mile	Original Est. Contract Cost	Actual Unit Cost/mi	Actual Contract Cost	New Est. Unit Cost/mi	New Est. Contract Cost
Pleebo to Wutuken	3	24.4	15,667.42	382,285.04	19,806.16	483,270.37		
Wutuken to River Gbeh	4	24.3	15,667.42	380,718.30	22,572.24	548,504.38		
River Gbeh to Palipo	5	25.2	15,667.42	394,818.98	24,782.83	624,527.20		
Palipo to Kelipo-Kahnweaken	6	28.4	15,667.42	444,954.72	--	--	25,000	710,000
Kelipo-Kahnweaken to Doubli	2	24.1	15,667.42	377,584.82	--	--	25,000	602,500
Doubli to Zwedru	1	28.1	15,667.42	440,254.50	--	--	25,000	702,500
Total from Zwedru to Pleebo		155	15,667.42	2,428,450.10	--	1,656,302	--	2,015,000
Total Original Cost Est.			+ 2,430,000		Total Construction Cost is			
Minus Actual Contract Cost (Segments 3-5)			- 1,656,000		1,656,302 + 2,015,000 = 3,671,302			
Remaining Original Amount			+ 774,000					
Est. Cost to Complete Road			- 2,015,000					
Shortfall of			- 1,241,000					

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Table 4  
Technical Assistance Budget

ITEM	EXISTING BUDGET	EXTENSION	TOTAL
	\$ 359,027	\$ 160,000	\$ 519,150
I. Field Personnel Renumeration	98,700		69,538
II. Int. Travel & Transport	28,900		35,580
III. Local Travel	181,950		196,155
IV. Local Cost Expatriate Person	109,200	52,848	52,848
V. Short Term Consultants	65,205	47,600	112,805
VI. Training In Country	20,000	-0-	20,000
VII. Training Materials	61,950	27,900	89,850
VIII. Vehicles	73,959	47,041	121,000
IX. Home Office Backstopp	54,118	102,524	156,642
X. Overhead	52,500	17,200	69,700
XI. Field Support	10,000	4,500	14,500
XII. Radio Equipment	60,151	8,000	68,951
XIII. Other Direct C			
Total	\$1,175,745	\$ 350,974	\$1,526,719
Rounded to	1,180,000	+ 351,000	= \$1,531,000

Best Available Document

V. REVISED IMPLEMENTATION PLAN

The implementation timing for completing all segments has been extended based on the current experiences of delays and other problems. The revised construction schedule will be: Segments 3, 4 and 5 will begin again on November 1, 1987 (the end of the rainy season); 3 and 4 will be completed by January 31, 1988 and 5 by March 31, 1988; Segment 6 starting in February 1988 and ending January 1989; Segments 2 and 1 beginning April 1, 1988 and ending May 31, 1989. This is approximately a 6 month construction period excluding the rainy season.

The technical assistance team will also be extended to complete supervision and training activities. The second engineer will be extended until December 31, 1988, an addition of 10 person months. While all construction will not be completed by that time it is expected that the supervision load will be light enough for the GOL project manager and the senior engineer to handle. The senior engineer will leave in June, 1989 after construction is completed. The senior engineer will also carry out project close-out activities and train the MPW technicians in overall project management/monitoring. During the last part of the construction, the GOL project manager and the senior engineer will monitor the MPW personnel trained under the project as they conduct the actual supervision.

The Socio-Economic Baseline Study was supposed to be finished in June, 1987, however, problems with the data collection and analysis have delayed this to approximately December, 1987. The combined baseline follow-up and final evaluation will take place in March-April 1989.

An extra six months are attributed after the expected completion of construction is given to allow for unexpected delays, particularly those caused by bad weather. However, of that time only approximately two and a half months will be dry enough for construction services. The PACD date is now December 31, 1989.

VI. EVALUATION

Originally it was envisioned in the Project Paper that the baseline follow-up and the final evaluation would be discrete activities, they have now been combined. The evaluation will take place in March/April 1989. Three components are required: a socio-economist for the full six weeks, an engineer for two weeks (both from an IQC firm) and a local firm to gather the follow-up information to the baseline study for the full six weeks. All three will cooperate in preparing the report.

	Evaluation					
	Wk. 1	Wk. 2	Wk. 3	Wk. 4	Wk. 5	Wk. 6
Socio-Economist	[-----data-----collection-]					
Local Firm	[-----data-----collection-]					
Engineer					[data-]	[--Report-]

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Implementation Chart  
(Illustrative)

Activity	1987				1988				1988				1989				1989												
	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Regraveling Contracts																													
Segment 1					*			XXXXX																					
Segment 2					*			XXXXX																					
Segment 3							XXXXXXXX																						
Segment 4							XXXXXXXX																						
Segment 5							XXXXXXXXXXXXXXXXXX																						
Segment 6					*		XXXXXXXXXXXX																						
ORT Extension																													
Chief of Party							XX																						
Engineer							XX																						
Baseline Study																													
Completed							XXXXXXXXXXXX																						
Follow-up/Final																													
Evaluation																													
Possible Allowance																													
for Delays																													
PACD																													

\* Indicates Award of Contract, regraveling begins at minimum 45 days later and maximum 90 days later.

Note: The rainy season runs from June to October, during this time construction may occur June-July but at reduced levels. The possible allowances for delays allows contractors who could not complete regraveling due to bad weather an extra two months of dry season.

## VII. REVISION OF CONDITIONS PRECEDENT AND COVENANTS

Five issues were deemed important enough by the Project Paper to warrant consideration for inclusion in conditions precedent (CPs). These are the requirement that the ORT team have adequate office space in the Ministry, that qualified trainees be assigned to the project each year, that the GOL implement urgently needed staff reductions, that steps be taken during the life of project to assure that routine maintenance will occur on the project road and finally, that the Contractor Maintenance Supervision Unit be established and funded by the Ministry to permit continued contract regravelling after the end of this project.

### A. To Disbursement for First Year Regravelling Contracts:

Prior to first year disbursement for the road regravelling contracts, the Grantee furnished evidence that:

1. MPW has made available office space in the Ministry adequate to accommodate the two long-term ORT engineers and one secretary for the duration of the project; and

STATUS: Satisfied, documentation received on December 10, 1985.

2. MPW has selected, in consultation with ORT and USAID, six trainee contractor supervisors at the road technician level or higher to be assigned to the project full time to work during the construction season at the regravelling sites and to participate in classroom and laboratory training during the rainy season.

STATUS: Satisfied, documentation received on December 10, 1985.

3. MPW has selected, in consultation with ORT and USAID, a Project Director. He is required to spend at least 25 percent of his time at the project site.

STATUS: Satisfied, documentation received on September 10, 1985

### B. To Disbursement for Second Year Regravelling Contracts:

Prior to disbursement under the Grant or to issuance by A.I.D. of documentation pursuant to which disbursement will be made for financing the second dry season's road regravelling contracts, the Grantee will, except as the parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., evidence that:

1. Substantial progress has been made toward reducing the Ministry's full time staff by 75 employees other than laborers (using August 1, 1985 as a base), and converting the labor forces stationed in Maryland and Grand Gedeh counties from full time to seasonal employee status;

STATUS: Satisfied but awaiting documentation.

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2. A plan for conducting routine maintenance for at least five years after completing regravelling on each segment of the project road.

STATUS: Satisfied but awaiting documentation.

3. MPW has selected, in consultation with ORT and USAID, six trainee contractor supervisors at the road technician level or higher to be assigned to the project full time to work during the construction season at the regravelling sites and to participate in classroom and laboratory training during the rainy season.

STATUS: Satisfied, to be amended to reduce the number of trainees from six to four and then documented.

The following CP is hereby added to section B Disbursement for Second Year Regravelling Contracts:

4. The GOL Project Director will be assigned full time to the project site. He will assume supervisory responsibilities and act as the counterpart to the ORT Senior Engineer.

STATUS: The GOL has informally agreed to this CP.

Section C. All Conditions Precedent To Disbursement for Third Year Regravelling Contracts are hereby deleted. One Covenant is added:

In the amended project agreement the grantee agrees to the following Covenant:

1. The Ministry of Public Works will perform annual routine maintenance on the 155 Zwedru-Pleebo road. A minimum of \$300,000 from the 1989-1990 development budget will be devoted to this purpose.

In addition to the standard covenant on evaluating the project, the agreement will continue to include a statement that the MPW will provide adequate classroom and laboratory facilities as needed by the ORT team to carry out the project.

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REPUBLIC OF LIBERIA  
MINISTRY OF PUBLIC WORKS  
MONROVIA - LIBERIA

Annex A

OUR REF. NO.: BO/514/'87-MPW

October 29, 1987

USAID/Liberia  
P. O. Box 1445  
Monrovia, Liberia..

Attn.: Ms. Mary L. Kilgour  
DIRECTOR

- Reference: 1) Liberia Road Maintenance Project - USAID Project  
#669-0200 - 125-Miles Zwedru/Harper Highway  
Regraveling Project.
- 2) Extension of Project Period from November 30, 1988  
to December 31, 1989.

Subject: Request for Additional Funds and Extension of the PACD.

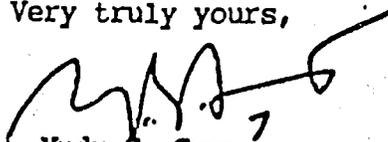
Dear Ms. Kilgour:

The Government of Liberia, represented by the Ministry of Public Works, wishes to inform you that it has become necessary that the completion date of the referenced project be extended by 13 months from November 30, 1988 to December 31, 1989. Along with this extension is an estimated increase in the original project cost of about \$1,349,000. This increase is to cover increased contract and supervision cost, and thus bring the total USAID Contribution to \$5.6 million.

In view of the above, GOL requests that your Agency grant an assistance to cover the increased funding and to extend the project completion date so as to enable both USAID and GOL to successfully complete this all important road maintenance project.

Kind regards,

Very truly yours,



Yudu S. Gray  
MINISTER

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OUTPUTS	MAGNITUDE OF OUTPUTS	MEANS OF VERIFICATION	ASSUMPTIONS
1) An improved highway between Zwedru and Pleebo.	1) 155 miles of rehabilitated road between Zwedru and Pleebo.	1) Site visits	1) No major natural, political or economic event prevents completion of the road rehabilitation.
2) Trained KPW personnel in contractor supervision and road maintenance/rehabilitation management.	2) 31 trainees complete their course and 15 of these are given on the job training until the end of the project at USAID and IBRD project sites.	2) Project, IBRD and DRT records	2) GOL continues to allow KPW trainees to work with the project.
3) Construction management advisory service provided to Liberian construction firms participating in the rehabilitation of the Zwedru-Pleebo road.	3) At least 4 firms will have received advisory services.	3) Contractor records	3) The firms are prepared to adhere to the advice of the technical assistance team.

INPUTS	REVISED LEVEL OF EXPENDITURE	MEANS OF VERIFICATION	ASSUMPTIONS
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AID INPUTS

Regraveling contracts	3,672	USAID Records	AID disbursements made on schedule and no Brooke sanctions are in effect during the balance of the life-of-project.
Technical Assistance	1,531		
Commodities, Evaluation and Project Support	446		

GOL CONTRIBUTION

Regraveling, maintenance and in-kind support	2,474	KPW and Development Budget Records	GOL will not default on its contribution.
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