

UNCLASSIFIED

PROJECT PAPER

LIBERIA ROAD MAINTENANCE

669-0200

Authorized: August 19, 1985
Amount: \$4,300,000

AGENCY FOR INTERNATIONAL DEVELOPMENT

UNCLASSIFIED

PD-1111578

ROAD MAINTENANCE PROJECT

Table of Contents

Project Authorization	iv
Project Data Sheet	xiii
Glossary	xiv
Maps	xv
I. <u>Summary and Recommendations</u>	1
II. <u>Project Rationale and Description</u>	7
A. Project Rationale	7
1. The Problem	7
2. Relation to USAID Strategy	10
B. Project Description	11
1. Background	11
2. Goal and Purpose	12
3. Detailed Project Description	13
a. Road Regraveling	13
b. Contractor Development	16
c. Contractor Supervision	18
4. Project Inputs and End-of-Project Status	19
a. USAID Contribution	19
b. IBRD Contribution	19
c. MPW Contribution	21
d. End of Project Status	22

III.	<u>Cost Estimate and Financial Plan</u>	24
	A. Cost Estimate	24
	1. AID	24
	2. GOL	25
	3. IBRD	26
	B. Financial Plan	33
IV.	<u>Implementation Plan</u>	35
	A. Contracting Procedures	35
	B. Contractor Selection	35
	C. Contract Supervision and Training	36
	D. AID Responsibilities	38
	E. MPW Responsibilities	39
	F. Implementation Schedule: List of Critical Events	39
V.	<u>Monitoring and Evaluation Plan</u>	42
	A. Project Monitoring by USAID	42
	1. Implementation Monitoring	42
	2. Environmental Monitoring	43
	B. Evaluation Plan	44
VI.	<u>Summaries of Analyses</u>	45
VII.	<u>Conditions, Covenants and Negotiating Status</u>	49
	A. To Disbursement for First Year Regraveling Contracts	49
	B. To Disbursement for Second Year Regraveling Contracts	49
	C. To Disbursement for Third Year Regraveling Contracts	50

VIII. ANNEXES

- A. PID Approval Message
- B. Logframe Matrix
- C. Technical Analysis
- D. Financial Analysis
- E. Economic Analysis
- F. Social Soundness Analysis
- G. Administrative Analysis
- H. Job Descriptions for ORT Team
- I. Letter of Request
- J. Statutory Checklist
- K. 611(a), (c) and (e) Certification
- L. Initial Environmental Examination
- M. Exemption From 25 Percent Host
Country Contribution Requirement
- N. AA/AFR Approval of Selection of ORT
- O. ORT Proposal

ACTION MEMORANDUM FOR THE MISSION DIRECTOR

FROM: Douglas T. Kline, SPPD
THRU: Michael A. Rugh, DD
SUBJECT: Road Maintenance Project (669-0200); Project
Authorization

I. PROBLEM

A grant of \$4,300,000 is proposed from the Section 103 Agriculture, Rural Development and Nutrition Appropriation to the Government of Liberia (GOL) for the Road Maintenance Project (669-0200). It is planned that \$1,000,000 will be obligated this fiscal year.

II. DISCUSSION

A. Background:

USAID's strategy for assistance to Liberia includes economic stabilization measures in the short run and efforts to build the basis for recovery and resumed, sustained growth over the long-run. A major concern of USAID's short-term strategy is the impact of the present economic and fiscal crisis on Liberia's productive capacity, particularly the essential institutional and physical infrastructure, such as roads, on which economic recovery and future growth depend. Road maintenance is also vital to USAID's long-term strategy for promoting small farmer agriculture and rural development. The condition of Liberia's national highways has deteriorated drastically over the last 20 years since most of them were built.

The Road Maintenance Project has been designed as an integral part of the \$21.28 million GOL-World Bank-USAID Fifth Highway Project, which began in April 1984. The World Bank-funded component of this program will focus on strengthening the Ministry of Public Works' (MPW's) capability to perform road maintenance by force account. The Road Maintenance Project was designed to complement these efforts by developing in the MPW the capability to regravels roads through private contractors.

B. Project Description:

The project proposes to selectively rehabilitate and then to regravels the road between Zwedru and Pleebo in Grand Gedeh and Maryland counties to all-weather, year-round laterite standards. By financing private contractors to do the job, the project will also help to develop the capabilities of construction contractors to perform road maintenance throughout Liberia.

By the end of the project's three year and three month life, it is expected that the following results will have been attained: 1) the 155 mile highway from Zwedru to Pleebo will be rehabilitated where necessary and then regravelled to standards required to assure year-round access; 2) a Contractor Maintenance Supervision Unit comprised of six trained supervising field inspectors and management and support staff, implementing a long-range plan developed under the project, will be operational within the MPW; 3) 12 MPW personnel will have received training in contractor supervision and several others in management aspects of road maintenance and rehabilitation; and 4) several local contracting firms experienced in road rehabilitation will be available to the GOL.

USAID will contract directly with local firms for the rehabilitation work. This work will be carried out during the three dry seasons of 1985-86, 1986-87 and 1987-88 and, during this period, MPW inspectors will be trained on the job. During the two intervening rainy seasons, the project will provide seminars and other forms of training. During the third rainy season (1987-1988) the project will focus on institutionalizing the Contractor Maintenance Supervision Unit.

C. Financial Summary:

The total cost for the Road Maintenance Project is estimated at \$6,100,000. AID's life of project contribution is estimated at \$4,300,000 of which \$1,000,000 will be obligated this fiscal year. The GOL's contribution is estimated to be \$1,800,000, or 31 percent of project costs. The following table provides a breakdown of project inputs by agent and by activity.

<u>INPUT</u>	<u>AID</u>	<u>GOL</u>	<u>TOTAL</u>
Regravelling Contracts	2,430	300	2,730
Tech. Assistance (ORT Grant)	1,180	470	1,650
Vehicle Procurement	85	0	85
Evaluation/Baseline Study	100	0	100
Environmental Monitoring	30	0	30
PSC Engineer	54	0	54
Contingency and Inflation	421	0	421
Participation in Fifth Hwy. Proj.	0	1,030	1,030
Total	4,300	1,800	6,100

D. Analyses and Requirements:

The USAID/Liberia Project Committee has concluded from the analyses of the Project Paper that:

1) The project approach is technically and economically sound, socially acceptable and administratively feasible.

2) The technical design and cost estimates are reasonable and adequately planned, thereby satisfying the requirements of FAA Section 611(a); competition will be sought in contracting (Section 611(c)); and the GOL can effectively maintain and utilize the assistance provided by the project (Section 611(e)).

3) Adequate provision has been made for project evaluation.

4) The project, with its combination of training and construction supervision requirements, is not well suited for an 8A or Small Business set-aside. The regravelling contracts are intended to promote Liberian firms and hence are ineligible. The technical assistance/regravelling supervision work is ideally suited to the capabilities of a private voluntary organization specializing in technical skills training. Thus, the project was not flagged at the PID stage as a potential set-aside.

5) An Initial Environmental Examination was prepared and approved by AID/W on February 28, 1985.

E. Conditions Precedent and Covenants

In addition to the standard covenant on project evaluation, the Project Agreement will include an agreement between the Parties that the MPW will provide, as needed, suitable classroom and laboratory facilities. In addition to the usual conditions precedent (CPS) to first disbursement concerning sample GOL signatures and opinion of legal counsel, the Project Agreement will require that the MPW name a Project Director who can spend at least 25 percent of his or her time on the project. The Project Agreement will also contain the following conditions precedent:

1. To Disbursement for First Year Regravelling Contracts:

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

a) 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

b) 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.

2. To Disbursement for Second Year Regravelling Contracts:

Prior to disbursement under the Grant or to issuance by AID 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 AID, in form and substance satisfactory to AID, evidence that:

a) 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;

b) A plan for conducting routine maintenance for at least five years after completing regravelling on each segment of the project road; and

c) 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.

3. To Disbursement for Third Year Regravelling Contracts:

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

1) Routine maintenance has been completed on the stretch of road regravelled under the first year's contracts;

2) A Contractor Maintenance Supervision Unit has been officially established and staffed in the Ministry and that the necessary steps have been taken to secure for it an adequate allocation of funds in the national recurrent budget. This allocation must include at minimum \$300,000 allocated to a regravelling contract to be carried out by the Unit during the 1988-89 dry season; and

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 join the Contractor Maintenance Supervision Unit at the beginning of the last rainy season.

While all the above conditions precedent are currently considered feasible and beneficial to the project, certain ones might in the future be overtaken by events or otherwise required revision. Hence the CPs concerning personnel reductions and budget allocations for future contractor maintenance shall appear in the Project Agreement but will be omitted from the attached Project Authorization.

F. Waivers and AA/AFR Approvals:

Only one waiver is required under this project to permit implementation as currently planned. This is a waiver of the competition requirement to permit sole source procurement of five four-wheel-drive Jeep vehicles from the local dealer. As the total value of the procurement is estimated at about \$85,000, AA/AFR must approve the waiver. A cable was sent requesting it on July 30, 1985 and it was approved on August 12, 1985. AA/AFR approval has also been sought to consider proposals from only one PVO, ORT. This request, based on the Mission's finding that ORT is the organization "best suited" to providing road maintenance training and supervision, was sent to AID/W on July 5, 1985, and approved by AA/AFR on July 18, 1985.

G. ECPR Approval Issues:

Annex A of the attached Project Paper summarizes ECPR issues at the PID review and approves the project for authorization in the field. The principal issue raised was the need for the MPW to reduce its excessive personnel costs to increase funds available for operations. The ECPR requested that USAID report the results of its "best efforts dialogue" with the GOL and World Bank to assure that this reform takes place. USAID/ Liberia sent a cable reporting on the dialogue over the last three months and outlining the project's CPs to AID/W on August 15, 1985. This cable fulfilled USAID's last obligation to the ECPR on this project.

The ECPR raised two additional points for consideration in PP design. First, it recommended that USAID consider, in conjunction with the Bank's efforts, what technical assistance and training would be required for the project. Second, it requested that the PP should analyze economically the choice of roads and should indicate how the road relates to the CDSS. The PP addresses these points in Section II B 3a ("Detailed Project Description") and Annex E ("Economic Analysis").

H. Congressional Notification:

A Congressional Notification for the project was forwarded on May 20, 1985 and the waiting period expired on June 27, 1985 without objection.

I. Project Officers:

The project will be jointly managed by Robert Braden, USAID/ Liberia Engineer and Chris Brown, USAID/Liberia Assistant Project Development Officer. Mr. George Hazel, AFR/PD/CCWAP will be the officer responsible in AID/W.

J. Authority:

Under Africa Bureau Delegation of Authority 140, Revised, you have the authority to authorize projects for up to \$20 million and ten years. This project falls within both of these limits.

RECOMMENDATION: That you sign the attached Project Authorization, thereby approving life-of-project funding of \$4.3 million.

APPROVED: _____

DISAPPROVED: _____

DATE: _____

Cleared:

DP:	H. Marwitz:	_____
EO:	M. Anderson:	_____ (draft)
A/CON:	C. Kemner:	_____ CMK
DD:	M. Rugh:	_____

Drafted: SPPD: C. Brown: 7/13/85

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, and the authority vested in me under Africa Bureau Delegation of Authority No. 140 Revised, I hereby authorize the Road Maintenance Project for Liberia (the "Grantee") involving planned obligations of not to exceed \$4,300,000 in grant funds over a three year and three month period from the date of authorization, subject to the availability of funds in accordance with the AID OYB/allotment process to help in financing offshore and local costs of the project.

2) The project will provide technical assistance, training, commodities and construction services to the Grantee to assist in developing within the Ministry of Public Works (MPW) the capability to perform periodic road maintenance including rehabilitation and regravelling of laterite roads through private construction contractors. The project will finance the regravelling of the road between Pleebo and Zwedru, train a staff of MPW personnel and assist the Ministry in establishing a Contract Maintenance Supervision Unit to continue contract regravelling after the project is completed.

3) The project shall be subject to the following essential terms, covenants and major conditions together with such other terms and conditions as AID may deem appropriate.

a. Source and Origin of Goods and Services:

Goods and services financed by A.I.D. under the Grant shall have their source, origin, and nationality in the United States or Liberia except as A.I.D. may otherwise agree in writing. Ocean transportation costs shall be financed only on vessels under flag registry of the United States except as A.I.D. may otherwise agree in writing.

b. Conditions Precedent:

The Project Agreement shall contain conditions precedent which provide, in substance, as follows:

A. To Disbursement for First Year Regraveling Contracts:

Prior to disbursement under the Grant or to issuance by AID of documentation pursuant to which disbursement will be made for financing the first dry season's road regraveling contracts, the Grantee will, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID 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

2) MPW was selected, in consultation with the Project's technical assistance team 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 regraveling sites and to participate in classroom and laboratory training during the rainy season.

B. To Disbursement for Second Year Regraveling Contracts:

Prior to disbursement under the Grant or to issuance by AID of documentation pursuant to which disbursement will be made for financing the second dry season's road regraveling contracts, the Grantee will, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, evidence that MPW has selected, in consultation with the Project's technical assistance team 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 regraveling sites and to participate in classroom and laboratory training during the rainy season.

C. To Disbursement for Third Year Regraveling Contracts:

Prior to disbursement under the Grant, or to issuance by AID of documentation pursuant to which disbursement will be made for financing the third dry season's road regraveling contracts, the Grantee will, except as the Parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, evidence that MPW has selected, in consultation with the Project's technical assistance team and AID, 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 regraveling sites and to join the Contractor Maintenance Supervision Unit at the beginning of the last rainy season.

c. Covenants:

No covenants are deemed necessary for the project other than the standard language concerning project evaluation and an additional agreement that the MPW will provide adequate laboratory and classroom facilities as needed.

d. Waivers and AA/AFR Approvals:

No waiver requiring the USAID/Liberia Mission Director's approval are required for this project. On July 18, 1985, however, AA/AFR approved USAID/Liberia's plan to consider applications for funding from only one PVO, the Organization for Rehabilitation through training, ORT (State 22174). On August 12, 1985, AA/AFR approved a sole source procurement waiver to permit the purchase of five four wheel drive Jeeps from the local AMC dealer for the project (State 249231).

These actions permit the project to be implemented as planned.

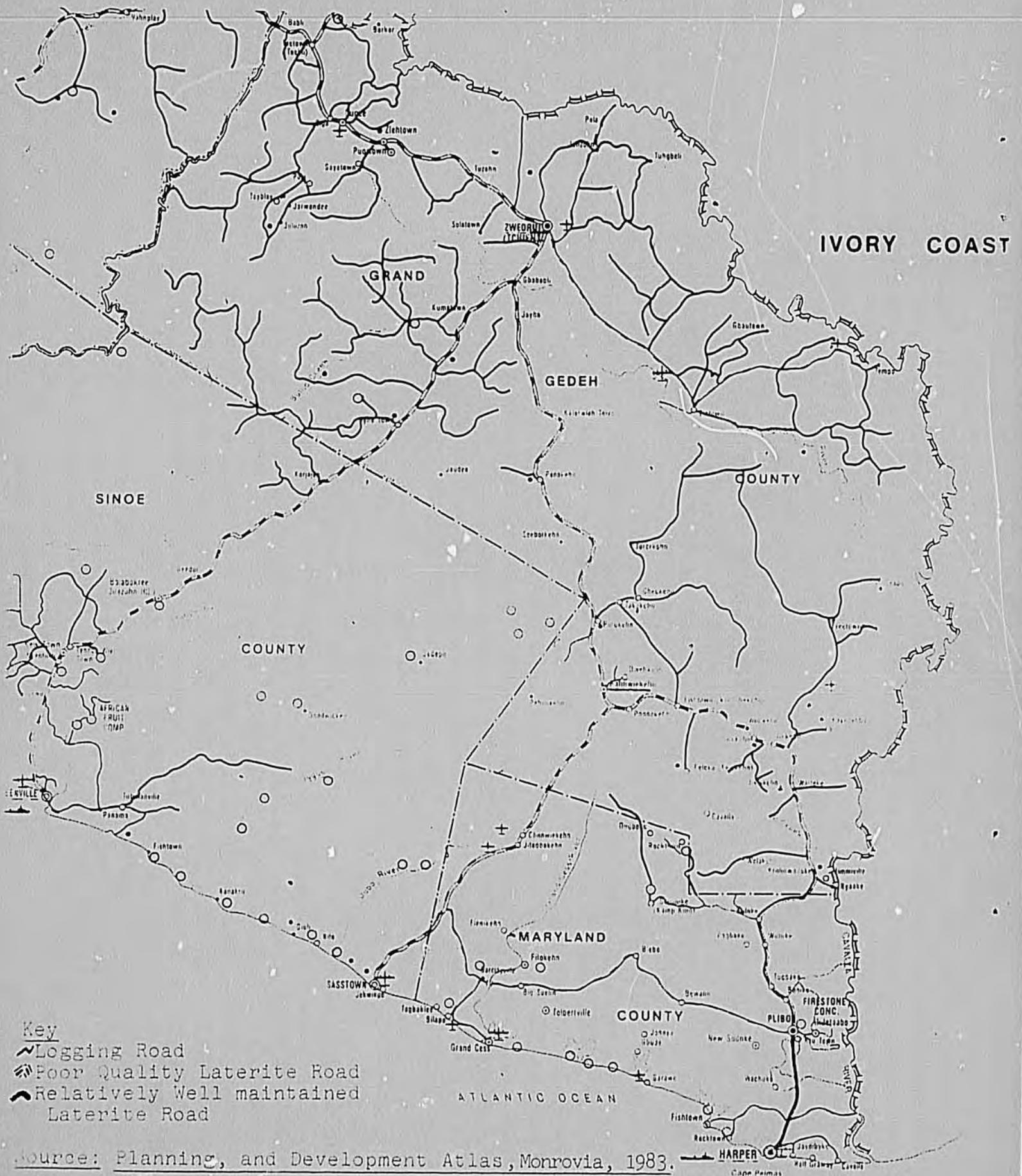
DATE: _____

Mary C. Kilgour
Mission Director
USAID/Liberia

GLOSSARY

- AASHTO - American Association of State Highway and
Transportation Officers
- ADB - African Development Bank
- CLC - Cavalla Lumber Corporation
- ECPR - Executive Committee for Project Review
- EEC - European Economic Community
- EOP - End of Project
- FAA - Foreign Assistance Act
- GOL - Government of Liberia
- IBRD - International Bank for Reconstruction & Development
- IDA - International Development Association
- IQC - Indefinite Quantity Contract
- LLWPC - Liberian-Lebanese Wood and Plywood Corporation
- LPMC - Liberia Produce Marketing Corporation
- LOP - Life of Project
- MPW - Ministry of Public Works
- OE - USAID's Operating Expense Budget
- ORT - Organization for Rehabilitation through Training
- PACD - Project Assistance Completion Date
- PID - Project Implementation Document
- PSC - Personal Services Contract
- PVO - Private Voluntary Organization
- RFP - Request for Proposal
- S&T - Science and Technology Bureau (AID)
- TAHAL - TAHAL Consulting Engineers Ltd., an Israeli A & E
firm Construction Company
- TDY - Temporary Duty (travel status for US Government
personnel)
- ULC - United Logging Company
- USAID - United States Agency for International Development
- VOCS - Vehicle Operating Cost Savings

MAP 2
Zwedru-Harper and Zwedru-Greenville Roads



Key
 - - - Logging Road
 // Poor Quality Laterite Road
 — Relatively Well maintained Laterite Road

Source: Planning, and Development Atlas, Monrovia, 1983.

I. SUMMARY AND RECOMMENDATIONS

A. Background:

USAID's strategy for assistance to Liberia includes economic stabilization measures in the short run and efforts to build the basis for recovery and resumed, sustained growth over the long run. A major concern of USAID's short term strategy is the impact of the present economic and fiscal crisis on Liberia's productive capacity, particularly the essential institutional and physical infrastructure, such as roads, on which economic recovery and future growth depend. Road maintenance is also vital to USAID's long term strategy for promoting small farmer agriculture and rural development. The condition of Liberia's national highways has deteriorated drastically over the last 20 years since most of them were built.

The Road Maintenance Project has been designed as an integral part of the \$21.28 million GOL-World Bank-USAID Fifth Highway Project, which began in April 1984. The World Bank funded component of this program will focus on strengthening the Ministry of Public Works' (MPW's) capability to perform road maintenance by force account. The Road Maintenance Project was designed to complement these efforts by developing in the MPW the capability to regravels roads through private contractors.

B. Project Description:

The project proposes to selectively rehabilitate and then to regravels the road between Zwedru and Pleebo in Grand Gedeh and Maryland counties to all-weather, year-round laterite standards. By financing private contractors to do the job, the project will also help to develop the capabilities of construction contractors to perform road maintenance throughout Liberia. By the end of the project's three year and three month life, it is expected that the following results will have been attained: 1) the 155 mile highway from Zwedru to Pleebo will be rehabilitated where necessary and then regravels to standards required to assure year-round access; 2) a Contractor Maintenance Supervision Unit comprised of six trained supervising field inspectors and management and support staff, implementing a long-range plan developed under the project, will be operational within the MPW; 3) 12 MPW personnel will have received training in contractor supervision and several others in management aspects of road maintenance and rehabilitation; and 4) several local contracting firms experienced in road rehabilitation will be available to the GOL.

USAID will contract directly with local firms for the rehabilitation work. This work will be carried out during the three dry seasons of 1985-86, 1986-87 and 1987-88 and, during

this period, MPW inspectors will be trained on the job. During the two intervening rainy seasons, the project will provide seminars and other forms of training. During the third rainy season (1987-1988) the project will focus on institutionalizing the Contractor Maintenance Supervision Unit.

C. Financial Summary:

The total cost for the Road Maintenance Project is estimated at \$6,100,000. AID's life of project contribution is estimated at \$4,300,000 of which \$1,000,000 will be obligated this fiscal year. The GOL's contribution is estimated to be \$1,800,000, or 31 percent of project costs. The following table provides a breakdown of project inputs by agent and by activity.

<u>INPUT</u>	<u>AID</u>	<u>GOL</u>	<u>TOTAL</u>
Regraveling Contracts	2,430	300	2,730
Tech. Assistance (ORT Grant)	1,180	470	1,650
Vehicle Procurement	85	0	85
Evaluation/Baseline Study	100	0	100
Environmental Monitoring	30	0	30
PSC Engineer	54	0	54
Contingency and Inflation	421	0	421
Participation in Fifth Hwy. Proj.	0	1,030	1,030
Total	4,300	1,800	6,100

D. Analyses and Requirements:

The USAID/Liberia Project Committee has concluded from the analyses of the Project Paper that:

- 1) The project approach is technically and economically sound, socially acceptable and administratively feasible.
- 2) The technical design and cost estimates are reasonable and adequately planned, thereby satisfying the requirements of FAA Section 611(a); competition will be sought in contracting (Section 611(c)); and the GOL can effectively maintain and utilize the assistance provided by the project (Section 611(e)).
- 3) Adequate provision has been made for project evaluation.

4) The project, with its combination of training and construction supervision requirements, is not well suited for an 8A or Small Business set-aside. The regravelling contracts are intended to promote Liberian firms and hence are ineligible. The technical assistance/regravelling supervision work is ideally suited to the capabilities of a private voluntary organization specializing in technical skills training. Thus, the project was not flagged at the PID stage as a potential set-aside.

5) An Initial Environmental Examination was prepared and approved by AID/W on February 28, 1985.

E. Conditions Precedent and Covenants

In addition to the standard covenant on project evaluation, the Project Agreement will include an agreement between the Parties that the MPW will provide, as needed, suitable classroom and laboratory facilities. In addition to the usual conditions precedent (CPs) to first disbursement concerning sample GOL signatures and opinion of legal counsel. The Project Agreement will require that the MPW name a Project Director who can spend at least 25 percent of his or her time on the project. The Project Agreement will also contain the following conditions precedent:

1. To Disbursement for First Year Regravelling Contracts:

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

a) 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

b) 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.

2. To Disbursement for Second Year Regraveling Contracts:

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

a) 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;

b) A plan for conducting routine maintenance for at least five years after completing regraveling on each segment of the project road; and

c) 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 regraveling sites and to participate in classroom and laboratory training during the rainy season.

3. To Disbursement for Third Year Regraveling Contracts:

Prior to disbursement under the Grant, or to issuance by AID of documentation pursuant to which disbursement will be made for financing the third dry season's road regraveling contracts, the Grantee will, except as the Parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID; evidence that:

1) Routine maintenance has been completed on the stretch of road regraveled under the first year's contracts;

2) A Contractor Maintenance Supervision Unit has been officially established and staffed in the Ministry and that the necessary steps have been taken to secure for it an adequate allocation or funds in the national recurrent budget. This allocation must include at minimum \$300,000 allocated to a regraveling contract to be carried out by the Unit during the 1988-89 dry season; and

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 regraveling sites and to join the Contractor Maintenance Supervision Unit at the beginning of the last rainy season.

F. Waivers and AA/AFR Approvals:

Only one waiver is required under this project to permit implementation as currently planned. This is a waiver of the competition requirement to permit sole source procurement of five four-wheel-drive Jeep vehicles from the local dealer. As the total value of the procurement is estimated at about \$85,000, AA/AFR must approve the waiver. A cable was sent requesting it on July 30, 1985 and issuance of the PIO/C will await word from AID/W of its approval. AA/AFR approval has also been sought to consider proposals from only one PVO, ORT. This request, based on the Mission's finding that ORT is the organization "best suited" to providing road maintenance training and supervision, was sent to AID/W on July 5, 1985, and approved by AA/AFR on July 18, 1985.

G. ECPR Approval Issues:

Annex A of the attached Project Paper summarizes ECPR issues at the PID review and approves the project for authorization in the field. The principal issue raised was the need for the MPW to reduce its excessive personnel costs to increase funds available for operations. The ECPR requested that USAID report the results of its "best efforts dialogue" with the GOL and World Bank to assure that this reform takes place. USAID/ Liberia sent a cable reporting on the dialogue over the last three months and outlining the project's CPs to AID/W on August 1, 1985. This cable fulfilled USAID's last obligation to the ECPR on this project.

The ECPR raised two additional points for consideration in PP design. First, it recommended that USAID consider, in conjunction with the Bank's efforts, what technical assistance and training would be required for the project. Second, it requested that the PP should analyze economically the choice of roads and should indicate how the road relates to the CDSS. The PP addresses these points in Section II B 3a ("Detailed Project Description") and Annex E ("Economic Analysis").

H. Congressional Notification:

A Congressional Notification for the project was forwarded on May 20, 1985 and the waiting period expired on June 27, 1985 without objection.

I. Project Officers:

The project will be jointly managed by Robert Braden, USAID/ Liberia Engineer and Chris Brown, USAID/Liberia Assistant Project Development Officer. Mr. George Hazel, AFR/PD/CCWAP will be the officer responsible in AID/W.

The Design team, led by Doug Kline, Chief, SPPD, consisted of Jim Pagano and Chris Brown, Assistant Project Development Officers and Bob Braden, Clarence Groceman and Emmanuel Siebu, Engineers. On the MPW side, particularly valuable contributions were made by Togba Ngangana, Deputy Minister, Alfred Kollie, Asst. Minister for Operations and James Wallace, Asst. Minister for Planning and Programming. World Bank officials Peter Morris and Nico Pijl also provided valuable advice as did Louis Berger/Renardet Chief of Party for the Fifth Highway Project, John Chapman and TAHAL consultants Moka Ayalon and Y. Rak.

II. PROJECT RATIONALE AND DESCRIPTION

A. Project Rationale

1. The Problem

Liberia falls entirely within the humid tropical zone of West Africa. Rainfall, most of which comes during a six-month monsoon in the spring and summer months, ranges from under 100 inches a year in the driest parts of the interior to over 200 inches on the Atlantic Coast. Liberia's coastal plain is generally narrow, swampy and transversed by numerous rivers and creeks. Liberia's interior consists of a rolling plateau with numerous hills and swamps. Mountains are mostly confined to the northern area along the Guinea border. Liberia's soils, derived from the old African Shield, are generally clay, and laterite is prevalent. Liberia's geography and geology do not pose any major obstacles to road building outside of the narrow coastal plain where swamps and water courses make road construction expensive. There are only a handful of major rivers up country (though heavy rainfall and dearth of hydrological data makes the estimation of drainage requirements difficult). The plentiful laterite gravel makes a very suitable surfacing for gravel-topped roads.

Liberia's road system is relatively underdeveloped, even in comparison to those of some other African countries. There are 6,200 miles of road of all categories in the country of which nearly 1,500 miles are private roads constructed and maintained by mining, plantation and timber concessions. Of the 4,700 miles of public road, 52 percent are classified "all-weather" and only 8 percent are paved. At present, Lofa County, one of the two richest agricultural areas in the country, is served by only a single primary road which is laterite and barely passable in the rainy season. Nimba County, the other major county for small holder agriculture, has only some 20 miles of paved road. The three southeastern counties (Sinoe, Grand Gedeh and Maryland), the poorest in Liberia, are accessible by a single, laterite road which makes overland communication with the Southeast in the rainy season highly problematic.

Liberia's gravel roads contain exceptionally high quality laterite and require relatively little routine maintenance to keep them passable, at least in the dry seasons. It is partly for this reason that they have suffered from nearly complete neglect during the 20-25 years since most of them were built. Consequently, Liberia's intense rainfall has eroded nearly all of the country's roadway surface. Likewise, ditches and culverts have not been kept clean, and rain water has been left standing on the road, which has led to their further deterioration. Also, the luxuriant growth of

tropical vegetation has encroached on the roadway, severely hampering visibility along many stretches. The climatic threats to roads are aggravated by the general lack of regulation of axle loads. Particularly in areas where logging is prevalent, roads are subjected to loads far in excess of their design standards.

The condition of Liberia's roads has deteriorated greatly in recent years. A recent survey of the all-weather public road system found that on over half of the roads, the carriageway was in poor condition, while on 32 percent it was in fair condition and only on 17 percent in good condition. Overland communications during the rainy season between the capital and at least six of Liberia's eleven counties is difficult or intermittent.

The Ministry of Public Works (MPW), which is responsible for road maintenance, has not been able to arrest the deterioration of Liberia's roads for a number of reasons. Some of MPW's shortcomings are undoubtedly attributable to the historically low priority of maintenance vis-a-vis new capital investment (as is the case with many countries, both developed and developing). However, the MPW has suffered additional severe handicaps in recent years. The most important of these is the ongoing fiscal crisis of the Government of Liberia. This crisis is due in part to Liberia's economic slump caused by the world recession in 1980, and the fall of prices for its exports, notably iron ore, rubber and timber. Per capita income levels in current dollars have dropped from about \$570 in 1980, to below \$520 in 1982. The 1984 figure is estimated at about \$500, which corresponds to an average annual decline of almost four percent. The recovery of Liberia's exports has been further frustrated by the appreciation of the U.S. dollar which is used as Liberia's national currency.

Other elements of the GOL fiscal crisis are attributable to internal events. Liberia incurred substantial external financial obligations to host the 1979 OAU Summit. Business confidence was undermined by civil disturbances in 1979 and the coup d'etat in 1980. In the wake of the coup, the GOL vastly increased government's payroll and raised salaries, especially for the lowest paid categories of employees.

Government's fiscal position and employment policies have greatly diminished MPW's limited road maintenance capabilities. As a result of government's hiring policy, MPW's staff grew from 1,172 in 1978, to 3,357 in 1983. The MPW absorbed most of this increase by cutting its operating budget for fuel, spare parts and materials. Between Budget Year (BY) 1979/80 and BY 1981/82,^{1/} personnel costs for recurrent

^{1/} The GOL Budget Year runs July 1 to June 30.

maintenance expenditures rose 110 percent from \$3.3 million to \$6.7 million while the operating budget fell 53 percent from \$3.6 million to \$1.7 million. In BY 1982/83, the GOL imposed across-the-board budget cuts on all ministries which the MPW implemented by cutting its maintenance operating budget by 35 percent, while personnel expenditures were reduced by 25 percent through a government-wide cut in salaries imposed in January 1983. Thus, the MPW lacks funding for spare parts, fuel and materials for all but a fraction of its maintenance responsibilities.

Projects in the road maintenance sector must take this problem into account. USAID has identified two categories of MPW employees whose ranks could be thinned to help redress the current budgetary imbalance in favor of personnel. First, there are over 1,000 unskilled laborers employed full-time in the Ministry's Bureau of Operations. These employees cannot be kept fully occupied in the rainy season when weather conditions inhibit their work. These employees could be put on a seasonal hire basis. The second category includes superfluous administrative/secretarial/clerical staff. Payroll reductions in these two areas would constitute a significant step toward redressing the Ministry's budgetary imbalance.

The cadre of personnel in MPW's Operations Bureau, which is responsible for road maintenance, has been severely depleted. Many senior managers left after the 1980 coup. These have been replaced for the most part by younger but qualified staff promoted from the mid-level ranks. However, low morale caused by budget cuts, poor working conditions, the 1983 government salary cuts and the two or more month delay in government salary payments which has been occurring since 1983, have all contributed to an exodus of mid-level professionals and managers. Thus, MPW's skilled personnel are few and mostly confined to the upper ranks.

The effect of these factors on MPW road maintenance capability has been devastating. An assessment in 1984 of the equipment fleet of the Operations Bureau found that 90 percent of its 270 vehicles were deadlined, including 25 percent which should be written off. This compares with a deadline rate two years earlier of 50 percent among the Operations Bureau fleet of 345 units. In 1978, the deadline rate was 35 percent. The high deadline rate is largely due to the near total absence of a routine equipment maintenance program, a lack of spare parts and poor accounting and administrative procedures for managing equipment.

Consultants financed by the IBRD Fourth Highway Project in 1981 estimated a backlog in periodic maintenance of 775 miles. Present maintenance activities have been limited to occasional and incomplete roadside brushing, a very small

amount of grading and a minor amount of cleaning of drainage structures. Often, when road maintenance needs become critical in a particular area, local users, such as truckers or a logging company, will provide the local MPW maintenance unit with fuel and lubricants to undertake repairs. In a few areas, maintenance of public roads has essentially been turned over to mining or timber concession companies.

In response to this ongoing economic and fiscal crisis, the GOL has adopted a short-term strategy of stabilization through measures to increase revenue, improve expenditure controls, strengthen fiscal management and limit domestic and external borrowing. In the area of basic infrastructure, financial constraints have meant the postponement or scaling back of most new major investments with top priority being placed on the maintenance and rehabilitation of existing investments. New road construction has effectively been limited to completing the paving of the Monrovia-Sierra Leone highway and expanding the feeder road network with donor financing. The only other major donor road construction project is the rehabilitation of 32 miles of the main trunk road from Kakata to Totota. The GOL is also undertaking the paving of the primary road to the southeast of the country from Ganta to Harper. However, the government's fiscal crisis has greatly limited the pace of construction. The emphasis placed on maintenance and rehabilitation is most notable in the GOL's undertaking of the "Fifth Highway Project" (in conjunction with AID and the IBRD) which is devoted exclusively to road maintenance.

2. Relation to USAID Strategy

USAID's strategy aims at supporting economic stabilization and reform in the short run while building the basis for recovery and resumed, sustained growth over the long term. The present economic and fiscal crisis is considered the overriding constraint to Liberia's development. Until stability can be reestablished, the prospects for meeting the broader goals of socioeconomic development are dim. Over the longer term, USAID has identified three major constraints to Liberia's economic growth: its lack of trained personnel, the weakness of its institutions and the lack of access of the mass or rural people to services, communication and income opportunities. This longer term strategy is focused on institution building and technology transfer in agriculture and human resource development. In agriculture, the focus is on increasing the productivity of small farmers. Human resource development is focused on primary health care, primary education and administration and management.

A major concern of USAID's short-term strategy is the impact of the present economic and fiscal crisis on Liberia's productive capacity, particularly the essential institutional

and physical infrastructure on which economic recovery and future growth depend. If basic infrastructure is allowed to deteriorate, Liberia may find itself unable to respond to the stimulus of improved economic conditions and recovering demand for its exports, thus initiating a vicious cycle of economic regression. Roads in particular have been identified as vulnerable. Road maintenance is also vital to USAID's longer-term strategy for promoting small farmer agriculture and rural development. Better and cheaper transportation is vital to bringing small farmers into the national economy and linking them to markets. Unless the expanding feeder road network is complemented by well-maintained, all-weather primary and secondary roads, small farmers will not have the access to markets and inputs that are needed to facilitate agricultural production and marketing, nor will they have access to schools and health services.

B. Project Description

1. Background

The \$21.28 million Fifth Highway Project is a multi-donor program being undertaken by the GOL, the IBRD and USAID. The program is devoted exclusively to improving Liberia's capability to maintain its primary and secondary roads. It has seven major objectives:

- Rehabilitate MPW's road maintenance equipment and facilities;
- Introduce more effective methods for management, supervision and accounting of maintenance activities;
- Improve the technical skills of MPW road maintenance personnel;
- Develop the capability of private Liberian contractors to undertake major roadway maintenance work;
- Selectively rehabilitate and then regravel at least 450 miles of laterite primary and secondary roads, and
- Conduct routine maintenance on Liberia's entire public road network 4,700 miles.

The \$4.3 million USAID portion of the program will focus on three tasks: 1) Selective rehabilitation and then regravelling of priority roads in the southeast region of the country, 2) developing the road maintenance capability of

private contractors and 3) training MPW personnel in maintenance skills, especially those needed to supervise the work of contractors. Under the project AID will finance the regravelling and selective rehabilitation of 155 miles of laterite roads between Zwedru and Pleebo by Liberian private construction contractors. The project will also provide on-the-job training for MPW staff in contractor supervision and other technical and management training. Finally, the project will assist in establishing in MPW a Contractor Regravelling Supervision Unit to continue these efforts.

The \$11.4 million IBRD portion will concentrate on regravelling and routine maintenance^{1/} by force account, rehabilitating MPW equipment and institution building. It is being carried out under an 18-month contract with a joint venture of two engineering consulting firms, Louis Berger International of the United States and Renardet S.A. of Switzerland. However, because of the limited time frame of the contract and the broad scope of tasks needed to institutionalize better maintenance procedures, the need for further technical assistance and training beyond the present IBRD contract is anticipated. The GOL has made budgetary commitments totaling \$4.8 million to the overall effort, and is expected to commit another \$770,000 worth of in-kind and budgetary contributions to the AID funded projects, for a total participation of \$5.58 million.

2. Goal and Purpose

The goal of the Road Maintenance Project is to help preserve Liberia's productive infrastructure during a period of extreme economic and financial crisis. By focusing on the maintenance of rural primary and secondary roads, it will ensure that small farmers will have access to markets and thus will be able to respond to the recovery of world market prices for such exports as oil palm, coffee and coca. Likewise, small farmers will be able to market more food crops, particularly rice, Liberia's staple food.

Preserving the basic communications infrastructure within rural areas will also serve a secondary goal of helping to integrate Liberia's rural poor into the national economic, political and social framework. Besides facilitating

^{1/} Routine maintenance refers to work that should be performed at least annually such as grading, cleaning drainage structures and brushing. Periodic maintenance or regravelling, which should be performed every five to ten years, involves replacing surfacing material and other major tasks.

communications with the rest of the country, the project will lower the costs of goods and services in rural areas. Given the excellent local laterite, the project's benefits are likely to be felt for at least 10 years (given minimal routine maintenance).

The primary purpose of the project is to ensure cheaper, more reliable transportation to rural areas through expanded road maintenance. A secondary purpose is to develop the capacity of Liberian private contractors to undertake maintenance work and for the MPW to use the contracting mechanism for periodic road maintenance. The AID project will introduce the innovation to Liberia of contracting major maintenance tasks to Liberian construction firms.^{1/} This is intended to expand maintenance operations while minimizing additional GOL investment in new equipment and to reduce the strain on the MPW's limited management capability. Over the long term, contractor regravelling represents a low-cost alternative to the present system of periodic road maintenance by force account. The MPW hopes to shift increasingly from force account in feeder road construction and maintenance to contracting with Liberian firms.

The project will also help stimulate economic activity in the private sector. The private sector has been hard hit by the downturn in the economy, the government's fiscal problems and the resulting liquidity shortage. The project will inject funds into the construction contractor sector and provide for some employment.

3. Detailed Project Description

a. Road Regravelling

The project will fund selective rehabilitation and regravelling by contract of 155 miles of the Harper-Zwedru road (as far as Pleebo, 19 miles north of Harper) in the south-eastern portion of the country.^{2/} The Southeast has been selected for the focus of the AID-funded contractor regravelling because of the following factors:

^{1/} Only Liberian or U.S. (AID Geographic Code 000) firms in joint venture with Liberian firms will be qualified to bid on the project. However, it is expected that no U.S. firms will bid as the size of the contracts will be very small.

^{2/} The EEC plans to rehabilitate (perhaps even pave) the last 19 miles from Pleebo to Harper in connection with its efforts to refurbish the Harper port.

1) The Southeast is the most isolated region in the country. The three counties in the Southeast (Maryland, Sinoe, and Grand Gedeh) are also the furthest from the economic and political center of the country in Monrovia. Historically, these counties have received little investment (except for Maryland County when it was the home of the late President W.V.S. Tubman) and suffer from a lack of infrastructure. The southeastern counties are, along with Lofa County, the only ones not served by any paved roads. Access by land to the Southeast from the central corridor is limited to a single road which becomes nearly impassable during the rainy season.

During years of exceptional rain, Sinoe and Maryland counties can become completely isolated by land for a period of weeks or even months.

2) The Southeast is the poorest area of the country though it has considerable potential. The three southeast counties contain some 28,400 farm households. The Southeast has also been the focus of plantation and small holder palm oil production including the Decoris plantation in Maryland and the Buto scheme in Sinoe. Both counties are sites of rubber plantations that are being rehabilitated (Sinoe Rubber Company in Sinoe County and the Cavalla Plantation in Maryland). The Southeast is the center of Liberia's timber industry. About 180,000 cubic meters (m³) of logs are exported each year from the three counties, including 50,000 m³ through Greenville.

3) The Southeast is the focus of AID's Primary Health Care Project (669-0165) and several other donor projects. The AID funded Increased Efficiency of Learning Project (669-0166) also has participating schools in the area. The health care project will establish a system of supervised village health workers in Grand Gedeh and Sinoe Counties. The European Economic Community (EEC) is planning major activities in agriculture and infrastructure in the region, including rehabilitating the port of Harper and in that connection regraveling or possibly even paving, the 19-mile stretch between Pleebo and Harper.

4) The MPW has limited resources in the Southeast compared to its existing facilities and equipment in other areas. Moreover, the distance between the Southeast and MPW headquarters in Monrovia exacerbates the problems with management and logistics.

As demonstrated in the Economic Analysis, Annex E. regraveling this portion of the Harper-Zwedru road is deemed to have the greatest potential impact of the candidate roads examined in the Southeast. The 174-mile laterite primary road is the principal land connection for Maryland and lower Grand Gedeh Counties with the rest of the country. Maryland and

lower Grand Gedeh are the most densely populated areas within the Southeast. An estimated 118,000 people will benefit from improving the road. Farmers in Maryland and Grand Gedeh grow more cocoa and rice than their counterparts in Sinoe County. Along the southern stretch of the road there has been some development of smallholder rubber as well as the Cavalla Plantation, formerly operated by Firestone. Also served by the road, is the 12,000-acre small-farmer production component of the Cavalla plantation. The EEC is also planning a major small-farmer cash-crop production and marketing project for Grand Gedeh and Maryland counties which could increase the amount of coffee, cocoa and rice shipped along this road.

Another major user of the road is the logging industry. About 20 percent of Liberia's timber exports leave from the Port of Harper. The volume of timber exports has increased in recent years, even while that of other exports has declined. There has been a steady shift of logging away from the Greenville road toward the Harper road. Also, the EEC's planned improvement of the Harper port may attract more economic activity.

Despite the fact that the Harper-Zwedru road has received only minor maintenance since it was constructed about 25 years ago, the basic roadway structure is sound. There are several short sections, located at intermittent intervals along the road where subsurface materials have failed. During the six-month rainy season, these sections of roadway become a morass which literally stop traffic for weeks. In these areas, the roadway sub-surface must be removed and replaced with suitable material. In many areas, the original 24-foot roadway is still clear, though vegetation has often encroached on the shoulders and ditches.

The entire 155 miles of the road will require regravelling to an average depth of four inches, and to a width of 24 feet. However, some laterite gravel still exists on much of the road and additional laterite gravel can be recovered from the shoulders and drainage ditches. The design team estimates that nearly 20 percent of the laterite material required for regravelling can be reclaimed from the existing roadway. Thus, the Harper-Zwedru road will require rehabilitation and then regravelling. In certain areas, in preparation for regravelling, the road will be reshaped, laterite removed from ditches and reapplied to the road, drainage structures cleaned out and vegetation brushed back off the right of way. Other areas will require that the bare roadway be scarified and a new 4-inch laterite surface applied. In those sections where the subsurface has failed, the roadway must be rebuilt, the unstable material excavated and backfilled with laterite and then surfaced with laterite gravel. Approximately 30 miles of the road will be regraveled during the 1985/86 dry season, and the balance of the 125 miles regraveled in the 1986/87 and 1987/88 dry seasons.

At present, the technical standards and specifications used by MPW for road construction are extensive, detailed and complicated. These standards are appropriate for large road construction projects performed by international construction firms. These are inappropriate for simple periodic maintenance of laterite roads. Moreover, as the work will be performed by small firms with limited experience in road maintenance and construction, the technical standards and specifications must be simple and clear. The USAID/Liberia engineer is collaborating with the MPW and technical assistance team of the IBRD Feeder Road project to develop by mid-July 1985, a uniform set of simplified technical specifications to be used by local contractors on laterite roads. These specifications will be used for AID's Road Maintenance and IBRD's Feeder Road Projects and should become the standards for MPW work for laterite roads contracted locally.

b. Contractor Development

The secondary purpose of the project is to develop the capability of Liberian construction firms to perform periodic road maintenance work. This is part of a broader GOL strategy to curtail road construction and maintenance by force account in favor of contracting with Liberian firms to undertake this work. The technique of performing road maintenance under contract rather than by force account has been widely adopted in developed countries and is being increasingly used in developing countries as well. As is discussed in the Financial Analysis, Annex D, contracting has the potential for greater efficiency than force account work for construction and major road maintenance tasks. Force account equipment and personnel do not afford the flexibility that contracting does. MPW Operations Bureau equipment and personnel are largely committed to road maintenance regardless of whether there is sufficient work to keep them fully employed. The inefficiency of this system is most evident now as the MPW has large sums invested in Operations Bureau equipment and committed to salaries but derives little return because it lacks funds for materials, fuel and spare parts needed to put this equipment and personnel to work. Moreover, force account work requires considerable management and supervision especially at the mid and lower levels. It is precisely these levels of management that the MPW finds hardest to provide. Contracting, in contrast, requires less operational control by the MPW as the contractor will be responsible for the day-to-day management of the work. Contracting for road maintenance does require that MPW possess contractor supervision capability. This capability will be developed under the project.

Because the Liberian construction industry has very limited experience in roads, however, this strategy will have to be implemented gradually. While no Liberian firm has

performed road maintenance work, three construction firms have performed contracts for small-scale road construction with private concessions or subcontract work under large road construction jobs. Two of these firms were awarded contracts between 1972 and 1980 under AID's Rural Roads II Project to build feeder roads. However, neither road was completed due to GOL fiscal problems and the uncertainty following the 1980 coup d'etat. Since then, there has been virtually no road construction work on which these firms could bid. There are several other firms which have expressed interest in road construction work but have no experience to date. The capability of these firms is discussed in more detail in Annex G below.

The MPW will establish and fund by the end of the project a multi-year program of road construction and maintenance work to be contracted to Liberian firms. The first GOL financed contract will be let in the first year following the Project (1988-1989). The contracts will be relatively small and spread over several years to allow Liberian contractors to gradually build up their capability and resources. The program is also intended to ensure a steady stream of work for contractors so that contractor capabilities do not regress due to long periods of enforced idleness.

The Liberia Road Maintenance Project is part of a coordinated effort by AID, MPW and the IBRD to initiate this program. Under the IBRD Feeder Road Project, contracts will be let for the construction of 65 miles of feeder roads in Grand Bassa County during 1985 and 1986. The IBRD is also financing an advisor in the MPW to work with road contractors in preparing bids and establishing management practices.

AID will contract directly for the regravelling/rehabilitation work. (See Annex G, Administrative Analysis, for rationale for direct contracting.) Because of the limited capacity and limited number of contractors that are expected to bid, the contracting process will be especially critical to the project's success. AID-financed regravelling will be divided into six different contracts and let over three years -- the 1985/86, 1986/87, and 1987/88 dry seasons. (The dry season generally runs November through May). Dividing the work into small segments will ensure that the work will not be beyond the capability of the Liberian firms. Moreover, no firm will be awarded more than one contract each season (though a firm can bid on as many contracts as it desires) so that more than one firm gains experience through the project, and so that no firm becomes over-extended.

Because of the limited number of firms which are expected to bid and the fact that some bidders may be disqualified on the basis of a simultaneous award of another

contract under the project, normal Invitation for Bids procedure under which the contract is awarded to the lowest responsive bidder may lead to collusion between bidders or to inflated bids. To avoid this, Request for Proposal (RFP) procedures will be used which will allow USAID to negotiate the contract price. Procedures for awarding contracts are more fully discussed in the Implementation Plan, Section IV below.

The specific contracting calendar for this project will be closely coordinated with the technical assistance team on the World Bank - GOL Feeder Roads Project, which will also be letting road construction contracts simultaneously in other parts of the country. Preliminary discussions between the GOL, Feeder Roads Project technicians, two potential new construction firms, an ORT representative and USAID indicate that the combined workload can be managed satisfactorily by the potential contractors already available.

c. Contractor Supervision

Historically, road construction contracts in Liberia have been monitored by international consulting engineering firms. Maintenance work has always been performed by force account by MPW personnel rather than by contract. Therefore, MPW does not have technicians experienced in administering and monitoring maintenance contracts. The project will finance contractor supervision by a private voluntary organization (PVO), the Organization for Rehabilitation through Training (ORT). ORT will have the dual responsibility of providing contractor supervision and developing MPW's capability to undertake such supervision for maintenance and small-scale road construction contracts.

ORT will provide a full-time resident Senior Engineer for 36 person months and an Engineer for 20 person months to supervise contractors and train MPW inspectors on the job. During the intervening rainy season, intensive seminars and lab sessions on road maintenance topics will be given. For the first two seasons, MPW inspectors will train on the job in contractor supervision. Three MPW inspectors/trainees will be assigned to each maintenance contract throughout the entire construction season. Thus, a total of twelve inspectors will be trained.

The inspector training will include all the aspects of monitoring a road rehabilitation and regravelling project including quality control of materials. Under the guidance and supervision of the PVO engineers, the trainees will investigate the construction sites prior to the beginning of construction. The trainees will be instructed in how to identify roadway sections which present potential maintenance problems and in methods of correcting or alleviating the problems. They will be trained to locate suitable laterite deposits from which to

obtain the material for regravelling and in the techniques of soil sampling and testing for quality control. The trainees will work with the Senior Engineer in monitoring all project construction activities performed by the contractor and in administration of the construction contract. Such work will include periodic measurement of work quantities to verify the construction contractor's monthly invoices and general supervisory and inspection duties to ensure that construction is performed according to the specifications.

By the end of the second dry season, the MPW will be able to select a cadre of six from the twelve trained inspectors to serve as a Contractor Maintenance Supervision Unit with the capability of monitoring future road maintenance and construction contracts. The MPW inspectors will be able to assume greater responsibility in supervision of contractors under the AID project, making the assistance of the second engineer unnecessary. Also in the second year, the MPW will begin a program of routine maintenance on the project road. Under this program each segment of the road will be brushed and repaired at least once, one year after regravelling.

In the third year of the project, the ORT team and the supervision unit staff will develop a long-range road rehabilitation plan which would serve as a basis for the Unit's work during the following years. This plan would assess the need for major repairs throughout Liberia's road system and prioritize and tentatively schedule contracts for the work.

4. Project Inputs and End-of-Project Status:

USAID, GOL and IBRD inputs into the project are summarized below. The relevant financial details of these contributions are outlined in the following Section III, "Cost Estimate and Financial Plan."

a. USAID Contribution

USAID will fund the six regravelling contracts, procurement of five four-wheel-drive vehicles, evaluation and monitoring, and USAID project management. Four vehicles are required at the regravelling sites for the ORT team's and the MPW trainees' use. The fifth vehicle would be kept in Monrovia for monthly site visits by the MPW Project Director and the project funded USAID Assistant Engineer. The ORT grant includes funds for a total of 56 person months of long-term technical assistance, eight person months of short-term technical assistance, per diem and training materials for inspector trainees while they are outside of Monrovia and other support costs.

b. IBRD Contribution

The IBRD's Fifth Highway Project was initiated in June 1984, with funding of \$11.4 million. It has four major objectives:

- Introduce improved management and administrative systems;
- Rehabilitate MPW road maintenance equipment and workshop;
- Perform by force account periodic maintenance on 350 miles of all-weather laterite road, and
- Perform routine maintenance by force account on 2,450 miles of all-weather laterite road, and gradually expand the scope of routine maintenance to include an additional 2,276 miles of dry-weather road.

The IBRD is providing a limited amount of capital for new equipment, tools and rehabilitation of some existing equipment and facilities. It is providing some operating funds to MPW for periodic road maintenance. Finally, it is funding a technical assistance team totaling 10 persons to implement improved management systems and take line responsibility for directing maintenance work.

Modern management systems were initially designed for the MPW by a Swiss-based engineering firm, Renardet, S.A., under the IBRD's Project Preparation Facility (PPF). These have been further developed by Renardet and Louis Berger, Inc, who are implementing the IBRD project in a joint venture. These systems include a Road Maintenance Management System (RMMS), Contract Equipment Management System (CEMS) and a Warehouse Management System (WAMS). These systems are intended to provide the means for better accountability of funds, budget preparation, expenditure controls and performance targets and assessment.

The RMMS is a system of performance budgeting based on standard activities and costs developed under the PPF. These standard activities and costs will be used in conjunction with an annual work plan for allocating funding to, and setting targets for, each MPW maintenance unit. Cost accounting systems will be introduced to track expenditures, assess performance and re-evaluate maintenance activity standard costs. The CEMS will serve a similar function in allocating equipment, spare parts, operators and mechanics and assessing the performance of mechanical units and workshops. Likewise,

the WAMS will cover all supply procurement, distribution and stocking by the central warehouse. Supervision of the installation of these systems will be the responsibility of the Chief of Party of the Berger/Renardet team, which will include a cost accountant and two other management consultants.

The Berger/Renardet assistance team will also include three highway engineers who are stationed at regional workshops. These technicians will have line responsibilities for regional maintenance operations and will direct the regravelling operations. In addition, the two mechanics/workshop supervisors will work on improving equipment maintenance.

Another IBRD activity with direct bearing on AID's project is the IBRD's Feeder Road Project. Under this project, IBRD will finance 65 miles of feeder road construction by Liberian contractors in the 1984/85 and 1985/86 dry seasons. The project is also financing a team of two consultants from an Israeli engineering firm, TAHAL, for one year (though a one-year extension is possible). The TAHAL team is providing technical assistance and in-country training to both the Liberian contractors and to the MPW on contracting. Among the subject matter the TAHAL team will cover is preparing IFB's and bids and drawing up contracts. The TAHAL team has been consulted closely in preparing the contracting and inspector/trainee aspects of AID's project and will collaborate with the ORT engineer in his training tasks.

c. MPW contribution

The MPW's greatest responsibility will be carrying out the periodic and routine maintenance programs established in the Fifth Highway Project. In the initial year, MPW will carry out, at least annually, routine maintenance on the entire all-weather road network of 2,450 miles. By the end of the project, routine maintenance activities are to be expanded to encompass 2,276 miles of dry-weather roads as well. At the same time, the MPW is to organize three regravelling brigades to undertake 350 miles of force account regravelling and rehabilitation. Likewise, the MPW will adopt the various management systems.

Another MPW task will be to develop a program of construction and maintenance work to be undertaken by Liberian contractors. Over the long term, contracting should provide a less costly and more flexible alternative to force account work. However, MPW will have to provide appropriate and regular contracts for such work.

The long-term success of the Fifth Highway project, especially in the areas of expanding routine maintenance and sustaining contractor road maintenance capability, will depend

on MPW's and the GOL's efforts to allocate more resources for the road maintenance operating budget. The MPW has pledged in an agreement with the IBRD to increase its expenditures for fuel and materials for maintenance operations by 150% percent over the 1983/84 levels. Given the GOL's dire financial situation (see Annex D, Financial Analysis), any increase in expenditures must come mostly or even totally from economizing moves. The only significant area where economic savings can be realized in MPW is in that of personnel. While MPW is very thin in the mid and senior ranks, it has an excess of unskilled and non-productive laborers (see Annex C, Technical Analysis). Because of government employment policies, MPW has found it difficult to terminate these excess workers. However, it has committed itself in its agreement with the IBRD to reducing at least 75 employees a year through attrition and to convert 800 full time laborers to seasonal workers. Under this project it will further be agreed that prior to signing the second year's regravelling contracts, the MPW will have reduced its staff by 75 employees.

Another economizing measure that must be considered by the MPW is to convert its unskilled workers from salary to contract or seasonal employment. At present, these workers cannot be utilized actively during much of the rainy season. Lack of materials and supervision also contribute to their low productivity. One method would be to contract with each laborer to maintain a specific stretch of road for such task as brushing and clearing ditches. Such methods have been used successfully elsewhere in West Africa. Workers can be made accountable and it is easier to suspend or fire them if they do not perform satisfactorily. There would be grounds for terminating non-performing workers. Moreover, workers would be contracted for only the period needed, letting them pursue farming or some other occupation in their off time. The GOL has agreed with the World Bank to convert its permanent labor force of 800 workers to seasonal status. It will further be agreed under this project that prior to signing the second year's regravelling contracts, the MPW will have converted its Grand Gedeh and Maryland forces to seasonal labor.

The bulk of the GOL's contribution is being used to finance additional routine maintenance support to the World Bank technical assistance team and equipment and workshop rehabilitation. In addition to the above, the GOL is contributing the salaries of trainees, use of MPW office, laboratories and training facilities, funds for one regravelling contract for 1988-1989, and a limited amount of soil sampling and testing equipment to the USAID financed project.

d. End of Project Status

By the end of the USAID Road Maintenance Project's three year and three month life (October 31, 1988), the following achievements are expected:

1) The 155 mile highway from Zwedru to Pleebo will be rehabilitated and then regravelled to standards required to assure year-round access;

2) A Contractor Road Maintenance Supervision Unit will be fully staffed and functioning in the (MPW) according to a long-range work plan developed under the project, and MPW funds will be set aside for additional regravelling in 1988-1989;

3) A total of 12 supervisory technicians and three to five mid-level MPW personnel will be trained on-the-job and through in-country seminars in selection and supervision of road maintenance contractors. The Supervision Unit will be chosen from among this group;

4) Several contracting firms experienced in and capable of performing road rehabilitation and maintenance will be available for future work with the MPW and other organizations investing in Liberia's road infrastructure, and

5) The impact of road rehabilitation on the forest environment will be monitored and analyzed with the help of available satellite imagery and periodic site visits by environmental experts throughout the life of the project. This monitoring will provide insight on the impact of road improvements on surroundings forests, and will permit USAID and MPW to take steps to identify and minimize any adverse environmental effects which may be engendered or aggravated by the project.

III. Cost Estimate and Financial Plan

The Project's financial plan is presented in tables III-1 through III-7 below. Tables III-1 through III-3 deal with the USAID contribution, Table III-4 with the GOL contribution, Table III-5 summarizes inputs from all three participating agencies, and Table III-6 indicates the disbursement method selected for each element of the project. Finally, Table III-7 proposes an allocation of the three projected funding obligations to cover estimated expenses.

A. Cost Estimate

1. AID

AID's estimated contribution to the project is \$4,300,000. The principal components are the regravelling contracts (\$2,430,000), the cooperative agreement for engineering supervision, and training (\$1,180,000), commodities (\$85,000), a portion of the salary for a part-time PSC engineer to assist in project management (\$54,000), evaluations and monitoring (\$130,000) and inflation and contingency (\$421,000) (see Table III-1).

The principal cost components of the cooperative agreement with ORT are the Senior Engineer and the Engineer, per diem for the trainees, short-term technical assistance, miscellaneous costs including vehicle operating costs and overhead (see Table III-1). While the technical assistance costs (at \$945,000 for the long- and short-term personnel and their support) are significant, they are low compared to those which would be incurred through a commercial contractor charging commercial overhead rates and fees (easily three times those allowed for private voluntary organizations such as ORT).

The costs for technical assistance are based on recent technical contracts. Per diem costs for trainees are current GOL rates for rural areas. Vehicle costs are based on recent purchases of American-made four-wheel-drive vehicles from local dealers.

As is discussed in the Implementation Plan, Section IV, USAID/Liberia will hire a Liberian engineer on a personal services contract (PSC) to assist the USAID Engineer. About half the PSC engineer's time will be devoted to management of this project. The budget therefore includes funds for 1 1/2 years, about half of the project's life, for the engineer's contract plus funds for travel and per diem to visit the project sites twice a month. The USAID operating expense (OE) budget will cover the PSC engineer's costs prior to project obligation and for the last year and nine months of the engineer's work for the project.

Inflation is calculated at an annually compounded five percent beginning in FY 1987. Contingency is calculated at 10 percent.

2. GOL

The original GOL contribution to the Fifth Highway Project is estimated at \$4.8 million which is the incremental cost to the GOL of undertaking the expanded road maintenance program under the project. This includes \$1.071 million for undertaking periodic road maintenance, \$0.432 million for technical assistance support and training and \$3.027 million incremental increase in MPW's routine maintenance, nearly doubling 1982/83 levels. Table III-4 outlines these contributions.

In addition to its contribution to the Fifth Highway Project, the MPW will provide certain other inputs to support AID's effort. These include salaries for the inspector trainees, soil testing and quality control equipment and office space for the Senior Engineer. None of these are incremental costs as the trainees will be selected from MPW's existing staff and the needed equipment is available from MPW's inventory. Finally, in conjunction with establishing the Supervision Unit, the MPW will allocate at least \$300,000 in its recurrent budget to a regravelling contract to be let in the 1988-1989 dry season, and it will assure that routine maintenance is carried out on the project road beginning a year after each segment is completed. The total value of these additional contributions is \$770,000. Thus the overall GOL contribution to this multilateral road maintenance effort is \$5.58 million.

Taking AID's proportion of the original \$4.8 million GOL contribution (based on expectation then that AID would contribute \$3.1 million instead of the current \$4.3 million), which amounts to \$1.03 million, and adding the GOL's additional commitments to USAID of \$770,000, it can be said that the GOL contribution to the AID-funded Road Maintenance Project amounts \$1.8 million. This figure represents 30 percent of a total project cost of \$6.1 million. But as an element of a multilateral project the Road Maintenance Project is exempt from the 25 percent host country contribution requirement of section 110(a) of the Foreign Assistance Act (FAA).^{1/}

¹ Annex M, Exemption from 25 Percent Host Country contribution.

3. IBRD Contribution

The IBRD is providing \$11.4 million under its portion of the Fifth Highway Project. The principal components of this assistance will be the rehabilitation of MPW equipment fleet and workshops including the purchase of some new tools and equipment (\$2.5 million), regravelling of 350 miles by MPW force account (\$4.28 million), technical assistance (\$2.78 million) and operating expense for an expanded routine maintenance program. In the first year of the project, the IBRD is supposed to fund over 60 percent of the incremental costs of expanding the routine maintenance program (\$1.84 million). By the last year of the project, its share should be reduced to 20 percent. Table III-5 summarizes all project inputs.

Table III-1

AID Expenditures (\$000)

	FY 1985	FY 1986	FY 1987	FY 1988	TOTALS
A. USAID GRANT TO GOL					
1. Regraveling Contracts	.00	700.00	800.00	930.00	2,430.00
2. Vehicle Procurement	85.00	.00	.00	.00	85.00
3. Evaluation/Baseline Study	.00	50.00	.00	50.00	100.00
4. Environmental Monitoring	.00	10.00	10.00	10.00	30.00
5. PSC Engineer	10.00	36.00	8.00	.00	54.00
Subtotal	<u>95.00</u>	<u>796.00</u>	<u>818.00</u>	<u>990.00</u>	<u>2,699.00</u>
6. Contingency (10%/yr.)	10.00	80.00	82.00	99.00	271.00
7. Inflation (5%/yr.)	.00	.00	45.00	105.00	150.00
<u>SUBTOTAL GOL GRANT</u>	<u>105.00</u>	<u>876.00</u>	<u>945.00</u>	<u>1,194.00</u>	<u>3,120.00</u>
B. USAID GRANT TO ORT					
1. Long-term TA					
a. Engineer/trainer (36pm)	12.00	100.00	100.00	76.00	288.00
b. Assistant engineer (20pm)	6.00	40.00	40.00	10.00	96.00
c. Allowance	18.00	60.00	50.00	44.00	172.00
d. International travel	10.00	10.00	20.00	30.00	70.00
e. Local travel	2.00	3.00	2.00	2.00	9.00
Subtotal long-term TA	<u>48.00</u>	<u>213.00</u>	<u>212.00</u>	<u>162.00</u>	<u>635.00</u>
2. Short-term TA (8pm)	15.00	30.00	30.00	9.00	84.00
3. Home office back-stopping	3.00	21.00	20.00	20.00	64.00
4. Training					
a. In-country per diem	.00	20.00	20.00	20.00	60.00
b. Training materials	2.00	10.00	5.00	3.00	20.00
Subtotal training	<u>2.00</u>	<u>30.00</u>	<u>25.00</u>	<u>23.00</u>	<u>80.00</u>

5. Vehicle operating costs	2.00	10.00	15.00	13.00	40.00
6. Overhead (17% of salaries)	10.00	17.00	18.00	10.00	55.00
7. Support staff (sec., 2 dr.)	2.00	15.00	15.00	10.00	42.00
8. Other direct costs	5.00	10.00	5.00	5.00	25.00
9. SSB radios	5.00	.00	.00	.00	5.00
Subtotal	<u>92.00</u>	<u>346.00</u>	<u>340.00</u>	<u>252.00</u>	<u>1,030.00</u>
10. Contingency (10% yr.)	9.00	35.00	34.00	25.00	103.00
11. Inflation (5% yr.)	.00	.00	19.00	28.00	47.00
SUBTOTAL ORT GRANT	<u>101.00</u>	<u>381.00</u>	<u>393.00</u>	<u>305.00</u>	<u>1,180.00</u>
TOTAL AID CONTRIBUTION	<u>206.00</u>	<u>1,257.00</u>	<u>1,338.00</u>	<u>1,499.00</u>	<u>4,300.00</u>

Table III-2

Unit Costs for
Major Regraveling and Rehabilitation Tasks and Materials

<u>Item</u>	<u>Unit</u>	<u>Unit Cost</u>
Excavation of unsuitable material -- Remove clay soil and other unsuitable material from road bed	yd ³	\$ 3.25
Common Excavation -- Add suitable material to backfill roadbed (where unsuitable materials removed) or raise embankment and improve drainage	yd ³	3.35
Scarifying -- Scarify road prior to laying laterite surface	mile	5,000.00
Laterite Surfacing -- Remove laterite from borrow pit, spread on roadway, moisten and compact	yd ³	5.30
Reclamation of laterite surfacing -- salvage and stockpile existing laterite gravel from road, re-apply to road, spread, moisten and compact	yd ³	2.30
Culvert -- 24" diameter	L.F.	40.00
Culvert -- 36" diameter	L.F.	52.00
Excavation for culverts ..	yd ³	7.70
Ditching -- Removal of material and vegetation from roadside drainage ditches	mile	300.00

Table III-3:
Estimated Quantities and Costs to Regravel/Rehabilitate
Harper-Zwedru Road

ACTIVITY	UNIT	QUANTITY	UNIT COST	TOTAL COST
A. Excavation of Unsuitable Material	Cu. Yd.	12,500.00	3.25	40,625.00
B. Common Excavation	Cu. Yd.	70,000.00	3.35	234,500.00
C. Scarifying	Miles	155.00	5,000.00	775,000.00
D. Laterite Surfacing	Cu. Yd.	210,000.00	5.30	1,113,000.00
E. Reclaim and Reuse of Laterite Surfacing	Cu. Yd.	85,000.00	2.30	195,500.00
F. 24" Culvert	Line Ft.	300.00	40.00	12,000.00
G. 36" Culvert	Line Ft.	60.00	52.00	3,120.00
H. Culvert Excavation	Cu. Yd.	580.00	7.70	4,466.00
I. Ditching	Miles	155.00	300.00	46,500.00
J. Redeck Bridge		1.00	Lump Sum	5,000.00
TOTAL				<u>2,429,711.00</u>
ROUND TO				<u>2,430,000.00</u>

Table III-4

GOL Contribution to Fifth Highway Project
(\$000s)

	1983/84	1984/85	1985/86	1986/87	1987/88	Total
	(2nd Semes)			(1st semes)		
<u>A. Overall Contribution</u>						
1. Equip. & Workshop Rehabilitation	280	-	-	-	0	280
2. Force Account Regraveling	140	354	379	198	0	1071
3. Technical Assistance Support	127	1284	15	6	0	432
4. Incremental Routine Maintenance ¹	<u>213</u>	<u>772</u>	<u>1245</u>	<u>797</u>	0	<u>3027</u>
SUBTOTAL	760	1410	1639	1001	0	4810
<u>B. Additional Contributions to AID</u>				(full year)		
1. Salaries of trainees/counterparts	0	0	50	50	150	350
2. Regraveling for 1988/89	0	0	0	0	300	300
3. Facilities	0	0	25	40	35	100
4. Equipment	0	0	5	10	5	20
SUBTOTAL	<u>0</u>	<u>0</u>	<u>80</u>	<u>200</u>	<u>490</u>	770
TOTAL CONTRIBUTION	<u>760</u>	<u>1410</u>	<u>1719</u>	<u>1201</u>	<u>490</u>	<u>5580</u>

¹ This amount includes funds for routine maintenance to be carried out on the Pleebo-Zwedru road.

Table III-5:

Total Project Inputs*
(in \$1000s)

INPUT	FUNDING SOURCE			TOTAL
	AID	MPW	IBRD	
A. Tech. Assistance **	1090.00	782.00	2780.00	4652.00
B. Commodities & Equipment/Workshop Repair	96.00	300.00	2500.00	2896.00
C. Regraveling	3024.00	1371.00	4280.00	8675.00
D. Training ***	90.00	101.00	0.00	190.00
E. Incremental Routine Maintenance	0.00	3027.00	1840.00	4867.00
TOTAL	4300.00	5580.00	11400.00	21280.00

* Figures include inflation and contingencies.

** Includes cost of training staff.

*** Includes only funds for trainee per diem, training materials and office and training facilities.

B. Financial Plan

1. Means of Financing

Table III-6 illustrates the means of financing for the various implementation methods used in the project.

Table II-2
Means of Financing

<u>Methods of Implementation</u>	<u>Method of Financing</u>	<u>(\$000s)</u>
Technical Assistance: Cooperative Agreement	Letter of Credit: Treasury Financial Communications System (LOC-TFCS)	1,180
Technical Assistance and Training: AID Direct Contract PSC Staff Engineer*	Direct Payment	54
Technical Assistance (Project Evalu- ation and Environmental Monitoring): AID Direct Contract such as IQC, or possibly AID/w staff TDY.*	Direct Payment	130
Construction (Road Rehab./Regra- veling AID Direct Contracts*)	Direct Payment	2,430
Commodities and Local Support: AID procurement*	Direct Payment	85

This Plan is in accord with AID's preferred methods of financing. Likewise, host country contracting will not be used. Thus, no justification is required for the methods of financing selected.

2. Obligations

A total of \$1 million will be obligated to this project in FY 85. USAID also expects to obligate an additional \$2.1 million in FY 86, and \$1.2 million in FY 87. Both the FY 86 and FY 87 obligations are expected to occur in December. Table III-7 proposes an allocation of the obligations to cover project costs.

* Excludes inflation and contingency which total \$421,000.

Table III-7
 Projected Obligations Breakdown
 (\$000)

Item	FY 1985	FY 1986	FY 1987	TOTAL
A. USATO GRANT TO GCL				
1. Regraveling Contracts	600	1000	830	2430
2. Vehicle Procurement	85	0	0	85
3. Eval./Baseline Study	50	50	0	100
4. Environmental Monitoring	10	10	10	30
5. PSD Engineer	15	39	0	54
Subtotal	760	1099	840	2699
6. Contingency (10%/year)	76	110	84	271
7. Inflation (5%/year)	0	50	100	150
SUBTOTAL GCL GRANT	836	1259	1024	3120
B. USATO GRANT TO ORT				
1. Long Term TA	87	452	91	630
2. Short Term TA (3pm)	20	64	0	84
3. Short Term TA Packetting	5	51	5	61
4. Short Term TA	5	55	20	80
5. Short Term TA Operating Costs	5	32	0	40
6. Short Term TA	5	30	10	45
7. Short Term TA	5	30	10	45
8. Short Term TA Direct Costs	5	30	10	45
9. Short Term TA	5	30	10	45
Subtotal	147	714	147	1008
10. Contingency (10%/year)	14.7	71.4	14.7	100.8
11. Inflation (5%/year)	0	35.7	7.35	47.85
SUBTOTAL ORT GRANT	161.7	821.1	171.1	1153.9
TOTAL USATO CONTRIBUTION	997.7	2080.1	1195.1	4272.9

IV. IMPLEMENTATION PLAN

A. Contracting Procedures

Under the project, USAID will contract with local construction contractors to perform the road rehabilitation and maintenance. The contracts will be directly between USAID/Liberia and the construction contractor. Host country contracting was considered but it was deemed impractical. The GOL is in severe financial straits and suffers a critical cash flow problem. It is doubtful that the GOL could pay the contractor in a timely fashion, if at all, even though the funds would be reimbursed by AID. The contract will be a unit price type. The quantities of excavation for rehabilitation of the locations with unstable soils cannot be estimated accurately before work begins. The width and length can be readily determined, but the depth of unsuitable material can only be determined during the course of excavation. Payment for excavation will be made based on measurements of the quantity of material actually removed. Since the quantities cannot be accurately determined, a unit price rather than fixed price contract will be employed.

B. Contractor Selection

Liberia's indigenous road contracting industry has been essentially non-existent since 1980. Projects which were underway at the time of the 1980 coup were abandoned by the respective contractors due to lack of payment from the GOL. Four potential contractors have been identified, however, and USAID is investigating the potential for involving other firms in the process to stimulate more competition and have more firms available from which this and the Feeder Roads projects can draw. (See Annex G, Administrative Analysis).

IBRD and USAID/Liberia are coordinating the construction work under the respective projects so that the present contractor capability is not overloaded but, at the same time, to provide three years work for the qualified firms. The IBRD, under their Feeder Road Project, will award at least two road construction contracts during CY 1985, at least six and probably eight months prior to the Road Maintenance Project. The IBRD plans to negotiate with the various contractors rather than award contracts on the basis of lowest responsive bid. This seems to be a sound approach to obtaining fair prices. Given the small number of contractors it seems doubtful that competitive prices can be obtained through the normal bidding process. Rather than issuing an Invitation for Bids (IFB), USAID/Liberia will use a Request for Proposal (RFP) that will allow for negotiation of final unit prices. USAID/Liberia will closely monitor the IBRD contractor selection and negotiations to help determine an appropriate means for negotiation. USAID

will also explore the possible participation of other Liberian firms in addition to the three prequalified ones to encourage more competition. So far two logging companies operating along the Harper-Zwedru road have stated their intentions to form joint ventures with Liberians and compete for the regravelling contracts. Interest has been expressed in possible joint ventures between Liberian contractors and logging concessions, which are major users of the Harper-Zwedru road.

C. Contract Supervision and Training

Besides the Liberian contractors, the principal implementing agent for the project will be the Organization for Rehabilitation through Training (ORT). ORT will have three major responsibilities: 1) supervising contract regravelling, 2) training MPW personnel to carry out contract supervision and 3) developing and implementing other training programs for contractors and MPW managers. This technical assistance will be provided under a cooperative agreement to be signed shortly after USAID and the GOL sign the Project Agreement (ProAg).

ORT will provide a Senior Engineer for 36 person months. The Senior Engineer will be assisted for 20 person months during the first two years by an Engineer. Both engineers should have arrived by November 1985. During the dry seasons,^{1/} both engineers will supervise contractor work on the two regravelling jobs planned each year. During the rainy seasons, they will conduct classroom training seminars. They will train three MPW Inspector Trainees each during the first year and another group of six the second year. During the rainy seasons, they will also be responsible for training other MPW personnel, and possibly construction contractor personnel, in close collaboration with technicians from the two World Bank funded road projects already under way. A total of eight person months of short-term technical assistance will also be made available through ORT to help develop the rainy season training programs.

The training program in the dry season will be conducted out of Harper during the first two years and in Zwedru the third, and will consist of an introductory two-week seminar, on-the-job training using daily trainee log books as the

^{1/} The dry season runs generally November to May. However, a certain drying out period is needed before road work can begin. Also, work may continue into the rainy season for some months before work becomes impractical. For planning purposes, it is assumed that the contractors can mobilize in November and work from December through May.

principal monitoring and teaching device, and weekly half-day seminars at which any technical or supervisory issues that have arisen during the week will be discussed. The ORT engineers will also conduct discussions of selected special topics according to a pre-determined pattern.

Both the ORT staff and the trainees will take leave at the beginning of the rainy season leaving eight to ten weeks for formal training. A short-term specialist will arrive at the end of the construction period and arrange to meet with the field staff and with the World Bank technicians and MPW personnel to develop the rainy season training program.

The program outlined above will focus on relatively inexperienced Inspector Trainees and MPW personnel supervising contractors on other road projects during the first two years. During the third year, the six best Inspector/Trainees will be returned to the project to supervise the last construction season. Their training will be more advanced and will include some effort, particularly during the last rainy season, to develop the work scopes and operating procedures for the MPW Contract Maintenance Supervision Unit to be put into operation before the end of the project. A principal task in this regard will be to develop a long-range road rehabilitation plan which could be carried out through contractors in the years following the project.

During the seven-month regravelling period, the ORT engineers will be stationed in Harper or Zwedru. During the rainy season they will be residing either in Monrovia or at a training site to be selected in collaboration with the World Bank project teams. The Inspector Trainees will be given a stipend by ORT equal to the amount normally paid by the MPW for per diem while they are in the field. Each team of Inspector Trainees as well as the Senior Engineer and Engineer will be provided with a vehicle purchased by ORT. ORT will be responsible for petroleum, lubricants and fuel for the vehicles as well as maintenance. ORT will also procure three single side band radios, one for the USAID/Liberia Engineer's office in Monrovia and two for the engineer's vehicles, to assure reliable communication between Monrovia and the project site. Equipment needed for soil testing, etc., will be assembled from MPW's existing stock.

The engineers will also participate in the contracting for the 1986/87 and 1987/88 dry seasons, including assisting in the preparation of the RFP and the negotiation of the contract. They will also participate in the selection of candidates for the 1986/87 inspector trainees and the selections of the MPW inspectors to work with him during the 1987/88 dry season. USAID will procure the vehicles immediately after the ProAg is

signed. The likely source is a local dealer of U.S. manufactured vehicles. This will cut down on the delay in obtaining vehicles which would result from waiting for ORT to procure them.

D. AID Responsibilities

In addition to the usual monitoring role (discussed below in the next section), AID will have various other responsibilities. In the first year of the project, AID will prepare RFP's for the contractor work and negotiate and award the contracts. The MPW Project Director, the USAID Project Manager and the Regional Contracting Officer (RCO) assigned to the Regional Economic Development Support Office for West and Central Africa (REDSO/WCA) will be the principal participants in this contractor selection process.

During the second and third years, the ORT engineers will be responsible for preparing much of the documentation for contract awards including the RFP. However USAID/Liberia and the RCO will have responsibility for its final award and terms.

To assist in project implementation, USAID/Liberia will hire a Liberian staff engineer under a personal services contract (PSC) to work with the USAID/Liberia Engineer. The PSC engineer will devote roughly half of his time to project matters, and the cost of the PSC will be born by the project for the first year and a half.

E. MPW Responsibilities

The MPW will be responsible for providing six inspector trainees each season for the first two seasons. The trainees should be MPW employees with a high school diploma. Some college or technical schooling would be beneficial. The MPW will select the candidates in collaboration with the ORT team. The MPW will also supply the inspectors with the needed equipment to do soils testing and quality control. For the final season, the MPW, with the assistance of the ORT engineer, will select a group of six from the trained inspectors to form an inspection supervision unit to work under the ORT engineer for the final season. During the first year, MPW will enact various staff reductions. During the second year, MPW will assure that routine maintenance is carried out on the first year's stretch of road, and during the project's third year, the MPW will allocate the necessary funds (at least \$300,000) for a regravelling contract to be let for the dry season immediately following completion of the project (1988-1989).

The MPW will also be responsible for providing office space for the ORT engineer and in participating in the contractor selection process.

F. Implementation Schedule: List of Critical Events

The following implementation schedule and bar chart summarize the sequence of events under the project:

<u>Action/Year</u>	<u>Agent</u>	<u>Date</u>
<u>1985 (Calendar Year)</u>		
PSC Liberian Staff Engineer hired	USAID/L	Jul 1
ORT Proposal submitted to USAID/L	ORT	Jul 1
Project Authorized	USAID/L	Aug 19
Project Agreement signed	USAID/L, MPW, MPEA	Aug 23
Cooperative Agreement signed	ORT, USAID/L, RCO	Aug 30
RFP published for 1985/86 regraveling contracts	USAID/L, RCO, MPW	Aug 16
Vehicle PIO/c's issued	USAID/L	Aug 23
Road Evaluation baseline data collection begin	USAID	Oct 1
ORT Engineers arrive	ORT	Oct 15
First group of inspector trainees selected	MPW, ORT	Nov 1
Contractors submit regraveling proposals	Contractors	Nov 15
Proposals reviewed, first year's contracts negotiated & executed	Contractors, MPW, USAID/L, RCO, ORT	Dec 15
<u>1986 (Calendar Year)</u>		
Contractors mobilized; Regraveling begins; On-the-job training of inspectors begins	Contractors, ORT	Jan 15
Collection of Forestry baseline data completed	USAID/L, AID/W/ S & T or private consultant	Mar 1

Interim evaluation of contractor regravelling completed	Evaluator, USAID/L	Jun 30
First year's regravelling ends		Jul 1
RFP published for 1986/87 season regravelling contracts	ORT engineer, MPW, USAID/L, RCO	Aug 1
MPW reassigns first-year trainees, and begins selecting second group	MPW, ORT	Sep 1
Contractor regravelling proposals submitted	Contractors	Sep 1
Proposals reviewed, contracts negotiated and executed	ORT, MPW, USAID/L, RCO	Oct 1
Second group of inspector trainees selected	MPW, ORT	Oct 1
Contractors mobilized; regravelling begins; On-the-job training of inspectors begins	Contractors, ORT	Nov 1
<u>1987 (Calendar Year)</u>		
Interim evaluation on forests	PSC forestry evaluator	Apr 1
Second-year regravelling ends		Jul 1
Routine maintenance on first year regravelling segment completed		Jul 1
Engineer leaves Liberia	ORT	Aug 1
RFP published for 1987/88 regravelling contracts	ORT Engineer, MPW, USAID/L, RCO	Aug 1
Contractor regravelling proposals submitted, and MPW Inspectros selected	Contractors	Sep 1
Proposals reviewed, contracts negotiated and executed	ORT, MPW, USAID/L, RCO	Oct 1
Final evaluation of forestry impact. Follow-up road data collected complete, and	MPW, USAID/L, ORT	Nov 1

Contractors mobilized; regravelling begins	Contractors	Nov 1
<u>1988 Calendar Year</u>		
Final project evaluation completed	MPW, USAID/L, ORT	Feb 15
Regravelling completed	Contractor	Jul 1
Last rainy season training completed; Engineer leaves Liberia	ORT, MPW	Sep 30
MPW-AID Project ends	MPW, USAID	Nov 30
MPW regravelling begins	MPW	Nov 30

V. MONITORING AND EVALUATION PLAN

A. Project Monitoring by USAID

1. Implementation Monitoring:

Project management at USAID will be the joint responsibility of the Engineer and Assistant Project Development Officer in USAID/Liberia's office of Special Projects and Project Development. Because of the already heavy workload of the USAID Engineer, USAID/Liberia will hire a full-time Liberian engineer under a personal services contract (PSC) to assist the AID direct hire Engineer with mission engineering functions. During the project, a primary responsibility of the PSC engineer will be to monitor the Road Maintenance project, which will pay a year and a half of the PSC engineer's salary. The PSC will be hired no later than July 1, 1985.

Day-to-day monitoring of progress of the regravelling contractors will be the responsibility of the ORT engineers. There will be two contracts in effect simultaneously and each engineer will be responsible for one of them. The MPW technicians will perform supervisory duties under the direction of the ORT engineer.

The ORT Senior Engineer will be on the construction site at least two weeks prior to commencement of construction work. During this two-week period, soil samples will be taken from the existing laterite borrow pits and tests conducted so that the proper compaction of the soils can be obtained. The optimum moisture content and maximum density will be determined according to the methods established by the American Association of State Highway and Transportation Officials (AASHTO). AASHTO laboratory procedures are used by MPW. Equipment required for the tests include standard compaction molds, portable scales, graduated cylinders and drying ovens. MPW has this equipment on hand and will supply it for project needs.

In addition, soil samples will be sent to the MPW laboratory where Atterberg limits, percent clay and sand equivalent will be determined. Gradation tests will be performed on the gravel to be used for surfacing to ensure that source of material meets specified gradation limits. MPW has this capability. The results of all the preliminary tests will be passed to the Mission for review by the USAID engineer. During construction of embankments, density tests will be taken on each layer placed to ensure compliance with compaction specifications. Density tests will be taken at random locations, with a minimum of one test per 250 feet of roadway length on each layer. A copy of all test results will be forwarded to the Mission.

The ORT engineers, with the assistance of the trainees, will physically measure the quantities of work performed at the times which will coincide with the contractor's periodic invoices to verify the contractor's billed quantities.

In addition to the quality control testing, ORT will keep a daily log of project work performed, problems which may arise and resulting decisions, and any directions given to the contractor. The daily log will be maintained on the project until completion of the contract, at which time it will be submitted to USAID/Liberia.

The ORT engineer will submit monthly reports to the Mission, summarizing project events for the preceeding month, including comments on construction progress related to scheduled progress, progress of the training program, any problems which have occurred or are foreseen with recommendations at monthly meetings with USAID and the MPW in Monrovia. The construction projects will be visited roughly two weeks after each monthly meeting by a member of the USAID/Liberia engineer's office. (See Annex H, "Job Descriptions").

2. Environmental Monitoring:

As explained in the IEE (Annex K), the project will also monitor the effect that road regravelling has on forests in the Southeast. Particularly, it must assess whether the improved access afforded by the regraveled Harper-Zwedru road is causing an increase of logging in areas which might be classified as primary forests. In order to assess this, the project will fund a series of three consultancies. The initial effort will be to collect baseline data on forestry, land use and the logging industry in the Southeast. This visit should be held near the beginning of the 1985/86 dry season when access to remote forest areas will be easiest. As AID's concern is with primary forests, the fundamental task of this first assessment is to identify areas of primary forest which may be affected by the regravelling project. Since the definition of "primary" forest is a matter of some interpretation, it is essential that this first consultant be thoroughly familiar with AID's forestry policy and its origins. If a forester cannot be found from within AID's Science and Technology (S&T) Bureau to undertake this task, S & T's input should be solicited in identifying a suitable contractor, possibly under a central forestry project or from an IQC firm. This initial evaluator should also draw up the scope of work of the later forestry evaluators based on the initial, baseline findings.

Follow-on evaluations are tentatively scheduled for March of 1987 and 1988. However, the final timing and scope of these evaluations will depend on the findings of the initial evaluation.

B. Evaluation Plan

The evaluation of the project will examine the performance of the contractor regravelling and inspector training programs. An interim and final evaluation will be held of the performance of the contract regravelling program and the training of MPW inspectors. Both evaluations which will be project funded, should be undertaken by an engineer experienced in contractor supervision and road maintenance in humid tropical climates. A representative of USAID/Liberia and MPW will also participate. Both the interim and final evaluations will examine the quality of work of the contractors, the cost of contractor regravelling vis-a-vis force account regravelling, the contractors' capability to take on more extensive or more sophisticated work and the capability of the MPW inspector trainees. The interim evaluation should also examine if the contractors are capable of completing the regravelling work more quickly than anticipated in the present implementation schedule. Both evaluations must consider whether AID support to contract regravelling should continue after the present project is completed. The interim evaluation should be held in May 1986. At this point, most of the first dry season's regravelling will be done and the training of the first group of inspectors nearly complete. The final evaluation will be held in January and February, 1978, when all regravelling and training will be virtually complete.

To provide a basis for assessing the project's impact, baseline data on transport costs and trade patterns, as well as basic socioeconomic indicators, will be collected in late 1985. These will be compared during the final evaluation with follow-up data collected in late 1987.

VI. SUMMARIES OF ANALYSES

The design team analyzed this project from the technical, financial, economic, social and administrative perspectives and in each instance developed elements of the design which render the project a sound and attractive opportunity for investing AID and GOL funds. The issues and findings of the various analyses are summarized below.

A. Technical Analysis (Annex C)

The Technical Analysis reviews the history of GOL road construction and maintenance efforts and demonstrates the urgent need for a coordinated multi-donor effort on several fronts to help to preserve Liberia's existing road infrastructure. It then sets forth the case for the contractor regravelling strategy. It describes conditions along the Harper-Plebo road and sets forth technical standards and specifications for the regravelling work.

The road will be rehabilitated to a 24 foot carriage way covered by a four-inch layer of laterite and including roughly five miles of excavated and back filled road, 400 feet of culvert pipe and one redecked bridge. Also, ditches and drainage structures will be cleared and the entire length of the road brushed to improve visibility and drainage.

B. Financial Analysis (Annex D)

The Financial Analysis answers two questions fundamental to the success of the project. First, does contractor regravelling represent a potentially cheaper form of road rehabilitation than force account regravelling? Second, can the MPW sustain the recurrent cost burden implied by the project, especially in replicating its activities after the PACD?

The design team determined that, despite the lack of concrete data available on contract regravelling costs in Liberia, there are several compelling reasons why contractor regravelling could realize major savings for the MPW in the long run. The Ministry would have to cut back investment in its own force account maintenance capability, however, in order to realize the bulk of these savings.

The team also found that the GOL earns sufficient revenue from road user taxes to finance most of its current regravelling requirements if it were willing to make some significant sacrifices of MPW personnel and abandon virtually all major new construction. Operations expenses as a percentage of total GOL recurrent maintenance expenditure has declined from 62 percent in 1976/77 to a mere 18 percent in 1982/83. The World Bank has

estimated that approximately \$11 million in non-personnel expenditures are required to conduct the required maintenance. In 1982/83 alone, road user tax revenue amounted to \$18.5 million. Another possible revenue source are tolls. The design team recognizes the difficulty of properly managing toll revenue. It might prove possible, however, to manage a toll collection system on the county level and to use the revenue to finance local routine maintenance.

The GOL is therefore theoretically in a position to increase recurrent expenditure on road maintenance. As a step in this direction, the Project Agreement will stipulate that the GOL will reduce its staff by 75 people and convert its Maryland and Grand Gedeh labor forces to seasonal status prior to signing the second year's regravelling contracts.

C. Economic Analysis (Annex E)

The Economic Analysis carefully examines the costs and benefits of regravelling several alternative stretches of road using the contractor regravelling mechanism. It first takes into account general AID and World Bank criteria which led to the selection of a road in Liberia's Southeast. It then examines the general characteristics of each road and assesses the benefits and costs conservatively by focusing only on vehicle operating cost savings (VOCS) as the economic selection criteria. The examination of alternatives based on this one exercise resulted in benefit/cost ratio of 1.48 for the Harper-Zwedru road and 1.8 for the Greenville-Zwedru road, the two most attractive candidates.

Traffic counts taken in March, 1985, confirm an overall decline in logging traffic to Greenville since 1979 estimates used in the analysis were made. Between 1981 and 1985, heavy truck traffic between Greenville and Zwedru declined from 187 to 81 per day, while it increased marginally from 24 to 33 trucks per day between Harper and Zwedru. Although the Liberian Timber and Plywood Corporation (LTP) has announced that it will expand operations along the Greenville-Zwedru road, this is not likely to return logging to its 1979 levels there. The Harper-Zwedru road also serves nearly twice the population as the Greenville-Zwedru road. For these reasons, the Harper-Zwedru road was recommended for regravelling.

D. Social Soundness Analysis (Annex F)

The Social Soundness Analysis was conducted in three steps. First, the beneficiaries of the project were identified and briefly described. Then, the positive and negative impact of the project was specified and evaluated. Finally, an important issue, that of the need for regular routine maintenance to preserve the benefits of the road improvements, was discussed.

The team concluded that the project would benefit the 118,000 people living within ten miles of the road (excluding Zwedru) in three ways: 1) it would increase access to social and commercial services, 2) reduce agricultural marketing costs and 3) reduce the cost of virtually all retail items imported into the area. On the other hand, the project was deemed to have little or no potential for aggravating existing land tenure patterns, skewing crop production mixes and income distribution or accelerating in or outmigration.

Finally, the design team noted that this three-year project will be too short to fully address the problem of follow-on routine maintenance for the road. This maintenance is crucial, however, to preserving the benefits attributed to the project. Two non-GOL sources of routine maintenance effort might be tapped for this purpose; the local population and the area's lumber companies. Each group has its advantages and limitations. In addition to encouraging that the GOL explore these possibilities, the project will include a condition precedent to signing the third year's regravelling contracts requiring that the MPW provide routine maintenance for the stretch of project road regravelled during the first year. The team recommended that any future USAID-financed efforts in this area build in measures designed to insure that routine maintenance will occur on this and other target roads.

E. Administrative Analysis (Annex G)

Finally, the Administrative Analysis provided a framework for considering the feasibility of the project from the vantage points of each of its major participants. The team analyzed first USAID and ORT as a project management team then the MPW responsibilities and the capabilities of the local construction contractors. Finally, the potential for collaboration and pooling of resources (especially in technical assistance and training) with the World Bank-funded projects was examined.

With regard to the USAID-ORT management relationship, it was determined that USAID should hire a PSC assistant engineer to be funded half-time from the project. On the ORT side, the team concluded that one ORT engineer was clearly not sufficient during the two months prior the dry season and to include the seven months of dry season each year. It has, therefore, recommended that the ORT team consist of a Senior Engineer and an engineer. The engineer would only be required, however, during the first 20 months of the project.

After evaluating the inputs required from the GOL for the project, the team determined that the MPW should have little difficulty providing staff, facilities and equipment as they

all exist currently in the Ministry. Perhaps the two most difficult element of the GOL contribution will be the institutionalization of the Road Maintenance Contractor Supervision Unit and the staff reductions. While the former requires an allocation in the recurrent budget of at least \$300,000, the latter demands a commitment on the part of several branches of the GOL (i.e. Ministry of Finance and possibly the Executive Mansion). These contributions are cornerstones, however, of the MPW's effort to reduce its dependence on force account maintenance and increase its operational effectiveness. The team has, therefore, built into the ORT team's scope of work the requirement that it assist the MPW in this task.

The team identified four local construction contractors who expressed interest in road construction or maintenance contracting either directly to USAID or to the World Bank-financed Feeder Roads Project. Of these four firms, only two are experienced in the required work and one clearly lacks the required resources. The team believes, however, that with the relatively intense supervision and support which two ORT engineers could provide on the construction site, these firms would accomplish the work. Also, USAID will continue to encourage capable Liberians to form joint ventures with logging companies or other firms having the necessary equipment to enter the competition for the regrading contracts.

With regard to cooperation with the World Bank-financed teams, the design team noted that the greatest potential for coordination exists during rainy season training when the projects' various trainees would be concentrated in Monrovia. To encourage this form of interaction, USAID will build into the ORT scopes of work the requirement that the ORT team coordinate closely with its TAHAL and Louis Berger/Renardet counterparts and develop to the maximum extent possible, expanded courses which meet several projects' needs. During July-September, 1985, prior to the ORT team's arrival, TAHAL has agreed to train about 30 MPW officers in contractor supervision. This is twice the number of trainees required by TAHAL but it will permit ORT and the MPW to draw trainees for this project from the group.

Given the analyses summarized above, the design team recommends that the project described above be approved for funding during FY 1985.

VII. CONDITIONS, COVENANTS AND NEGOTIATING STATUS

Five issues were deemed important enough by the design team 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.

In addition to the standard CPs to first disbursement concerning sample GOL signatures and opinion of legal counsel, and one requiring that the MPW appoint a Project Director able to spend at least 25 percent of his or her time on the project, USAID will negotiate the following subsequent CPs:

A. To Disbursement for First Year Regravelling Contracts:

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

B. To Disbursement for Second Year Regravelling Contracts:

Prior to disbursement under the Grant or to issuance by AID 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 AID, in form and substance satisfactory to AID, 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;

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

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.

C. To Disbursement for Third Year Regravelling Contracts:

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

1. Routine maintenance has been completed on the stretch of road regravelled under the first year's contracts;

2. A Contractor Maintenance Supervision Unit has been officially established and staffed in the Ministry and that the necessary steps have been taken to secure for it an adequate allocation of funds in the national recurrent budget. This allocation must include at minimum \$300,000 allocated to a regravelling contract to be carried out by the Unit during the 1988-1989 dry season; and

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 join the Contractor Maintenance Supervision Unit at the beginning of the last rainy season.

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

ANNEXES

- A. PID Approval Message
- B. Logical Framework Matrix
- C. Technical Analysis
- D. Financial Analysis
- E. Economic Analysis
- F. Social Soundness Analysis
- G. Administrative Analysis
- H. SOW for Engineer/Trainer and Assistant Engineer
- I. Letter of Request from GOL
- J. Statutory Checklist
- K. FAA Section 611(e) Certification
- L. Initial Environmental Examination
- M. Exemption from 25 Percent Host Country Contribution Requirement
- N. AA/AFR Approval of Selection of ORT
- O. ORT Proposal

ANNEX A
ECPR AND
CONGRESSIONAL NOTIFICATION
CABLES

ACTION: AID 5 INFO: AMB DCM ECON 8/84

VZCZCMV0337
 RR RUEHMV
 DE RUEHC #3072 1931901
 ZNR UUUUU ZZH
 R 111632Z JUL 84
 FM SECSTATE WASHDC
 TO AMEMBASSY MONROVIA 0560
 BT
 UNCLAS STATE 203072

12-JUL-84
 TOR: 07:27
 CN: 01422
 CHRG: AID
 DIST: AID

AIDAC

E.O. 12356: N/A

TAGS:

SUBJECT: LIBERIA ROAD MAINTENANCE (669-0200) PID
 GUIDANCE CABLE

REF: A) STATE 17624B, B) MONROVIA 07027

REFTEL ADVISED MISSION OF APPROVAL OF SUBJECT PID. THE FOLLOWING ARE ISSUES/POINTS OF DISCUSSION IDENTIFIED DURING THE ECPR MEETING, THE ABS REVIEW AND THE MEETING WITH AA/AER ON JULY 5, 1984 REGARDING SUBJECT PROJECT.

A. THE PRINCIPAL ISSUE RAISED DURING THE ABOVE MEETINGS FOCUSED ON THE NEED FOR A POLICY CHANGE IN THE GOL TO REDIRECT THE LIMITED BUDGETARY RESOURCES OF THE MPW FROM SUPPORTING EXCESSIVE PERSONNEL COST TO INCREASING THE FUNDS AVAILABLE FOR ROAD REHABILITATION AND MAINTENANCE. THE DECREASE OF THE MPW FUNDS FOR ROAD MAINTENANCE FROM A LEVEL OF 62 PERCENT OF THE MPW BUDGET TO 18 PERCENT OVER A PERIOD OF 6-7 YEARS IS A CLEAR PROJECT DESIGN CONCERN.

HOWEVER, IT WAS RECOGNIZED DURING THE AID/W REVIEW MEETINGS THAT IT WOULD BE DIFFICULT TO REQUIRE A POLICY CHANGE (DOLS 3.1 MILLION) WHICH COULD LEAD TO A REDUCTION IN PERSONNEL IF THE OTHER DONOR (IBRD) IN THE PROJECT, WHICH IS PROVIDING DOLS 11.4 MILLION, DID NOT REQUIRE THE ABOVE POLICY CHANGE. WE RECOGNIZE THE MISSION'S POSITION, AS SET FORTH IN REFTEL B, THAT AID, IN COOPERATION WITH THE IMF AND IBRD, WILL CONTINUE TO ADDRESS THE ISSUE OF PERSONNEL AND TOTAL PAYROLL REDUCTIONS WITHIN THE FRAMEWORK OF NON PROJECT ASSISTANCE, I.E., THE DOLS 45 MILLION BSF AND DOLS 15 MILLION PL-480 PROGRAMS FOR FY 85. WE ALSO UNDERSTAND THAT THE MPW IS CONSIDERING SEVERAL POSSIBILITIES TO INCREASE THE MAINTENANCE OPERATIONS BUDGET, SUCH AS: A) THE TRANSFERRING OF ITS UNSKILLED LABOR FORCE FROM FULL TIME TO SEASONAL EMPLOYMENT; B) A REDUCTION OF OVERALL PERSONNEL LEVELS; OR C) THE CREATION OF A ROAD MAINTENANCE FUND.

AFTER CONSIDERING THE ABOVE FACTS, AID/W RECOMMENDS THAT THE MISSION UNDERTAKE A BEST EFFORTS DIALOGUE WITH THE MPW TO INCORPORATE POLICY CHANGES INTO THE PROJECT WHICH WOULD INCREASE THE MAINTENANCE OPERATIONS BUDGET.

BLOCK STAMP ROUTER		
ROUTE TO	ACT.	INFO.
D/DD		✓
DP/TRG		✓
SPPD	✓	
HRD		
CON		✓
ARD		
FN		
PER		
GSO		
RF		✓
FILE STATION # 03		
C&R Chron		
DATE REPLY DUE: 7/19		
ANS'D BY		
DRAFTED BY: NAN		

JUL 15 AMSC

THIS IS NOT A PROJECT REQUIREMENT BUT A DESIRED OBJECTIVE FOR THE MPW, AID AND THE IBRD. BECAUSE OF THE AID/W INTEREST IN THE ISSUE, MISSION IS REQUESTED TO REPORT TO AID/W THE SUBSTANCE AND RESULTS OF ITS DIALOGUE WITH MPW REGARDING POLICY CHANGES PRIOR TO THE AUTHORIZATION OF THE PP.

B. AID/W STRONGLY SUPPORTS MISSION DECISION TO FINANCE THAT PORTION OF THE IBRD/PIO/GOL ROAD PROGRAM WHICH WOULD DEVELOP THE CAPACITY OF PRIVATE SECTOR FIRMS TO UNDERTAKE ROAD REHABILITATION/MAINTENANCE WORK UNDER CONTRACT TO THE MPW IN LIEU OF USING MPW UNSKILLED LABOR. HOWEVER, DURING THE ECPR MEETING CONCERN WAS RAISED WHETHER THE MPW HAD THE CAPACITY TO MANAGE AND MONITOR CONTRACT/CONSTRUCTION WORK WITH PRIVATE COMPANIES. THEREFORE, DURING PP DEVELOPMENT MISSION NEEDS TO DETERMINE WHETHER THERE ARE ANY SPECIAL TRAINING REQUIREMENTS NECESSARY TO ENSURE THAT THE MPW HAS THE CAPACITY TO IMPLEMENT A PROJECT WHERE THE CONSTRUCTION IS CARRIED OUT BY PRIVATE CONTRACTORS. SUGGEST MISSION EXPLORE POSSIBILITY THAT IBRD FINANCED TA MAY BE ABLE TO PROVIDE THIS INPUT.

- , SION HAS NOT FINALIZED

C. AID/W UNDERSTANDS THAT MISSION HAS NOT FINALIZED SELECTION OF ROADS TO BE IMPROVED. IN SELECTING THE SPECIFIC ROADS FOR REHABILITATION/MAINTENANCE, MISSION SHOULD PROVIDE IN PP SUPPORTING ECONOMIC ANALYSIS FOR ROADS SELECTED AND HOW THE ROADS/PROJECT RELATES TO THE CISS.

POINTS OF DISCUSSION:

A. IN IMPLEMENTATION SECTION OF PP MISSION SHOULD DESCRIBE THE PROCEDURE FOR PAYING THE PRIVATE CONTRACTOR AND WHETHER THE CONTRACT WILL BE DIRECT OR HOST COUNTRY. DURING THE ECPR MEETING THE POSSIBILITY OF USING THE FAR PAYMENT SYSTEM WAS DISCUSSED BUT CONSIDERED NOT VIABLE BECAUSE OF THE NEED FOR FLEXIBILITY IN ADJUSTING COST FIGURES TO ROAD CONDITIONS AND THE HOST GOVERNMENT'S PROBLEMS IN PAYING THE CONTRACTORS ON A TIMELY BASIS

B. MISSION SHOULD BE AWARE THAT THERE WAS CONCERN RAISED BY SENIOR OFFICIALS IN AFRICA BUREAU THAT USAID/LIBERIA SHOULD NOT BECOME INVOLVED IN ANY LONG TERM COMMITMENT TO ROAD CONSTRUCTION AND MAINTENANCE IN LIBERIA. DAM

ET
#3072

NNNN

UNCLASSIFIED STATE 97948

Road

28 JUN 85 12: 53

ACTION: AID 5 INFO: AMB DCM ECON POL 9/H

VZCZCMV0657
OO RUEHMY
DE RUEHC #7948 1790208
ZNR UUUUU 22H
O 280207Z JUN 85
FM SECSTATE WASHDC
TO AMEMBASSY MONROVIA IMMEDIATE 6190
BT
UNCLAS STATE 197948

28-JUN-85
TOR: 07:25
CN: 58519
CHRG: AID
DIST: AID

ADM AID

P.O. 12356: N/A

TAGS:

SUBJECT: RURAL ROAD MAINTENANCE, PROJECT 669-0200

HAVE BEEN NOTIFIED THAT STATUTORY WAITING PERIOD ON CN FOR SUBJECT PROJECT EXPIRES JUNE 27, 1985. HUMAN RIGHTS CLEARANCE HAS BEEN RECEIVED. OBLIGATION MAY NOW BE INCURRED. SHULTZ

T
7948

NNN

SLICK STAMP ROUTER		
ROUTE TO	ACT.	INFO.
D/OO		✓
DP/TRG		✓
SPPD	✓	
ECON		
HRD		
CON		✓
ARD		
ED		
PER		
ESG		
RF		✓
FILE STATION # 03		
R/R Chron		
DATE REPLY DUE: 7/1		
PREPARED BY: DK NAN		

UNCLASSIFIED STATE 197948

LOGICAL FRAMEWORK

Liberia Road Maintenance Project
(669-0200)

<u>NARRATIVE SUMMARY</u>	<u>OBJECTIVELY VERIFIABLE INDICATORS</u>	<u>MEANS OF VERIFICATION</u>	<u>IMPORTANT ASSUMPTIONS</u>
<p><u>Goal:</u></p> <p>Maintain infrastructure essential to Liberia's productive capacity</p> <p><u>Sub-Goal:</u></p> <p>Improve access of rural population to income opportunities, goods and services</p>	<p>Increase in agricultural exports</p> <p>Increase in rural income</p> <p>Increase in provision of services including education and health care, to rural areas</p>	<p>MOA, MFA data</p>	<p>Prices for Liberia's exports recover</p> <p>COL maintains priority in rural development</p>
<p><u>Purpose:</u></p> <p>1) Provide selected rural areas with cheaper, more reliable transportation for marketing agricultural produce and obtaining consumer goods and services</p>	<p>1)</p> <p>a) Ag. production and marketing increase in selected areas</p> <p>b) Cost of goods and services decrease and/or availability increase</p>	<p>1)</p> <p>a) Agricultural statistics from COL and UNDP, and</p> <p>b) MFW traffic counts informal price checks of local trans. costs</p>	<p>1)</p> <p>a) COL maintains competitive farmgate prices for rice and other agricultural products</p> <p>b) IPRD Fifth Highway Program and COL efforts assure routine maintenance of project road</p>

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
2) Develop capabilities of construction contractors to perform road maintenance	2) At least 3 contractors capable of performing total of 45 miles regravelling/rehabilitation per dry season	2) USAID site inspection and project records	2) IPFD assistance to contractors via feeder roads project is forthcoming
<u>Outputs:</u> 1) 155 miles of road from Zwedru to Pleebo regravelled and rehabilitated to all-weather status 2) A Contractor Road Maintenance Supervision Unit funded, staffed and functioning in the MPW according to a long-range plan developed under the project.	1) a) Increase in traffic, particularly during rainy season b) Status of road conforms to all-weather standards 2) a) Six supervisory engineers and a unit chief are designated by MPW b) Office facilities are in use and designated for the unit c) All possible steps have been taken to reserve at least \$300,000 for a 1988-1989 regravelling contract.	1) a) MPW traffic counts, site visits b) Site visits, Grantee records 2) a) MPW documents b) site visits	1) Local contractors submit credible and satisfactory proposals 2) COL/MPW supports this unit by integrating it fully into Ministry operations and supporting it in its work

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
3) MFW inspectors and staff trained in contractor supervision for laterite road rehabilitation	3) <ul style="list-style-type: none"> a) 12 inspectors trained on-the-job during dry seasons and in classroom during rainy season. (Six of them are to be selected for Maintenance Unit staff.) b) 2-3 mid-level MFW personnel trained locally on-the-job and in seminars, in managing the Supervision Unit. 	3) <ul style="list-style-type: none"> a) Grantee records 	3) GOL identifies and seconds necessary trainees to project in a timely manner.
4) Liberian contracting firms available for (and experienced in) road regravelling work.	4) At least three local firms with project experience in road rehabilitation still in business	4) Visits to contractors' offices/MFW recommendations	4) Firms prove to be financially adept enough to survive with stimulus from USAID and World Bank projects.
5) Environmental Impact of Project monitored and documented	5) Reports based on satellite imagery of target area prepared at beginning, midpoint and end of project to assess impact of road rehabilitation on forest. Project redesigned, if necessary, after midpoint report.	5) Project records	5) Satellite photos will continue to be available

<u>NARRATIVE SUMMARY</u>	<u>OBJECTIVELY VERIFIABLE INDICATORS</u>	<u>MEANS OF VERIFICATION</u>	<u>IMPORTANT ASSUMPTIONS</u>
<u>Inputs:</u>			
A. <u>AID Contribution</u>	(\$000)	Project Agreement Budget	AID/W will have sufficient funds available to fully fund this project according to a reasonable obligation schedule.
1) <u>Recraveling contracts</u>	2,430		
2) <u>Cooperative Agreement for Training/Supervision</u>			
a) <u>Senior Engineer</u>	374		
b) <u>Engineer</u>	182		
c) <u>Travel</u>	79		
d) <u>Short-Term TA</u>	84		
e) <u>Trainees and Misc.</u>	256		
f) <u>Overhead (17%)</u>	55		
g) <u>Conting./Inflation</u>	<u>150</u>		
<u>Subtotal CA</u>	1180		

52

Technical Analysis

A. Sector Characteristics

Liberia's transport system reflects the economy's dependence on enclave iron ore mines, rubber plantations and forestry concessions. The transport network consists of about 6,200 miles of roads, three railways operated and owned by the mining companies with about 300 miles of lines, four seaports, two international airports and several domestic airports open to commercial traffic. The system is generally adequate for the enclave operations, but the need to intensify the country's agricultural development effort outside the enclaves calls for an improvement in the transport system, particularly roads. Many potentially productive agricultural areas have only poor or circuitous connections to ports and the main domestic market center, Monrovia.

The railways are almost exclusively used to transport iron ore annually to the ports of Monrovia and Buchanan. The ports of Greenville and Harper are mainly used for the shipment of timber. Domestic air transport carries few passengers while coastal shipping is underdeveloped. Road transport, the predominant mode for passengers and goods other than iron ore, is concentrated around Monrovia and along the Monrovia-Ganta axis (see map on P. xvi of the PP).

1. Rail

The railways are almost exclusively used for transporting iron ore and other mine-related cargo between the mines and the ports. Under intermittent government pressure for more public use of the railways, the Liberian Swedish American Mining Company (LAMCO) carries an insignificant amount of general cargo and timber traffic on a contract basis.

Future developments in the railway network will, as in the past, be linked with the mining sector. Investments in several new iron ore deposits are being considered but are unlikely to materialize this decade in view of the presently depressed iron ore market and the opening up of vast iron ore deposits in Brazil. Further, one of the major iron ore companies, Bong Mining Company (BMC), will likely cease operations in the second half of the 1980s.

2. Water Transport

Liberia has four seaports: Monrovia and Buchanan, which are deepwater ports and handle almost all foreign trade in volume terms; and Greenville and Harper, both shallow-water ports through which mainly log exports move.

The National Port Authority (NPA) manages all seaports, (except the day-to-day administration of Buchanan Port which is carried out by LAMCO). In the past, MPW's operations had been fairly efficient and it was one of the few profitable and financially sound public corporations in Liberia. However, due to Liberia's unfavorable economic climate and poor management in recent years, the port has deteriorated and NPA suffers substantial losses. A major contributing factor was the significant fall in revenues due to the decline in port traffic. The major decline occurred in iron ore (which constitutes 90 percent of Liberia's exports by volume) due to unfavorable world market trends. Other cargo traffic has been more or less stagnant, largely due to Liberia's economic condition. On the expenditure side, NPA's recurrent outlays mushroomed since the coup, primarily due to the new government's pressure to employ an additional 700 staff (bringing total MPA employment to 3,200) and general wage adjustments. The GOL recently held a donor conference on the rehabilitation of the Monrovia Free Port. It has pledged to undertake reforms including the elimination of some surplus staff. Donors are considering requests for technical assistance to manage the port as well as rehabilitation of port infrastructure.

Commercial coastal shipping between Monrovia and the southeastern part of the country offers a substantial cost advantage over land transport. However, it is limited due to pilferage, damage and customs problems in the ports. At present, six coastal dry cargo vessels operate between Monrovia and other Liberian ports with some calls at Freetown and Abidjan. A coastal tanker delivers about 450 tons of petroleum products to Harper monthly. Coagulum rubber produced at the ex-Firestone Cavalla Plantation at Jidetaabo is shipped on small dry cargo vessels to the Firestone installation at Harbel. The present transit time from Harper to Harbel is 30 hours, considerably less than by road under present conditions.

3. Air Transportation

During the 1970s, substantial development took place in the air transport sector with respect to both international and domestic services. The number of embarking and disembarking international passengers increased from 53,000 in 1970 to 126,000 in 1979, and air cargo increased even more rapidly. Air Liberia, the only scheduled domestic airline has suffered financial losses in recent years. It still maintains regularly scheduled service to about six locations in the country. Charter airlines service numerous other airfields.

4. Roads

The Liberian road network is relatively undeveloped, even by comparison to those of many other African countries; not only is its extent limited to only 6,200 miles, but less than half of this is classified as all-weather. Liberian roads are subject to heavy traffic, unrestricted payloads and intense rainfall (over 200 inches during the six-month rainy season in some areas), all of which contribute to rapid deterioration of the road surface if it is not well maintained.

In 1981, the total network consisted of 4,726 miles of public roads and 1,474 miles of private roads, for an aggregate total of 6,200 miles. Paved roads in Liberia total 459 miles, of which 366 miles are public roads and 93 miles private roads. Thus, only 7.4 percent of the network is paved.

Three main corridors of primary roads radiate from Monrovia. The most important artery is Monrovia-Totota-Ganta-Guinea Border (211 miles), of which the Monrovia-Ganta section (167 miles) is paved. At Gbarnga, a laterite-surfaced branch leads northward to Kolahun (149 miles) in remote but economically active Lofa County. From Ganta another laterite-surfaced branch road is oriented southeastward to Tappita and Zwedru. It bifurcates immediately south of Zwedru, connecting with the ports of Greenville (247 miles from Ganta) and Harper (299 miles). While the primary roads are built to laterite-surfaced standards, they have deteriorated through lack of maintenance to less than all-weather quality.

The GOL constructed this expanded road network between 1953 and 1962 using its own personnel and equipment (force account) with the help of technical personnel from the U.S. Bureau of Public Roads. Funding was furnished primarily through the Export-Import Bank and by the IBRD. (Until the inception of the present program, highway maintenance was only a hit-and-miss affair.)

In 1970, the IBRD financed a detailed road maintenance study aimed at identifying the physical and organizational needs and problems of the MPW, primarily those needs related to road maintenance. This study, undertaken by the consultant firm, SAUTI-ICE, was completed in mid-1972. It formed the basis for the Five-Year Road Maintenance and Development Program (FYRMAD) and in early 1973 the GOL embarked on this program. In the early 1970s, USAID/Liberia loaned the GOL \$8.4 million to support primarily equipment procurement under this program (Loans 669-H-020 and 669-W-023).

While regional road links upgraded to all-weather service quality are likely to have significant socioeconomic impact in terms of providing small farmers better access to important local and regional markets and to health and education facilities, they are of the nature of feeder roads which will be isolated during the rainy season unless the main routes by which they connect to the capital and other urban centers are also all-weather roads. The order of priority in terms of Liberian road improvements must be: 1) upgrade to all-weather standard the primary network which links the Central, Northern and Eastern regions to each other and to Monrovia; 2) upgrade to all-weather service quality secondary and tertiary roads which feed into the primary network.

5. The Road Transport Industry

For the rural population to derive benefits, the cost savings produced by road maintenance must be passed on by vehicle operators to the consumers of transportation services. This assumes competitive operation of the road transport system. Given the structure of the system in Liberia, we believe that this will occur. The commercial transportation fleet is composed of a large number of small private truckers, minibus owners and small taxi enterprises. Entry into the road transport industry is relatively open with government intervention limited to vehicle registration, licensing and inspection. Competition ensures adequate service to the public.

TABLE C-1

All-Weather Roads; Condition Inventory by Class
(miles)

<u>Road Condition</u> a/	<u>Road Class</u> b/					<u>Total</u>	<u>%</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>		
Good	312	129	127	62	48	678	27
Fair	54	229	281	362	287	1,213	50
Poor	-	41	57	190	271	559	23
Total	366	399	465	614	606	2,450	100

a/ Road Condition Classification:

Good - Good surface over 100% of length

Fair - Good surface over 75% of length and bad over 25%

Poor - Good surface over 50% of length and bad over 50%

b/ Road Class:

Vehicles Per Day

1 = paved road	300+
2 = improved laterite	150 - 300
3 = improved laterite	50 - 150
4 = improved laterite	1 - 50
5 = improved laterite	1 - 50

Source: Road Maintenance Program, MPW and SAUTI-ICE, 1981.

6. Freight Rates

The GOL sets maximum tariffs for public passenger transport and inter-city trucking services but enforcement is limited. Actual tariffs do sometimes exceed official tariffs in areas where poor road conditions discourage completion. However, the industry is competitive for the most part, ensuring adequate service to the public.

B. Present Condition of Road Network

In 1980 (the last year that comprehensive traffic counts are available), over 500 miles of gravel road had traffic levels exceeding 250 vehicles per day (VPD) and an additional 600 miles had over 150 VPD. Commercial vehicles constituted over 50 percent of the traffic and heavy trucks accounted for over 20 percent. Given the large proportion of heavy trucks using these roads, paving at least with single bituminous

6.11

surface treatment can be economically justified for roads with 200-250 VPD.

Such a paving program, however, cannot be undertaken in the near future. The GOL's financial position (see Annex D, Financial Analysis) is so serious that it cannot afford major expenditures to improve roads. Even its showcase project, the paving of the Ganta-Harper road, has been severely constrained by lack of funds, with less than 20 miles of initial clearing of the new roadway completed in the first year. At the same time, action must be taken to arrest the serious deterioration of Liberia's road network which has suffered greatly from lack of maintenance. Table C-1 shows the classification of Liberia's all-weather network by level of use and condition as of 1981. Half of the roads are classified as "fair" and almost a quarter are considered "poor." Since this inventory was taken, almost all of these roads have deteriorated more because of the lack of maintenance. The primary laterite-surface roads connecting Lofa, Grand Gedeh, Sinoe and Maryland Counties with the paved trunk road and Monrovia have deteriorated below all-weather standards.

To arrest this alarming deterioration of the road network, IBRD consultants drew up a list of some 750 miles of primary and secondary roads needing regravelling. From this, 450 miles were selected for regravelling under the Fifth Highway project (Table C-2). In the process of designing the Road Maintenance project, AID decided to increase slightly its funding level and therefore expanded the list of candidate roads for regravelling. From this list AID selected the Pleebo-Zwedru road. (see Annex E, Economic Analysis, for description of candidate road selection process).

C. Project Approach to Regravelling

To date, road maintenance has been the responsibility of the MPW's Operations Bureau. The bureau works through offices in three regions and ten districts which operate their own equipment fleets and equipment maintenance workshops. The performance of this system has so far not been satisfactory. The MPW and Operations Bureau have been the target of a long series of donor assistance programs to improve road maintenance since 1960. This assistance has included equipment and technical assistance by AID, the U.S. Bureau of Public Roads, four IBRD highway projects, Japan and the Federal Republic of Germany (FRG). The FRG established the Camp Mechlin Road Maintenance Training Center (RMTC), and Japan provided assistance to the RMTC as well as provided heavy equipment and workshop machinery.

The effectiveness of this aid has been questionable (See Section IV. C. in the Liberia Road Maintenance PID for a fuller discussion of the history of assistance to the MPW). In part,

the piecemeal and discontinuous nature of the assistance has undermined its effectiveness. Also, there seems to have been a general underestimation of the scope and difficulty of instituting an operable road maintenance program. As an IBRD review of road maintenance projects found, a ten-year project may be needed to institutionalize road maintenance capabilities in favorable circumstance. The MPW has not been able to attract assistance for such a lengthy period in a concerted and coordinated fashion. Moreover, circumstances such as the fiscal drain of hosting the 1979 OAU conference and the disruption of the 1980 coup have not been favorable for institutional development.

TABLE C-2
Candidate Roads for Regraveling

Road Section	R E G I O N			ADT 1981	Donor
	Central (mi.)	Northern (mi.)	Eastern (mi.)		
Bomi Hills (Tubman- burg)-Lofa Bridge	13.7	-	-	481	IDA
Lofa Bridge-Mano River	35.0	-	-	481	IDA
Gbarnga-St. Paul River	28.0	-	-		IDA
St. Paul River - Mendikoma	-	144.0	-		IDA
Madina-Robertsport	27.5	-	-	215	IDA
Ganta-Cestos River	-	81.6	-	332	IDA
Cestos River-Zwedru		-	52.7	284	IDA
Harper - Pleebo	-	-	33.8	269	Possibl AID
Pleebo - Zwedru	-	-	155.0	100	AID
Pleebo-Barclayville	-	-	45.5	60	Possibl AID
Greenville - Bampli	-	-	71.0	306	Possibl AID
Bampli - Zwedru	-	-	45.0		Possibl AID
TOTALS	104.2	225.6	382.2		

AID will use a considerably different approach to the road maintenance under this project. It will concentrate on road regravelling performed by Liberian contractors. The emphasis placed on regravelling is the direct result of the serious deterioration in Liberia's roads which places top priority on rehabilitation rather than routine maintenance. AID will focus on contractors for two reasons. First, the GOL's present fiscal crisis seriously diminishes the prospects of undertaken successful institution building at the MPW. Secondly, contract road maintenance holds the promise of being more cost effective in the long run than the traditional force account approach. (See Part A of the Financial Analysis, Annex D below for a comparison of force account and contractor regravelling.)

In addition to establishing the need for regravelling work and the desirability of experimenting with the contractor approach, the design team considered the capability of the local contractors to do the job. Of the three firms that meet the prequalification criteria for the IBRD Feeder Roads project, none have had a major road construction contract since 1980, and have only had minor work recently. However, according to their prequalification questionnaires, all three firms have sufficient operable equipment and experienced staff. (See contractor capability statements in attachment 1 to Annex G, Administrative Analysis below, as well as discussion of contractors contained in that analysis).

Attachment to
Annex C

Composite Log of Road Conditions
Zwedru to Harper

The chart below is the composite of two site visits, one in March by the USAID Engineer and one in June by an engineer from ORT. Conditions can be expected to worsen considerably as the rainy season progresses.

Location of Towns, borrow pits,	Mileage from Zwedru	State of Surface, Drainage Structures, etc. (June 6, 85)
Borrow pit at airport Zwedru	0	Some laterite; very over- grown
Borrow pit	11	Poor surface; ruts; Undu- lating ruts, 1 ft. deep, 1 ft. wide; bridge; narrow (15 ft.)
	17	Steep grade; ruts
	19	Road very badly damaged; diversion
Borrow pit	20	Adequate surface; ruts; narrow
	23	Adequate surface. Narrow, smooth surface
	26	Steep grade; rutted
	27	Bridge, flat, pot-holes
	30	Bridge
	33	Mudholes, very overgrown
	34	Deep long; traditional ruts
	39	ULC maintains this condi- tion good.
	to 43	Penokhen Jn. to Green- ville
Borrow pit	45	Surface very bad; deep ruts.

	47	Deep pot-holes.
	49	ditto
	52	Flat; side water; longitudinal rutting.
Village	53	Deep ruts
	56	Narrow (12 ft.) deep ruts
Borrow pit	57	Steep valley; deep ruts and big puddles.
	59	Very large, puddles across road.
	74	Stream crosses road
Kanweaken	77	
	to	Maintained by CLC
	85	
Borrow pit	97	
	100	Very long, almost impossible section; ruts/holes 2/3 ft. deep. Swamp (survey vehicle temporarily stuck one way; towed out after 5 hr. delay return)
	100	worst section on Zwedru-Harper.
	103	Culvert-log-filled.
	106	Culvert-log-filled.
	113	Redeck timber bridge.
	140	Bridge - half decked concrete; half timber.
Karlokeh	133	
	147	
	148	Pleebo MPW Depot
	150	Pleebo
	180	Bad grading
Harper	170	Harper

D. The Zwedru-Pleebo Road:

Beginning at Zwedru, at an elevation of about 1,000 feet above sea level, the road winds down through hilly terrain to Pleebo at an elevation of about 200 feet above sea level. The existing road shows no evidence of a formal design. It gives the appearance of having been constructed as an improvement to existing trails with later interconnections between the trails to provide a road between Zwedru and Harper. Although occasional sections of good vertical and horizontal alignment do exist in the proximity of several of the lumber concessions in the area, over most of the road it leaves much to be desired. A detailed engineering study of the road has not been made. However, the USAID Engineer has travelled the road several times and estimates that, considering stopping sight distance and passing sight distance, the safe operating speed on the road is about 30 MPH. (For a more detailed set of observations on the road, see the Attachment to this Annex D). An obvious question is why the project does not consider improving the road to a higher standard.

Preliminary estimates indicate that it would cost between \$200,000 and \$300,000 per mile to improve the Zwedru-Pleebo road to a 50 MPH design speed; utilizing the existing road to the maximum extent and with a laterite surfacing. This would mean a project cost of between 31 and 46.5 million dollars, and additionally, would require at least five to seven years construction time. Further, it would involve major construction which is beyond the physical capacity (not the technical expertise) of the Liberian contractors. Given the fiscal situation of the GOL, such construction is out of the question.

The project, then, will improve the existing road to an all-weather facility, maintaining the same horizontal and vertical alignment, and roadway width. Although the roadway width varies from place to place, there remains an ample width to provide a 24 ft. carriage way. For the most part, the materials in the existing road structure will provide a very satisfactory base for laterite gravel surface. The fact that the road is still passable over most of its length during the rainy season, even though it has received little or no maintenance for the 20-25 years since the road was completed, bears testimony to the good quality of the materials.

The work to be performed by the maintenance contractors to return the road to an all-weather facility includes excavation of unstable soils in localized areas and backfilling with suitable material, cleaning ditches and drainage structures, brushing the right-of-way, scarifying the existing road surface, reshaping and recompacting, and then applying a new laterite gravel surface having a width of 24 feet and an average depth of four inches.

The locations to be excavated and backfilled are short, varying from 50 feet to 500 feet in length. These "mudholes" appear intermittently throughout the length of the project. They may be found in low lying areas where the roadway structure has become saturated; or they may be found in cut sections at the top of hills where the roadway cut has been excavated to a depth below the laterite gravel into the underlying, highly plastic clay (characteristically, coarse laterite gravels are located at the top of the soil layer, and the material becomes finer with depth).

The aggregate length of areas to be rehabilitated by excavating and backfilling is less than five miles, or slightly more than only three percent of the total project length. In estimating project quantities, provision was made for raising the roadway as much as two feet through the low lying areas to be rehabilitated.

Simultaneously, with the rehabilitation work, the ditches will be cleaned and reshaped, and drainage structures will be cleaned. Some new culverts will be required (estimated at 330 feet of 24 inch and 60 feet of 36 inch corrugated metal pipe culvert).

Finally, after this work has been completed, the entire roadway surface for the section under contract will be scarified to a depth of at least six inches. When materials suitable for surface graveling are encountered, they shall be windrowed at the side road or removed and stockpiled, to be reclaimed and used as surfacing material. There are existing borrow pits containing good quality laterite for regraveling located at approximately seven-mile intervals along the entire project. The four-inch new gravel surface will be placed in one lift, shaped to provide a cross slope of four to five percent from the crowned center to the ditches, and compacted to a minimum of 95 percent of the maximum density as determined by the American Association of Highway and Transportation Officials (AASHTO) standard method of testing for moisture and density, Designation T-180.

The materials to be used for regraveling will be pit-run, i.e., direct from the borrow or stockpile. No blending of materials will be required. The laterite gravels which exist along the road are quite good, containing well graded particles up to about 1/2 inch size, with very few particles larger than 1/2 inch. Materials for regraveling will have a plasticity index (P.I.) no less than 6, and no greater than 15. While a P.I. of 15 may appear high, stable surfacing using local laterite materials with a P.I. in excess of 15 have been observed.

It is the design team's opinion that the above approach to regravelling, with localized rehabilitation, is the quickest and most cost effective approach to providing southeast Liberia with an all-weather road.

Financial Analysis

There are two principal questions to be addressed in this analysis. First, does contractor regravelling represent a potentially cheaper form of road maintenance than force account regravelling? Second, can the MPW sustain the recurrent cost burden implied by the project, especially in replicating its activities after the PACD? These questions are discussed below:

A. Least Cost Analysis

The Road Maintenance Project is an opportunity for the GOL to experiment for the first time with contractor regravelling and must therefore be designed without the benefit of experience with contractors on which to base any concrete cost estimates. It is therefore impossible at this stage to produce an accurate projection of contractor regravelling costs to compare directly with those of force account regravelling.

The first issue in determining the least costly approach to road rehabilitation in Liberia is to define the terms of the comparison. If one examines the choice between force account and contractor regravelling for a particular stretch of road, to begin immediately using existing MPW personnel and equipment, then force account work might prove cheaper. One could consider the existing MPW engineers and road crews as well as all the equipment as a sunk cost which might otherwise not be used to full capacity. In that case, only the cost of rehabilitating and running the equipment would be counted. For contractor regravelling, on the other hand, one would have to count the value of equipment rented or amortized over the contract period as well as the entire cost of personnel on the job.

Such an analysis, however, would only apply in the short run, and it assumes that excess road maintenance capacity exists in the Ministry. Already, the Fifth Highway Project has restored two (and will soon mobilize a third) regravelling brigades which together include virtually all available road maintenance equipment and personnel. An opportunity cost would therefore have to be associated with any future force account regravelling inputs which would render contractors' costs more closely comparable to the MPW's. Also, in the long run, the MPW could fire, retire or reassign its employees, and reduce procurement of new equipment or allocate existing equipment to other tasks, in order to reduce the cost of its force account maintenance program. These facts should be taken into account in the comparative cost analysis. They argue for a more long-term analysis which takes into account the potential for the GOL to realize the significant economies from turning a portion of its work over to contractors.

The correct comparison to make, then, is one of average rather than marginal costs, and it should consider long-term potential rather than the immediate situation. Several advantages to contractor road rehabilitation become evident from this perspective. They include:

1. Reduced Overhead During the Rainy Season

During the rainy season, when virtually no road work can be conducted in Liberia, construction contractors can release engineers, equipment operators and other personnel hired for a specific assignment. The MPW does not have this ability and is not likely to have it in the future except for a limited number of manual laborers, which the Ministry has agreed with the World Bank to consider converting to seasonal employee status. With a dry season of November through May (seven months) personnel costs for road rehabilitation could be cut nearly in half through use of contractors.

2. Increased Management Efficiency and Productivity

The incentive structure built into a contract is generally considered to be more compelling than that which applies to equivalent work done through the public sector. Hence a contractor, all other factors being equal, is likely to yield more miles of rehabilitated road for a given investment than would an equal investment in force account work. Liberia, with its current fiscal crisis, faces unusual obstacles to maintaining an acceptable level of efficiency and productivity in its public sector activities. Progress has been severely hampered on force account regravelling under the Fifth Highway Project, for example, by the GOL's difficulty in paying the workers each month. One or two weeks' work are reportedly lost each month through absenteeism, as members of the regravelling team return to Monrovia to attempt to secure their paychecks. Although the same fiscal problems can interfere with the regular payment of contractors, the issue will not arise until after 1988, when USAID will cease financing and paying contractors directly. By that time, however, it is hoped that the MPW would have taken the necessary steps to secure from the GOL firm budgetary commitments for future regravelling contracts, thus diminishing the problem.

3. Economies in Equipment Maintenance

Finally, the two above factors also apply to costs associated with maintaining the regravelling equipment. While the Ministry would have to maintain a year-round equipment maintenance and overhaul capability, a contractor is more likely to depend on another firm to provide these services on

demand, or to hire mechanics only for the periods when they are needed. Much of the preventive maintenance and overhaul work, for instance, is likely to occur during the rainy season when the equipment is back from the sites, and the heavy mechanical workload during that season is likely to decline during the other half of the year. The contractor could thus reduce substantially its equipment and maintenance staff during the dry season. Also, as is the case for the actual rehabilitation work, equipment maintenance in the private sector is likely to be more carefully supervised and more efficiently performed than in the public sector, all other factors being equal.

Although sufficient data does not yet exist to attempt to quantify and test the above observations with any accuracy, they indicate that contractor regravelling is worth investigating as a possible cost-cutting measure for the MPW. The results of this project should be carefully evaluated to determine the specific advantages and disadvantages of the contractor approach. Those findings could then be used to determine whether the MPW and USAID should invest any further resources into this approach.

B. Recurrent Cost Analysis

The second question, that of the GOL's ability to sustain project activities, poses no problem during the life of the project. As noted in the Financial Plan (Section III above), the Minister of Public Works has assured USAID that the personnel, facilities and equipment required from the GOL for this project are already available in the Ministry. It is also clear, as indicated below, that the GOL earns sufficient revenue from its road network to finance continued contractor regravelling if it should choose to do so. That which is still unclear is whether the MPW will make the necessary budgetary reallocations when the time comes, and perhaps even more importantly, whether higher levels of the GOL will permit the staff reductions and other reforms that such a policy would require.

1. Recurrent Cost Financing to Date

Highway maintenance is financed from the Recurrent Budget; while highway investments are included in the Development Budget, which is largely made up of grants and credits from bilateral and multilateral aid programs. Annual highway investments averaged about \$20 million during the First Plan period but have dropped to less than \$5 million since 1981/82. Recurrent maintenance funding was adequate in the mid-1970s but has in recent years become increasingly insufficient to maintain the expanded network. Recurrent annual maintenance expenditures financed from the general budget steadily

increased from about \$5.5 million in 1976/77 to \$8.6 million in 1981/82 but decreased to an estimated \$6.2 million in 1982/83, as shown in Table D-1 below.

Table D-1

GOL Recurrent Maintenance Expenditure, 1976/77-1982/83
((\$000's))

<u>Year</u>	<u>Personnel</u>	<u>Operations</u> <u>1/</u>	<u>Total</u>	<u>Operation as % of Total Budget</u>
1976/77	2,100	3,446	5,546	62
1977/78	2,917	3,807	6,742	57
1978/79	3,177	3,523	6,700	53
1979/80	3,298	3,626	6,924	52
1980/81	6,268	1,944	8,212	24
1981/82	6,874	1,701	8,575	20
1982/83 (est.)	5,100	1,100	6,200	18

1/ Fuel, spare parts, materials, etc.

Source: Operations Bureau and Planning and Programming Bureau, Ministry of Public works, 1982, and World Bank, Fifth Highway Project, Staff Appraisal Report, February 21, 1984.

Table D-1 also indicates that the composition of recurrent maintenance expenditure shifted dramatically in favor of personnel in 1980/81. The trend continued until 1982/83, when personnel expenditures dropped from a peak the previous year of \$6.87 million to \$5.1 million, the lowest level in three years. Nevertheless, this level of funding is totally inadequate for maintenance needs which, according to an IBRD estimate, would under normal circumstances (no deferred maintenance) require some \$11 million for non-personnel expenditures.

The GOL does receive enough road user revenue (through fuel, lubricant, vehicle and spare part taxes and duties) each year, however, to devote considerably more resources to road maintenance and rehabilitation, should the GOL choose to make the necessary reductions in new road construction and possibly also in personnel. Table D-2 indicates that while road user tax revenues are estimated by the World Bank to increase from \$12.3 million in 1980/81 to \$30 million in 1983/84, maintenance funds are estimated to increase only from \$11.7 million to \$12.5 million. Revenues will thus rise from 105 percent of maintenance expenditures to 250 percent, and by 1986/87, the Bank expects revenues to reach 174 percent of maintenance expenditures.

Table D-2

Actual and Projected Revenues and Expenditures on Roads,
1980/81-1986/87 (US \$ million)

	<u>Road User Taxes</u>	<u>Maintenance</u> ^{1/}	<u>Construction</u>	<u>Revenues as % of Maintenance Expenditures</u>
1980/81	12.3	11.7	17.6	105
1981/82	17.8	12.5	4.8	142
1982/83	18.5	10.4	3.6	178
1983/84	30.0	12.0	7.0	250
1984/85	31.0	17.5	13.0	177
1985/86	33.0	19.6	20.0	166
1986/87	35.0	20.1	24.0	174

^{1/} Including payroll and depreciation of maintenance equipment

Source: World Bank Fifth Highway Project, Staff Appraisal Report, February 1984, p. 28.

Another source of revenue which has yet to be tapped successfully in Liberia are tolls. The GOL attempted, and then abandoned, charging tolls along the first stretch of the Ganta-Harper Highway (between Ganta and Zwedru). Collection may have been effective but sufficient funds leaked from the system to render the toll booths more costly to maintain than they were worth to the GOL in revenue. Apparently, there was also considerable resentment from road users at having to pay tolls for an as yet unimproved road. Nonetheless, tolls should not be overlooked as a means of financing routine maintenance of newly improved roads. Toll revenue could then be managed at the county level, if that would reduce leakages.

2. Outlook

The GOL could conceivably increase its maintenance expenditure by up to 50 percent if it chose to do so. An even greater impact on road maintenance could be made if the GOL also shifted the balance of maintenance expenditures substantially back in favor of operations over personnel.

It therefore appears that despite the difficult budgetary outlook facing the MPW, there is the potential for reallocating funds within the roads sector

to cover the cost of a long-term contractor regravelling program. This project will encourage the GOL to pursue this possibility by requiring as a condition precedent to signing the second year's contracts that the Ministry of Public Works, provide to USAID evidence of substantial progress made toward reducing staff by 75 people and converting its Maryland Grand Gedeh labor forces to seasonal status. USAID and the World Bank have also taken a strong stand in favor of rehabilitating the existing road network and against construction of major new roads in Liberia. This coordinated donor policy has been fully endorsed by the MPW and would also help to channel a greater share of GOL road investments into maintenance.

3. Conclusion

Although the potential and the donor incentives exist for channeling additional Liberian resources into maintenance, it is nonetheless possible that the fiscal situation will worsen in the next three years or that the GOL will simply consider it intolerable to sufficiently reduce personnel or new road construction expenditures. The project's final evaluation, scheduled for November or December 1987, would be an appropriate time to carefully reconsider these issues.

Economic AnalysisI. Introduction

The purpose of this analysis is to select the candidate road for regravelling that best serves AID's and the GOL's development objectives and to demonstrate that this regravelling project is economically justifiable. The project design team selected three candidate roads: Zwedru-Greenville (116 mile primary road), Zwedru-Harper (174 mile primary road, of which USAID would rehabilitate the first 155 miles to Pleebo) and Pleebo-Barclayville (48 mile secondary road)(See Figure 1). This list of candidate roads was selected on the following basis:

- All the roads are in the Southeast. It was decided at the PID stage that contract regravelling would concentrate in the Southeast because MPW's capabilities in the region were limited and its remoteness makes MPW management of force account work particularly difficult.
- The Pleebo-Harper stretch (19 miles) was left out of the USAID project as it is already relatively well maintained by a variety of lumber companies and plantations which use the road, and as the European Economic Community (EEC) has proposed to rehabilitate that stretch in connection with its efforts to refurbish the port of Harper.
- The Bampli-Greenville and Karloke-Harper roads were initially picked at the PID stage because they had been identified by the IBRD Fifth Highway Project as priority regravelling needs on the basis of road conditions and traffic volume.
- Both these road segments were extended to Zwedru because it was thought that the benefit of rehabilitating one section of primary road would be marginal if the entire length were not passable. (It is assumed that the Ganta-Zwedru segment will be regravelled by MPW, thus making travel from Harper to Monrovia or Greenville to Monrovia possible year-round. The Ganta-Zwedru segment was identified by the IBRD for regravelling by force account.)
- The Pleebo-Barclayville road, as a defunct AID project, was considered for rehabilitation to at least bring it up to original design standards. The original construction was undertaken by a Liberian contractor under AID's Rural Roads II project. The road was not completed because of GOL's financial problems.

Criteria for the final selection of roads to be regraded are:

- A satisfactory benefit/cost ratio and internal rate of return;
- A positive impact on economic and social sectors that constitute AID target group -- notably the rural poor and small farmers

Other factors that must be considered are the roads' impact on other AID projects and the environment.

II. Description of Potential Roads in the Southeast

A. Greenville-Zwedru:

This 116-mile laterite primary road connects the port of Greenville, the county seat of Sinoe County, with Zwedru, the county seat of Grand Gedeh County. A laterite road of 134 miles connects Zwedru with the major paved trunk road running from Monrovia to Ganta in the center of the country. The Zwedru-Greenville road is the only road connecting Sinoe County with the rest of the country except for the extreme southeast of the county which has a road link with neighboring Maryland County. It also serves a portion of central Grand Gedeh. The Greenville-Zwedru Road was completed in 1964

Sinoe County is thinly populated with an average of 17 persons per square mile (1981). However, most of Sinoe's population is concentrated on the coast and along the Greenville-Zwedru road. There has been little agricultural development in the area. Two large-scale agricultural projects are being developed. One is the rehabilitation of the Sinoe Rubber Corporation (formerly the African Fruit Company) east of Greenville. The other is the Buto Oil Palm plantation to the west of the Greenville-Zwedru road. These projects are located near the port of Greenville, however, and would therefore benefit relatively little from the AID-financed improvements.

The primary use of the port and a major user of the road is Liberia's logging industry. In the twelve months ending June, 1984, 127,000 cubic meters of logs and sawn timber valued at approximately \$22 million was exported from Greenville. This represents over half of Liberia timber exports. In 1983, six major logging concessions used the port as well as some smaller firms. Approximately 15 logging trucks make the round trip to Greenville daily. The exports through Greenville are harvested in Sinoe and may parts of Grand Gedeh County. Logging exports have fallen since 1980, mostly because the appreciation of Liberia's currency, the U.S. dollar, has made Liberian timber too expensive in its principal market, Europe.

21

B. Harper-Zwedru:

Harper-Zwedru: This 174-mile laterite primary road is the principal land connection for Maryland and lower Grand Gedeh County with the rest of the country. Most sections of the road were completed in 1964 though one segment seems to have evolved from logging roads and was never formally contracted. Maryland is a relatively densely populated county (60 per square mile in 1981) and lower Grand Gedeh is the most densely populated area of the county. As with Sinoe County, there has not been much agricultural development among small holders in the area. However, as Table E-1 indicates, farmers in Maryland and Grand Gedeh do grow more cocoa and rice than their Sinoe counterparts. Along the southern stretch of the road, however, there has been some development of smallholder rubber. This can be attributed to the presence of the Cavalla Plantation, formerly operated by Firestone. The plantation, located on the Harper-Zwedru road between Pleebo and Harper, is presently being rehabilitated. Another major agricultural project in the area is the Decoris Oil Palm plantation. The 12,000 acre plantation is supplemented by 6,000 acres of smallholder farms. The oil palms are just coming into production and will not hit full production until 1992. By that time, the plantation and small holders should be exporting some 30,000 tons of palm products each year.

Table E-1

Agricultural Indicators for Sinoe, Grand Gedeh, Maryland
Counties 1983

<u>County</u>	<u>Agr. Households</u>	<u>Percentage of Households Growing:</u>				<u>Rice Prod. pe Household</u> (Metric Tons)
		<u>Rice</u>	<u>Cocoa</u>	<u>Coffee</u>	<u>Sugar Cane</u>	
		------(Metric Tons)-----				
Sinoe	8,700	97	17	5	6	1.76
Grand Gedeh	10,500	93	49	12	4	2.08
Maryland	9,200	98	35	4	22	1.57
All Liberia	169,000	88	28	27	16	1.96

Another major user of the road is the logging industry. About 20 percent of Liberia timber exports leave from the Port of Harper. The volume of timber exports has increased in recent years, even while that of Greenville declined. This may reflect a shift of logging in Grand Gedeh County towards the east and the Harper road. Also, the EEC is planning on improving Harper's port which may attract more logging traffic. The Port of Harper also handles rubber exports and other goods (See Table E-2).

TABLE E-2
Harper Port
Cargo Loaded and Discharged; FY 84
(Tons)

<u>Commodity</u>	<u>Loaded</u>	<u>Discharged</u>
Logs	89,577	-
Sawn Timber	5,822	-
Rubber	11,337	-
Petroleum Products	-	3,666
Rice (bagged)	-	590
Other General Cargo	117	496
Containerized Cargo	13	26
TOTAL	106,866	4,778

Finally, the EEC expects to begin, within the year, a project which would provide extension services, credit and other inputs to small farmers in Grand Gedeh and Maryland Counties to stimulate the production and marketing of cash crops and rice. It can be expected that by 1987, this project will begin contributing to the amount of marketed produce shipped along the Harper-Zwedru road.

This road is noticeably better maintained from Pleebo to Harper, where two lumber companies (Liberian-Lebanese Wood and Plywood Corporation and Cavalla Lumber Corporation) and the Decoris Oil Palm and Cavalla Rubber Plantations contribute fuel and equipment to the MPW to keep the road resurfaced and passable. Lumber interests also assure limited routine maintenance during the dry season between Kahnwekah and Pleebo, as well as on a four mile section around Penokehn. The entire Zwedru-Pleebo section, however, is neglected with regard to bush clearing and major repairs, and is virtually impassable for weeks at a time during the rainy season.

C. Pleebo-Barclayville:

The Pleebo-Barclayville road is a 48-mile laterite secondary road. The road was originally built with a 1972 loan under AID's Rural Roads II project. Construction was undertaken by a Liberian contractor. However, construction was halted in 1980, and the road left incomplete and several bridges never built because the GOL could not meet its financial obligations. Presently, the road

37

is passable from Pleebo to the River Nar just before Barclayville. Several temporary bridges have been put in. The carriageway is, at places, narrow and lacking a laterite surface. The U.S. Military Mission, the Armed Forces of Liberia and UNDP have been cooperating to improve the road. One Bailey bridge has been installed and there are plans to replace other temporary bridges with Bailey bridges. However, spanning the River Nar is beyond the present resources of either the U.S. Military Mission or the UNDP.

The Pleebo-Barclayville road connects lower Maryland County. The area closest to Plebo contains the Decoris palm oil scheme. Further west, the area is less developed and there is little cultivation of commercial crops.

III. Benefit/Cost Analysis

The benefit cost analysis is calculated on the basis of vehicle operating cost (VOC) savings. Vehicle operating costs for unregaveled and regaveled roads are based on IBRD data for 1982 (See Table E-3).

Table E-3

Vehicle Operating Costs (VOC)
(in US cents per mile)

Improved Laterite Roads^{b/c/}

vpd	T	R	RD	LD	-----VOC Estimates-----			
					Passenger Car	Pick-up	Medium Truck	Heavy Truck
25	73.0	6,973	36.5	1.25	40.64	61.84	113.49	320.97
25	13.7	4,138	13.6	1.55	35.36	53.01	99.68	194.19
100	63.9	6,177	29.6	1.25	39.41	59.66	109.79	220.27
100	12.2	4,063	13.4	1.67	35.25	52.80	99.33	193.49
300	54.8	5,619	24.5	1.25	38.16	57.49	106.11	210.50
300	11.0	3,999	13.2	1.81	35.15	52.64	99.04	192.91

Earth Roads^{b/c/}

15	21.9	14,000	40.3	1.30	61.54	92.85	156.50	335.12
15	10.9	11,810	27.1	1.82	52.70	79.74	139.25	288.98

Paved Roads^{d/}

R	-----VOC Estimates-----			
	Passenger Car	Pick-up	Medium Truck	Heavy Truck
2,500	25.15	39.30	71.18	141.95
3,750	27.89	43.15	76.38	155.17
5,500	31.86	48.58	84.38	175.15

LEGEND

T	=	cumulative traffic in thousands of vehicles in both directions between two gradings.
vpd	=	vehicles per day
R	=	roughness (mm/km)
RD	=	rut depth (mm)
LD	=	depth of loose material (mm)

-
- a/ At September 1982 prices, net of taxes
- b/ Average road geometrics = rise and fall = 50 m/km; horizontal curvature = 270 /km; altitude = 500 m above sea level.
- c/ Two lines with same vpd represent average condition and costs "without" and "with" project respectively.
- d/ Average road geometrics: rise and fall = 10 m/km; horizontal curvature = 180 /km; altitude = 500 m above sea level.

Source: IBRD, February 1984

Vehicle traffic counts are based on MPW data, mostly from 1979, that have been projected for 1981.^{1/}

Table E-4: Vehicles Per Day

	<u>Greenville-Zwedru</u>	<u>Harper-Zwedru</u>	<u>Pleebo-Barclayville</u>
Auto/taxi	11	12	25
Pickup	52	128	32
Light truck	34	22	2
Heavy truck	<u>187</u>	<u>24</u>	<u>1</u>
TOTAL	284	186	60

^{1/} At USAID's request, the MPW collected traffic counts along the Zwedru-Greenville and Zwedru-Harper roads over a two-week period in March 1985. The results are not used in the cost/benefit calculations below, however, as they appear to be skewed several instances by inclusion of local traffic in towns such as Greenville, with highway traffic counts.

Based on these data, benefit/cost ratios were calculated under two scenarios. The first analysis assumed that the MPW traffic counts were accurate, and that the road received annual routine maintenance which prevents any appreciable deterioration for the first six years. After the sixth year the road is assumed to deteriorate to a point that, by year 10, no benefits (i.e., VOC savings) are derived from the project. It was assumed that 30 miles were regraded the first year, 60 miles the next year and any balance remaining the third year. A discount rate of 10% was used. Under these assumptions, the total discounted benefits and cost were as follows:

Table E-5: Benefits and Costs for 1981 Traffic Counts

	<u>Benefits</u>	<u>Costs</u>	<u>B/C Ratio</u>
Pleebo-Barclayville	\$ 334,070	\$ 716,971	.47
Harper-Zwedru	3,561,250	2,138,764	1.67
Greenville-Zwedru	7,829,711	1,534,846	5.10

The 1979 traffic counts used are probably inflated and skewed in favor of Greenville compared to present traffic levels as they reflect a booming economy based on the logging industry which has declined dramatically, and shifted from Sinoe to Maryland, in recent years. This change was confirmed by the March 1985 traffic court which indicates that between 1981 and 1985, heavy truck traffic from Zwedru to Greenville declined from about 187 to 81 per day, while between Zwedru and Harper, it only increased marginally from 24 to 33 trucks per day. Although the Liberia Timber and Plywood Corporation announced in April 1985, that it will expand operations along the Greenville road, this is not likely to return logging there to its 1979 levels. Because of this, an alternative scenario was calculated with fewer heavy trucks per day (a year-round daily average of 47 rather than 187 for the Greenville road and 16 rather than 24 for the Harper road) reflecting present levels of logging exports. Based on the revised figures, the benefit/cost figures are as follows:

Table E-6: Benefits and Costs for Adjusted Traffic Counts

	<u>Benefits</u>	<u>Costs</u>	<u>B/C Ratio</u>
Harper-Zwedru	\$3,167,044	\$2,138,764	1.48
Greenville-Zwedru	2,765,105	1,534,846	1.80

Both the Greenville and Harper roads remain economically viable though the Greenville road loses much of its advantage. It should be noted that, over the last few years, log exports from Greenville have declined while those from Harper have risen. If these trends continue (reflecting a shift in the

areas being cut and improvements to the port of Harper) the Greenville road may lose its economic edge over Harper.

Social and Economic Characteristics of Area of Influence

Table E-7 compares the population and agricultural production for the area of influence for each candidate road along with the length of road and cost of regravelling. Table E-8 shows the same data on a per mile basis.

The area of influence for the candidate roads is assumed to extend 10 miles to either side of the road (i.e. the area that can be reached in a half-day's walk). (See Figure E-2). This definition is somewhat arbitrary. Sophisticated formulas exist for calculating areas of influence for benefit cost ratios of penetration roads and road improvement projects. However, the economic analyses for this project, as with road maintenance projects in general, is calculated on the basic vehicle operating cost savings. The area of influence is being used only to compare the number of beneficiaries of different candidate roads.

Population estimates are based on 1974 distribution of population projected to 1984 using 1974-1981 population growth estimates for each county. Agricultural production data are from 1978/79 based on administrative regions shown in the National Economic Planning Atlas (which are presumably based on county data pro rated per capita based on 1974 population distribution).

It should be noted that, with the Pleebo-Barclayville road, the area of influence does not extend beyond the River Nar since the bridge over the river at Barclayville has never been completed. The area of influence for the Harper-Zwedru and Greenville-Zwedru extend from Harper and Greenville respectively to within 10 miles of Zwedru. It is assumed that the project will not appreciably benefit people living within 10 miles of Zwedru as the project will not effect their access to Zwedru or the rest of the country. Also, those areas which, though within 10 miles of a candidate road, are closer to another primary road, are also excluded.

As can be seen from Tables E-7 and E-8, the Harper-Zwedru road serves a much larger population, both in absolute terms and on a per-mile basis. The Greenville-Zwedru and Pleebo-Barclayville roads are roughly equal on a per mile basis. In agriculture production, Harper-Zwedru is again notably superior while the Greenville-Zwedru road is marginally superior to Pleebo-Barclayville.

TABLE E-7: ECONOMIC CHARACTERISTICS OF AREA OF INFLUENCE OF CANDIDATE ROADS

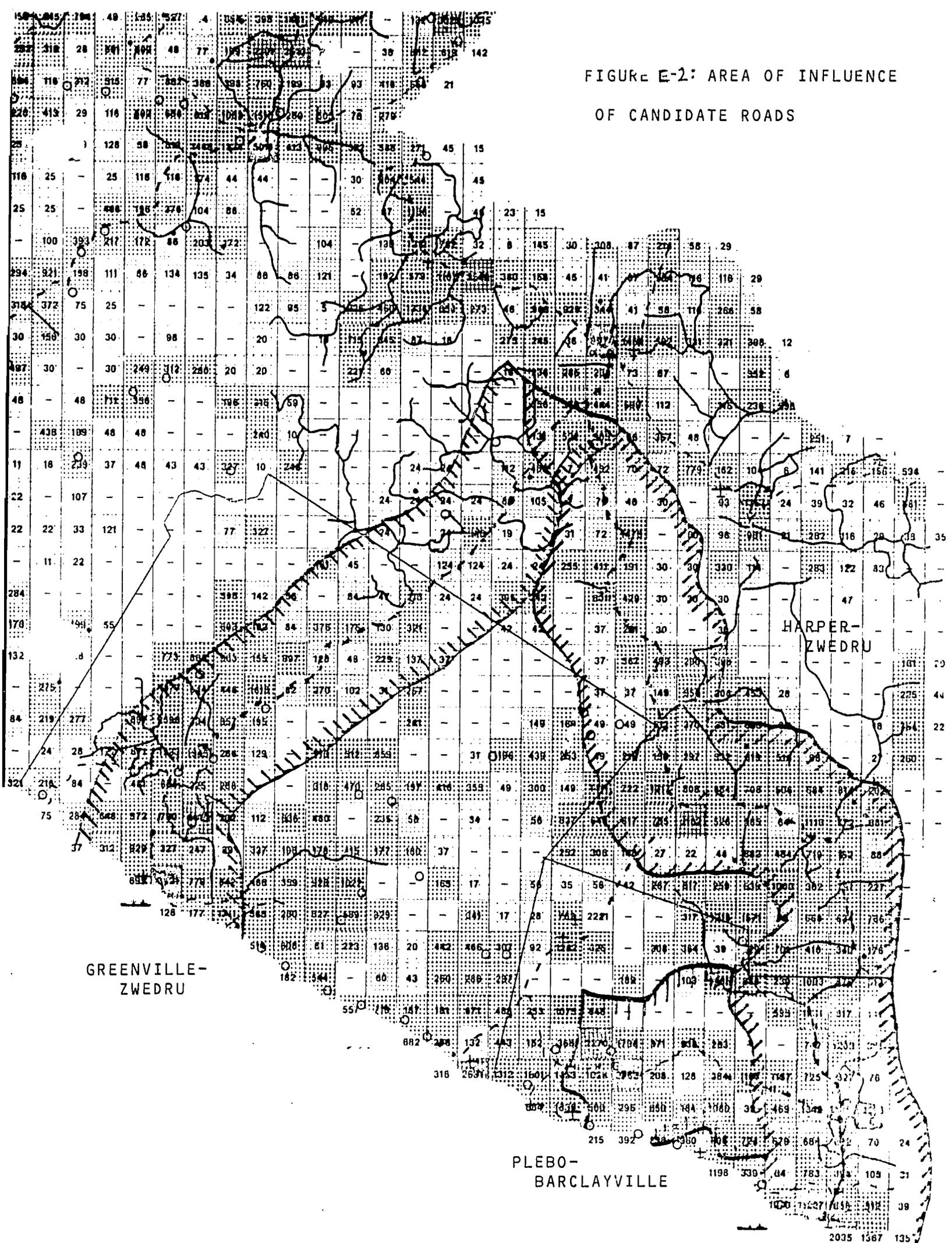
CANDIDATE ROAD	LENGTH	REGRAVEL		*****AGRICULTURAL PRODUCTION (IN METRIC TONS)*****							*****TIMBER EXPORTS		
		COST (IN \$)	POPULATION	RICE	SUGAR CANE	CASSAVA	CITRUS	PALM OIL	PALM KERNEL	COFFEE	COCOA	RUBBER (IN CUBIC MTRS)	
Harper-Zwedru	168	2,088,000	118,100	16,600	44,800	8,770	185	740	615	240	595	8,550	51,000
Greenville-Zwedru	116	1,452,000	53,700	7,800	1,100	5,400	105	550	350	90	25	550	127,000
Plebo-Barclayville	48	663,000	22,700	2,725	5,475	2,050	10	140	70	0	50	50	0

TABLE E-8: ECONOMIC CHARACTERISTICS OF CANDIDATE ROADS PER MILE

CANDIDATE ROAD	REGRAVEL		*****AGRICULTURAL PRODUCTION (IN METRIC TONS)*****							*****TIMBER EXPORTS		
	COST (IN \$)	POPULATION	RICE	SUGAR CANE	CASSAVA	CITRUS	PALM OIL	PALM KERNEL	COFFEE	COCOA	RUBBER (IN CUBIC MTRS)	
Harper-Zwedru	12,429	703	98.8	266.7	52.2	1.1	4.4	3.7	1.4	3.5	50.9	303.6
Greenville-Zwedru	12,517	463	67.2	9.5	46.6	0.9	4.7	3.0	0.8	0.2	4.7	1,094.8
Plebo-Barclayville	13,813	473	56.8	114.1	42.7	0.2	2.9	1.5	0.0	1.0	1.0	0.0

98

FIGURE E-2: AREA OF INFLUENCE
OF CANDIDATE ROADS



GREENVILLE-
ZWEDRU

HARPER-
ZWEDRU

PLEBO-
BARCLAYVILLE

Table E-9 shows agricultural production for select marketed agricultural commodities (rice, rubber, coffee, cocoa, palm kernels) in terms of the purchase price (by LPMC or, for rubber, Firestone).

Table E-9
Value of Marketable Agricultural Production
for Areas of Influence
(in 1,000's)

	<u>Rubber</u>	<u>Rice</u>	<u>Other</u>	<u>TOTAL</u>
Harper-Zwedru	\$4,514	\$6,574	\$1,007	\$12,095
Greenville-Zwedru	290	3,089	196	3,575
Pleebo-Barclayville	26	1,079	58	1,163

Again, in rubber, rice and small-farmer export crops (coffee, cocoa, palm kernel), the Harper road is far superior, followed by Greenville and, a distant third, Pleebo-Barclayville.^{1/} The superiority of the Harper-Zwedru road should be reinforced beginning in about 1987 when the impact of the EEC Small Farmers Project begins to be felt.

It should be noted that these data do not reflect major cash crop plantation projects now being developed -- the Decoris and Buto oil palm schemes and the rehabilitation of the Sino Rubber Corporation (the former African fruit company). (Production by the Cavalla plantation is reflected in the data.) However, all of these schemes are located near the port from which their exports will be shipped and will utilize relatively short stretches of candidate roads which are still in good condition and either are already being maintained privately (e.g., by LTP near Greenville) or will probably be maintained by the agricultural project itself. Thus, any AID-financed regravelling will have only a marginal impact on these projects.

^{1/} Another measure would be LPMC purchases in the area. However, in comparing the 1978/79 production estimates to LPMC's purchases in the area for the same year, it is obvious that much produce crosses the border from the Ivory Coast.

Other Considerations

One concern facing both the Greenville-Zwedru and Harper-Zwedru roads is the potential impact of improved access on logging and the destruction of forests in the Southeast. The Greenville road carries roughly two and one-half times the volume of logs that the Harper road carries. Thus, it can be argued that regraveling the Harper road will have less potential impact on forests than the Greenville road. However, the IEE argues that the project will not increase access to forests directly and will have only a marginal impact (one to two percent) on the cost of logs. Moreover, primary forests to which AID's forestry policy applies, probably do not exist in the Southeast. Thus, the logging traffic would not seem a major consideration. Also, as noted above, the volume of logs moved on the Harper road is increasing while that on the Greenville road has decreased.

A final consideration is the projects' impact on other AID activity. The only major AID projects already in the area are the PHC project that will operate in both Grand Gedeh and Sinoe Counties, and the IEL Project, which has participating primary schools scattered throughout Grand Gedeh, Sinoe and Maryland counties. The Greenville road serves the PHC team based in Greenville. The Harper road serves lower Grand Gedeh County which may be a targeted area.

Conclusion

The graveling of both the Harper and Greenville roads is economically justifiable. The Greenville road shows a marked superiority using the 1981 traffic counts. However, the March 1985 traffic counts and recent logging export counts at the two ports confirm that the economic returns of the two are now much closer and may become more so if the present increase in Harper's exports continues. The Pleebo-Barclayville road is not economically viable, at least by the standard measure for road maintenance projects, VOC savings. While it may be justifiable by other methods, this would probably entail further improvement to the road, notably the completion of the bridge at Barclayville.

In terms of the area served the Harper road is clearly superior. It serves a larger population and an agriculturally more productive area. The composition of traffic (Table I) indicates that it is used more by the local population (i.e., it carries more pickups or money buses) while the Greenville road is more heavily used by the logging industry. Thus, the Harper road would have a greater impact on AID's target group of rural poor and small farmers.

The Harper road has therefore been selected for rehabilitation.

Social Soundness Analysis

This analysis was developed in three stages. First, the beneficiaries of the project were identified. Then, the positive and negative effects of the project were isolated and evaluated. Finally, the potential for the local population, lumber companies or tolls to contribute to routine maintenance was briefly considered and flagged as an important issue in the design of this project and any AID-funded follow-on activity in this sector.

This project tends to reinforce the benefits and the undesirable effects felt when the road was originally built. This social soundness analysis, therefore, to some extent parallels that of a road construction project. At the same time, however, it deviates from the analysis of a new road because the project's principal impact is to render an existing road passable year-round. Hence, its principal benefits are those which are gained from seasonal factors such as more timely marketing of crops which must be sold during the rainy season. The same applies to the project's potentially negative social factors.

A. Beneficiaries

In addition to benefiting the Ministry of Public Works personnel and the regravelling contractors through training, financing and technical assistance, the project is likely to affect a total of roughly 118,000 people living within ten miles of the Harper-Zwedru road (See Table E-7 in Annex E, Economic Analysis). Most of these beneficiaries are small farmers, primarily concerned with subsistence cultivation of rice. As noted, in Table E-1, 98 percent of all households in Maryland County and 93 percent in Grand Gedeh grow rice. Cocoa is the next most frequently cultivated crop, followed by sugar cane (used for distilling into "cane juice") in Maryland and coffee in Grand Gedeh.

Local farmers tend for the most part not to market their rice. In fact, an informant identified less than a dozen farms along the road which usually produced a marketed rice surplus. In most cases, the farmer's success was attributed to the number of women available in the household to work on transplanting and weeding the rice. Farmers also market small quantities of cocoa, coffee and rubber, although their outlets for these products are limited at this stage. The Liberia Produce Marketing Corporation (LPMC) purchases these items. Last year, however, it paid the farmers in promissory notes rather than in cash, which discouraged marketing through LPMC. Another outlet for these products is the Mandingo traders or

"middle buyers."^{1/} Many local farmers reported that they had been cheated, however, by these traders and were forced to sell their crops for up to half the official support price.

The population in this target area tends to be concentrated around Harper (225/km²), Pleebo (337/km²), Pennokeh (43/km²) and Karloweih Town (30/km²).^{2/} Zwedru was omitted from the target population as the road is unlikely to have a significant impact on that group, at least not until the sea route between Monrovia and Harper is significantly improved and becomes an economical alternative to supplying Zwedru by land via Ganta.

Two systems of land tenure co-exist in rural Liberia. One is the traditional system under which local tribal chiefs allocate usufructuary rights to families and individuals. The other is the "modern" system of deeded land ownership. It is unclear what proportion of land is held in one system or the other. While World Bank estimates indicate that as much as two-thirds of the land currently cultivated belongs by private deed to seven percent of all holdings, more recent USAID land tenure assessments indicate that there is no clear documentation on the subject.^{3/} It is most likely, however, that the target area is mostly composed of titled land holdings, as these are known to be concentrated along established roads.

B. Positive Impact of Project

The benefits of the project for this population can be summarized in three categories: 1) increased access to social and commercial services (especially in the rainy season), 2) reduced marketing costs (again mostly in the rainy season but to some extent in the dry season as well), and 3) reduced cost of consumer goods and agricultural inputs (year-round). These three types of impact are discussed below.

1. Access to Services

Perhaps the most dramatic improvement in the services category is the potential for immediate evacuation of seriously ill people year-round which will result from the road

^{1/} Impact of Rural Roads in Liberia, AID Project Impact Evaluation Report No. 6, p. 12.

^{2/} Republic of Liberia Planning and Development Atlas, MPEA, Monrovia, 1983 (compiled from several demographic maps based on Population and Housing Census of 1974.)

^{3/} Impact of Rural Roads in Liberia, p. 13.

rehabilitation. Although a portion of the value of this benefit can be calculated in the form of reduced transport charges, the full value can only be measured qualitatively in the form of lives saved and sense of well being of the entire affected portion of the target group. Also, increased access to social and commercial services means that large portions of the target population will more easily gain access to local schools and regional marketing and retail centers which may not be in their immediate vicinity.

2. Reduced Marketing Costs

Marketing costs can be reduced by road improvements to the extent that transporters pass on vehicle operating cost savings to the farmers. As noted in the Technical Analysis (Annex C), the transport industry along the Harper-Zwedru road is composed of large numbers of independent heavy truck and light pickup drivers, and considerable competition exists. The project will reduce vehicle operating costs during the dry season due to the improved surfacing of the road, but in the rainy season the savings will be tremendous in both reduced wear and tear and particularly in terms of down time resulting from road flooding or other transport blockages. These blockages can easily extend into periods of several weeks in Maryland and Grand Gedeh. The potential cost reductions for farmers interested in transporting rice, cocoa, rubber or coffee are therefore significant.

The road improvements are likely to have little effect, however, on the total quantity of rice marketed. In the case of rice, labor and technological constraints exist which severely limit farmers' ability to produce large surpluses. Also, most of the rice in the two target counties is harvested from September to November. Thus, only a portion of the crop is harvested during the rainy season. Cocoa is harvested both in September and in February in Maryland, and in October and January in Grand Gedeh. Portions of those crops would also benefit from improved rainy season access. Coffee harvested in December and January is a dry season crop.^{1/}

3. Reduced Retail Costs

Road improvements will also have their greatest impact in this area during the rainy season. During that period shortages of virtually every commodity imported into the area

^{1/} Production Estimates of Major Crops 1983, Republic of Liberia, Ministry of Agriculture, July 1984, p. 22.

occur along the length of the target road. Given the competitiveness of the transport industry, year-round access should lead to reduced wholesale prices in the area, and thus, at least in part, to reduced retail prices to consumers for all categories of manufactured or imported goods.

C. Possible Negative Impact of Project

Road construction projects are frequently cited in economic development literature as having an adverse effect on the following principal factors: 1) land ownership and distribution, 2) migration and demographics and 3) mix of cash and subsistence farming with its attendant income distribution implications. An AID Impact Evaluation of two feeder road projects financed by AID in the 1970s^{2/} indicated that the construction of the original Harper-Zwedru road probably brought about some measure of all three of the above phenomena. It is inappropriate to assume, however, that this project will entail the same side effects. Each phenomenon is examined separately below:

1. Land Ownership and Distribution

As noted in Section A above, the land tenure pattern along the road is likely to have already shifted predominantly toward titled land ownership along the most attractive stretches of road. As the principal impact of the project will be to increase access to the target area during the rainy season, it will probably have only a marginal impact on the current land tenure structure. A related subject which warrants further study is the extent to which the new road resulted in employment opportunities in the various towns or in Harper. These opportunities might be found to have offset to a limited extent some of the losses to families displaced from the land.

2. Migration and Demographics

The impact of this project on either rural-urban or urban-rural migration is likely to be negligible. The major population shifts would have already occurred as a result of the original road construction which made the area accessible to vehicle traffic. Furthermore, the present situation would be most directly affected by current economic trends which affect employment opportunities and incomes in cities such as Monrovia. On balance to the extent that the road improvements increase economic opportunities in the target area, the project might stimulate a negligible influx of people into the area.

^{2/} Impact of Rural Roads in Liberia

3. Crop Mix and Income Distribution

To the extent that the road improvements result in increased incentives to market cash crops, there may be a tendency for farmers to substitute them for subsistence crops. In this case, rice, primarily a subsistence crop and other staples such as cassava might suffer marginally. This phenomenon is unlikely to occur on a large scale, however, unless the shift in crop mix occurs in the form of land redistribution to large holders who displace small farmers. It was also observed above that land redistribution is not likely to be significantly aggravated by the project and hence the adjustment in crop mix is likely to be a marginal one which would occur within existing farms. The potential for income redistribution or dislocation from that adjustment is minimal.

D. The Question of Routine Maintenance

The scope of this project cannot include a complete program of routine follow-up maintenance for the target road as its time frame (three years) is too short to include more than just a beginning. It should be recognized from the outset, however, that without routine maintenance many of the benefits cited above quickly disappear, and the future cost of the road increases as road deterioration accelerates and early rehabilitation efforts are required.

Little research has been done on the potential for mobilizing a contribution from the local population to routine maintenance. The issue was discussed, however, at some length in the course of the implementation of the Bong County Agricultural Development Project (BCADP). It was reported that while the communities felt that they were overburdened with requests for self-help activities under that project and were therefore reluctant to contribute labor to routine maintenance, some were collecting money to pay for road grading, especially when it became clear that the road was becoming impassable.^{1/}

Another source of routine maintenance effort are the lumber companies along the road. While the United and Cavalla logging companies both maintain stretches of the road, perhaps the company most active in maintaining the Harper-Zwedru road is the Liberian-Lebanese Wood and Plywood Company (LLWPC). It claims to be spending about \$500,000 per year on keeping its

^{1/} Social Institutional Profile, Management Practices and Prospects: A study of the Liberian Agricultural Sector, for USAID/Liberia by the Institute for Development Anthropology, August 1984, p. 50.

road network, including 70 miles of the project road, open ten months out of the year. This firm in particular has expressed its willingness to consider reasonable schemes for its participation in routine maintenance of a long stretch of the road on a long term basis.

Finally, it is possible that, despite the GOL's lack of success with charging tolls along the Ganta-Zwedru road, this technique could be administered effectively to finance routine maintenance of a road after it has been improved. It might even be possible to finance routine maintenance at the county level if the toll revenue could be effectively managed there. Although there might be considerable potential for leakages in such a system, it does present an attractive additional revenue source which could help to support maintenance.

The problem of providing routine maintenance for the project road (and for Liberia's entire road network) extends far beyond this three year activity. The design team proposes, however, that the MPW and USAID, seriously consider these and other schemes for assuring routine maintenance on the Zwedru-Pleebo road. The Project Amendment will set, as a minimum target for the project, the requirement that before signing the third year's regravelling contracts, the MPW provide AID with evidence that it has completed routine maintenance (side brushing and minor repairs) on the stretch of road regravelled during the first year of the project.

Administrative Analysis

The purpose of this analysis is to consider the feasibility of the project from the vantage points of each of its major participants. Where constraints to successful implementation were found by the design team, remedial measures were agreed upon; and these are also presented in this section. The analysis begins with USAID and ORT as a project management team. The Ministry of Public Works is then assessed, and finally, the construction contractors are evaluated.

A. USAID and ORT Project Management

The Road Maintenance Project will be managed by the USAID/Liberia Engineer who will serve as Project Officer. USAID will hire a Liberian engineer to assist the direct hire engineer in the performance of USAID/Liberia's project-related duties. During the Road Maintenance project, the FSN engineer will devote at least one-half of his time monitoring the maintenance construction and assisting the USAID engineer in administration of the various contracts awarded under the project.

During the life of the project, the FSN engineer will be funded one-half the time by USAID/Liberia OE funds and one-half by project funds. During the construction season, the FSN engineer will spend much of his time on site. His primary function will be to evaluate the contractor's performance, both technically and administratively; evaluate the ORT engineers in their performance of construction supervision, and evaluate the training program for MPW technicians. The FSN engineer will monitor the project very closely from preliminary soils investigation through completion of construction and will report weekly to the USAID engineer. Early and nearly constant monitoring will be performed to ensure coordination and cooperation among all groups involved so that the three elements of the project are being achieved; i.e., training, re-establishing private sector contractor capability and roadway maintenance.

The construction contracts will be unit price but not fixed price. The quantities of work cannot be estimated accurately enough to allow a unit price/fixed price type contract. Quantities of work will be estimated as accurately as possible, and these quantities will be the basis for bidding and contracting. The ORT engineer will be responsible for accurately measuring the actual quantities of work performed in the field. He will have the assistance of the MPW trainees to a limited extent and the USAID and FSN engineers. Records of work quantities will be maintained throughout the construction

period, and if actual quantities exceed estimated quantities, a change order will be issued adjusting the construction contract quantities and corresponding amounts. Throughout the project, final acceptance of work and final approval of invoices lies with the USAID/Liberia Engineer.

B. MPW Responsibilities

The Ministry of Public Works must provide the following resources for the project to succeed:

1. A Project Director who would serve as a counterpart to the USAID Project Officer and the ORT Engineer/trainer.

This individual would be responsible for assuring smooth project implementation and would be granted authority by the MPW to sign PILs and PIOs (except of course when the Minister's own signature is required).

2. 12 road inspector/trainees.

These individuals will be in two groups of six, one in the first year and one in the second year of the project. They are to be drawn from the Ministry's existing field engineer staff or from graduates of the road technicians' training program, or individuals with equivalent credentials.

3. The use of office, training and lab facilities and of available field testing equipment as required to assure successful project implementation.

Office, classroom and lab space will be required predominantly during the rainy seasons when the trainees and ORT team are in Monrovia. Some office space will also be required in Zwedru or Harper (depending on the location of the road work) during the dry season as a base of operations for the trainees and ORT team.

4. Routine Maintenance in year two on the stretch of road regraveled in year one. (The Fifth Highway Project foresees this effort already in its implementation plan).
5. An MPW commitment to institutionalizing contractor road rehabilitation in the form of the bureaucratic actions necessary to staff, house and empower a Road Maintenance Supervision Unit, are essential to assuring that the project has a sustained impact. This contribution includes a budgetary allocation of at least \$300,000 to fund the Unit's first GOL financed regraveling contract. The MPW will take every possible step to secure this allocation prior to signing the third year's regraveling contracts, so that the Unit can finance at least one contract in 1988-1989.

JA

6. Reduction in MPW Payroll. At least 75 staff positions will be eliminated and the Maryland and Grand Gedeh labor forces converted to seasonal status prior to signing the second year's regravelling contracts. These reductions represent only a portion of those which the GOL has already agreed with the World Bank to enact during the same period.

Given the MPW's current staff levels and the condition of its physical plant, it is realistic to expect that the above requirements can be met. The Minister of Public Works, in a meeting with the USAID Director on May 16, 1985, assured USAID that sufficient personnel existed to staff both the road inspector teams and eventually the Maintenance Supervision Unit. He also stated that the Ministry had large quantities of light field testing equipment in storage which could be used by the project. The MPW will be required to name a Project Director and assign the first group of 6 trainees before first disbursement will occur under the project.

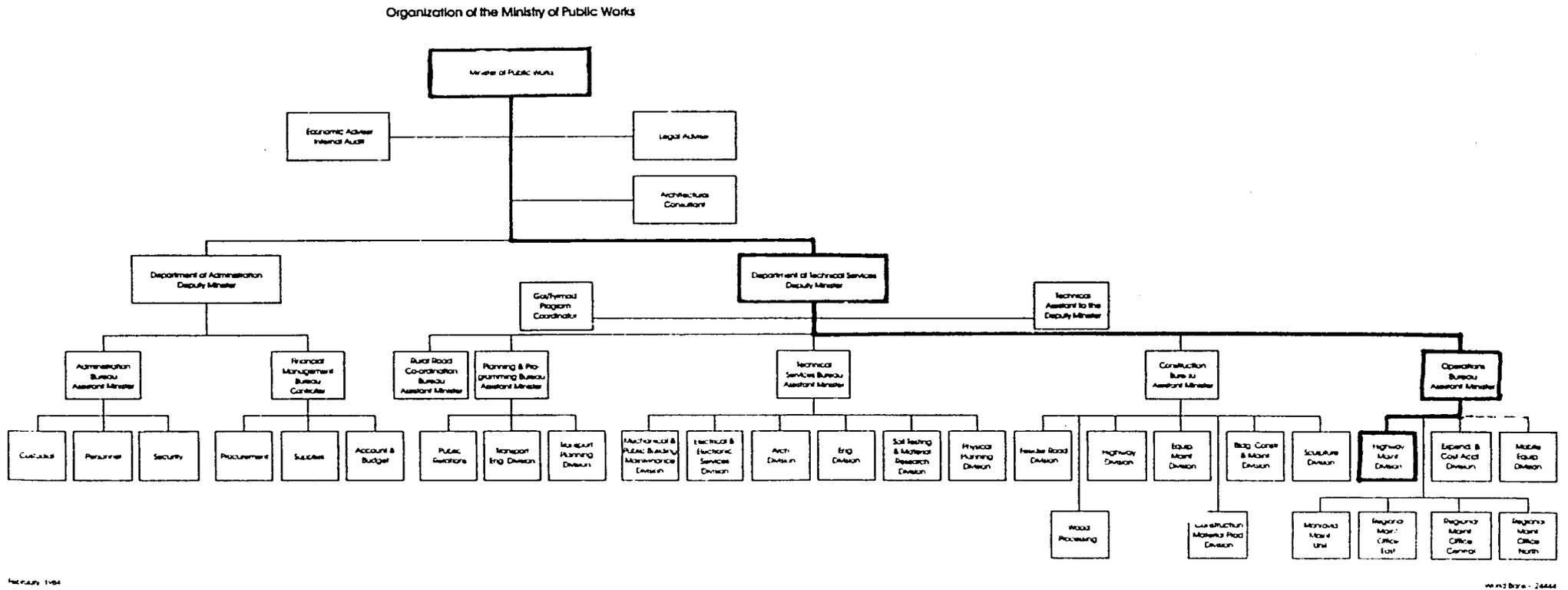
The current structure of the Ministry of Public Works does not lend itself ideally to the supervision of contractor road maintenance and rehabilitation. Currently, supervision of construction contractors for new road construction is managed out of the Engineering Division of the Technical Services Bureau of the Department of Technical Services. Responsibility for all road maintenance and rehabilitation activities, however, rests with the Operations Bureau of the Department of Technical Services, which has four regional maintenance offices located around the country (see Figure G-1 below).

A modus vivendi has been worked out under which the Engineering Division loans staff to the Operations Division as needed to supervise rehabilitation and maintenance work, and the MPW has determined that this system will be used probably for most of the first two years of the project. Over this period, a permanent Maintenance Supervision Unit will be set up by the MPW in the branch of the ministry deemed most appropriate.

C. Capabilities of Local Construction Contractors

Technicians working for TAHAL, an Israeli consultant engineering firm, under the World Bank-financed Feeder Roads Project developed a short list of rural road construction contractors in February 1985. After two weeks' advertising in the local papers, only nine contractors collected the documents (out of which seven were included in a preliminary list of eleven potential contractors provided by the MPW) indicating that four firms did not even show interest in picking up the documents. Only four completed prequalification documents were received, and these are reproduced as Attachment 1 to this

Figure G-1: MPW Organizational Chart



February 1984

HW 01 Box - 24664

Key:



= Office within chain of command for the GOL/USAID Road Maintenance Project (669-0200)

101

appendix. They give a representative picture of available financial resources, equipment, experience and technical manpower.

Of the four firms, two (Mensah and Engineering & Construction Services) were deemed by TAHAL capable of undertaking their project as they had enough equipment at least to start construction. These two firms have been in the road construction business for about 15 years and both were working on contracts with AID under the Feeder Roads II Project, at the time of 1980 coup. Both abandoned their contracts due to lack of payment by MPW and both still have outstanding unpaid invoices to MPW.

Another firm, Ducor, has some road work experience; and its principals have done road work as MPW officials, but its equipment was judged insufficient even for a start. The fourth (Republic Engineering Corporation) is a newcomer to the field of road construction but is, nonetheless, a prototype of the type of firm which could be encouraged to enter the industry. It is a building construction firm with no experience in road construction and no equipment but is willing to enter the field. When those firms which did not submit documents were asked for their reasons, they mentioned financial constraints, lack of equipment, lack of expertise and the credibility gap between the advertisement and the expected MPW follow up.

The field is therefore severely limited, and two dangers to the successful implementation of the USAID project present themselves. First, even if the firms can finance the necessary equipment through their USAID contracts, they might not have sufficient technical expertise and experience to carry out the job without technical advice and intense supervision. Second, their resources could be stretched too thinly over too many road construction contracts if the Feeder Roads project and the USAID project do not carefully coordinate their contracting efforts.

In response to the first danger, USAID will build the second supervisory engineer into the cooperative agreement with ORT to permit each expatriate engineer to focus entirely on one construction contractor in each of the first two construction seasons. Only by providing this level of technical assistance can the project hope to accomplish simultaneously the goals of road reconstruction and on-the-job training.

In order to minimize the risk posed by the second issue (too many contracts being let at the same time) the USAID and World Bank teams will coordinate closely their construction calendars and compare levels of effort required each season to assure that work requirements are as evenly spread as possible during the lives of the two projects. The World Bank Engineer

106

supervising the project from Washington DC has assured the Mission that USAID would receive priority over the Feeder Roads project should certain construction targets have to be postponed or sacrificed to avoid overloading the local firms. Also, USAID will continue to encourage capable Liberians to form joint ventures with logging companies or other firms having the necessary equipment, to enter the completion for the regravelling contracts. To date, two firms, LLWPC and ULC, have expressed an interest in forming suitable joint ventures and bidding.

Given the measures outlined above, the project appears feasible from the construction contracting point of view.

D. Interaction with the World Bank-funded Projects

Disbursements from the two World Bank loans signed with the MPW are currently frozen pending resolution of GOL's debt arrears with the World Bank and IMF. It is impossible at this date to predict how soon this problem will be resolved, but while it exists, the implementation of these two closely related projects is hampered. Both technical assistance teams are now functioning and are probably capable of organizing training efforts over the next two years, but it is unclear whether they will be able to attain their full objectives in actual road maintenance or construction. It is also impossible to predict at this stage whether the technical assistance contracts will be extended to compensate for the current delays. If not, the Louis Berger/Renardet team (numbering up to ten people) will leave Liberia during CY 1986, having accomplished little of its original scope of work, but through no fault of its own.

Given this uncertainty, it seems prudent not to count on direct technical support from the World Bank-financed advisors for the USAID project. Thus, the project has been designed to maximize the opportunities for pooled resources and joint effort in rainy season training without counting on the other projects' input for support during the critical construction seasons.

Based on the above analysis and provided the remedial measures outlined therein are implemented, USAID is confident that the project is administratively feasible.

Attachment 1 to ANNEX G

Road Maintenance Contractor
Capability Statement*

*From Progress Report No. 1, Technical Assistance to the
Liberian Contracting Industry, TAHAL Consulting Engineers, May
1985, Annex E.

GRAND BASSA FEEDER ROADS
PREQUALIFICATION QUESTIONNAIRE

1. The Invitation for Contractors to pick up the questionnaire from the Ministry was published in the newspaper on February 31st 1985, and the Contractors were requested to return the documents until February 15th.

2. Nine (9) contractors pick up the documents:
 - 2.1 Republic Engineering Corp.
 - 2.2 Wallace Inc.
 - 2.3 Tah & Tah
 - 2.4 Ecocon Inc.
 - 2.5 Mathelier Construction Co.
 - 2.6 Engineering & Construction Co.
 - 2.7 City Plumbing and Construction Co.
 - 2.8 Ducor Engineering and Construction Co.
 - 2.9 Mansah Construction Co.

3. On the closing date, the following four (4) contractors returned the completed questionnaires.
 - 3.1 Republic Engineering Corp. P. O. Box 784
 - 3.2 Engineering & Construction Co. P. O. Box 1534
 - 3.3 Ducor Engineer. & Construction Co. P. O. Box 1225
 - 3.4 Mansah Construction Co. P. O. Box 503

..../

105

SUMMARY OF DATA RECEIVED FROM CONTRACTORS

		MENSAH	E. S . C	LUCOR	REPUBLIC
1	Years under present name	21	14	11	4½
2	Years of experience	21	14	13	4½
3	Construction experience principals (1)	28	24	20	7
4	Total number of projects (9)	14	Not submitted	Not submitted	4
5	Total number of road projects (3)	14	2	None	2
6	Road Projects value	14,265000.00	3,750,000.00	Nil	70,000.00
7	Knowledge of proposed work	Yes	Yes	Yes	Yes
8	Equipment owned (4)	Yes, list attached	Yes, list att.	Yes, list att.	None
9	Equipment to be purchased	Yes	Yes	Yes	Yes
10.	Equipment to be rented	No	No	No	Yes
11	Material Prices	Local Prices	Local Prices	Local Prices	Local Prices
12	Total Quick Assets	2,079,000.00	868,000.00	218,000.00	47,000.00
13	Total Quick Liabilities	390,000.00	888,500.00	None	5,100.00
14	Total Net Assets	1,699,000.00	(-) 20,500.0	218,000.00	42,600.00
15	Contracts on hand	None	1	2	Not Submitted
16	Bank Credit Letter	No	No	No	No
17	Affidavit	Yes	Yes	Yes	Yes

5. EVALUATION OF THE QUESTIONNAIRES

The questionnaires were evaluated considering 17 items as per the summary table.

The following is to be noted:

- 5.1 ITEM 7. Knowledge of proposed work, was answered in the affirmative by all contractors.
- 5.2 ITEM 9. Equipment to be purchased was answered in the affirmative by all contractors.
- 5.3 ITEM 11. Material Prices - all contractors based their offers on local prices.
- 5.4 ITEM 16. Bank Credit Letter - none of the contractors presented Bank Guarantee Letters.
- 5.5 ITEM 17. Affidavit - All contractors presented affidavit for the corporation.

These items, being equal for all contractors, were therefore ignored during the evaluation.

In evaluating the remaining items, the following are to be noted:

- (1) Only construction experience of principals was considered.
- (2) Total number of projects, spread over the years of existence of the company.
- (3) Ditto
- (4) The first three contractors attached list of equipment but in evaluating, only the equipment required for road construction and its condition was considered.

On the basis of the above mentioned considerations, the following grading of the contractors is proposed:-

- 1; Mensah Construction C.
1. Engineering & Construction Services
3. Ducor Engineering and Construction
4. Republic Engineering.

However, the following facts are to be considered:-

- A. The total amount available for the construction is about 4 Million Dollars, not sufficient to complete the whole road.
- B. The proposed order of priority is as follows:
 - B.1 Commissioner's Compound - Kpaiweetro, about 14 miles
 - B.2 Commissioner's Compound - Via Talu towards WILAYA Creek - 6.2 miles of reshaping and regravelling plus 8 miles new construction.
 - B.3 Journa - Feiwoli - 6.6 miles of existing road reshaping and re-graveling.
- C. USAID Will be ready with their regravelling programme of some 100 miles for the next dry season.

It is recommended to issue to all contractors the contract documents, drawings and specification and to request them to submit unit rates.

The negotiations should consider the gradation of the contractors as proposed above considering that sections B.1 and B.2 which contains new construction should be awarded to Mensah and R.C.S. respectively (provided their rates are acceptable to MFW), while B.3 could be awarded either to Ducor who has some equipment to start with or even to Republic Engineering provided they undertake to rent suitable equipment for that section, which as mentioned above, does not include at present new

construction, though eventually it will include the connection to Bonia, some 2 miles of new construction, once bridge No. 3 is erected.

During negotiations, the constructors should also be advised about the existence of the USAID Project which, on the basis of experience with the prequalification exercise of the Grand Bassa Feeder Roads will most probably have to be handled by the same participants.



M. Ayalon
SENIOR TECHNICAL ADVISOR

MENSAH

QY	ITEM	DESCRIPTION, SIZE, CAPACITY, ETC.	CONDITION	YEARS OF SERVICE	PRESENT LOCATION
1	1	Cat D-7G/Ripper	V. Good	6	Monrovia
1	2	Cat 920 Wheel Loader	V. Good	6	Monrovia
2	3	Cat Grader 120B & 140G	V. Good	6 & 5	Monrovia
1	4	Hyster Pneumatic Tire Roller	V. Good	6	Monrovia
3	5	Sheep Foot Rollers (Not self-propelled)	V. Good	10, 9 & 5	Fleebo (2) & Monrovia (3)
1	6	Case Backhoe/Loader	" "	5	Pleebo
2	7	Terex Scrapers 14B	" "	9	Monrovia
2	8	Fusu Dump Trucks 6 cu.yd	Very Good(1) Under repair (1)	6	Monrovia
1	9	Fusu Tanker 3,000 Gal.	V. Good	6	Fendel
1	10	Mercedes-Benz Water Truck, 2,000 gal.	V. Good	5	Pleebo
1	11	Berliet Truck Tractor 250 HP	V. Good	5	Monrovia
1	12	Hyster Low Bed Trailer 60 Tons	V. Good	5	Monrovia
2	13	Ford Pickups F350 & F100	V. Good	5	Fendel
2	14	Light Pickups (Toyota/Isuzu 1 1/2 Ton)	V. Good	1	Monrovia
2	15	Jeeps (Renegade Swd & Nivea 4WD)	V. Good	6 & 3	Monrovia
4	16	Wacker Vibrating Plate Hand Compactors	V. Good(2) U.R. (2)	5	Monrovia
1	17	Raygol Rascal Roller	Good	3	Pleebo
2	18	Air Compressor	V. Good	7 & 5	Monrovia
3	19	Water Pumps 4" I.D.	V. Good	7, 5 & 4	Monrovia
2	20	Welding Machine	V. Good	6 & 5	Monrovia
1	21	Power Plant 125KVA	U.R./Good	4	Fendell
5	22	Storage Tanks @ 3,000 Gal.	V. Good	7-5	Monrovia/ Pleebo
1	23	Surveying Equipment	V. Good	5	Monrovia
4	24	Two-way SSB Radio Communication Set	Good	5	Monrovia/ Pleebo
1	25	Man Diesel Dump Truck 8 cu. meters	Good/U.R.	4	Monrovia
1	26	Fuel Tanker 6,200 Gal.	Good	10	Fendell
1	27	Traxcavator 955	U.R.	7	Pleebo
1	28	Steel Rollers @ 10 tons Static(gal)	V. Good	10	Monrovia
1	29	Asphalt Distributor Truck 1,000 gal.	V. Good	10	Monrovia
1	30	Asphalt Heating Tank 3,000 gal.	V. Good	10	Monrovia
1	31	Asphalt Paver (Spreader)	V. Good	10	Monrovia
1	32	Rock Crusher 60 cu.yd./HR	V. Good	10	Monrovia
1	33	Concrete Mixer	V. Good	3	Monrovia

Engineering & Construction Services

<u>QY</u>	<u>Item</u>	<u>Description, Size Capacity, etc.</u>	<u>Condi- tion</u>	<u>Years of Ser- vices</u>	<u>Present Loca- tion</u>
2	1	240HP Bulldozer	Good	4	Lofa County
1	2	180HP Bulldozer	Fair	3	Nimba "
2	3	TS14B Motor Scrapers	Good	4	Nimba "
4	4	920 Front End Loader	Good	4	Monrovia
2	5	951C Track Loader	Good	4	Monrovia
3	6	12E Graders (Motor)	Fair	6	Nimba "
1	7	1 c.y. Track Back-Hoe	Good	5	Monrovia
1	8	50Ton Lowbed with Tractor	Fair	5	Monrovia
1	9	10Ton Hydraulic Crane	Fair	8	Nimba "
1	10	30Ton Truck Crane	Fair	8	Monrovia
4	11	16S Concrete Mixers	Fair	7	Monrovia
1	12	90HP Bulldozer	Good	6	Nimba "
2	13	20 c.y Dump Trailers	Good	4	Monrovia
2	14	20Ton Truck Tractor	Good	4	Monrovia
1	15	3Ton Truck Flatbed	Good	1	Monrovia
1	16	8Ton Dump Truck	Good	2	Monrovia
1	17	½Ton Pickup	Good	1	Monrovia
1	18	½Ton Pickup	Good	3	Monrovia
1	19	Water Truck 8Ton	Good	4	Nimba "
1	20	Fuel Truck 8Ton	Good	3	Monrovia
1	21	D9 Pushcat	Good	10	Nimba "
1	22	D8 Pushcat	Fair	9	Nimba "
2	23	Sheepsfoot Rollers Tow type	Fair	10	Nimba "
1	24	175Cfm Compressor	Good	3	Monrovia
1	25	600Cfm Compressor	Fair	6	Nimba "
1	26	Vibratory Self Propelled Compactor	Good		Monrovia

DUCOK

Quantity	Item	Description, Size Capacity, Etc.	Condition	Years of Services	Present Location
2	1	TS-14 Scrapers	Good	10	Monrovia
1	2	930 - Cat Loader	Good	10	"
1	3	Cat D Dozer	"	10	"
1	4	Cat D7 "	"	10	Lofa
1	5	120 -Cat Grader	"	7	Monrovia
2	6	14-cy Fiat Dump Trucks	"	8	"
4	7	Concrete Mixers	"	6 & 8	"
2	8	Pick - ups	"	8 & 7	"
2	9	Cars	"	2½ & 9	"
1	10	Motorized Dumper	"	6	"
1	11	ELBC Steel Bender	"	5	"
1	12	Water Pumps	"	8 & 5	"
1	13	ELBC Bench Saw	"	6	"
1	14	Conc. Vibrator	"	6	"

Job Descriptions for ORT Team

USAID/Liberia will enter into a three-year cooperative agreement with ORT to provide the technical assistance and training required to implement the project. USAID inputs, other than in vehicle procurement, in advertising for the construction contract and in developing with the MPW a long range road rehabilitation plan, should be restricted to project monitoring and evaluation. The scopes of work and desired qualifications of the ORT Senior Engineer and Engineer are outlined below. It is envisioned that the two engineers will be of similar background and will share equally most of the duties described except for those listed as the Chief of Party's duties of the Senior Engineer.

A. Senior Engineer

The Senior Engineer will be hired by ORT for three years (36 months) and will be charged with full responsibility in the field for accomplishment of the tasks outlined in the cooperative agreement. His/her duties and qualifications will include at least the following:

1. Job Descriptiona. Chief of Party Duties

As Chief of Party (COP), the Senior Engineer will be responsible for producing all the required reports and conducting liaison with USAID on all matters pertaining to project implementation. The reports shall include a preliminary work plan to be submitted six weeks after arrival including an on-the-job training plan for the first dry season and a scheme for contractor supervision for him and the Engineer. After six months, a project work plan discussing all activities through end of project will be submitted. This report will include, at minimum:

- A list of personnel to be trained
- Training objectives
- A schedule of training events
- A description of presentation methods and training materials
- A list of nominees to conduct the training courses
- Proposed location of training courses

- A statement of recommended regravelling sites for second and third year regravelling contracts
- An implementation plan scheduling these and the other activities mandated in this scope of work

USAID and the MPW will review these and develop any specific recommendations for change. USAID will then either approve them or develop any specific recommendations for changes. USAID will then either approve them or develop acceptable changes with the Senior Engineer within two weeks after their submission.

During the dry seasons, the Senior Engineer will also submit monthly reports on contractor progress to the USAID Engineer. These reports will summarize project activities, comment on construction progress related to planned progress, describe any problems that have arisen and their solutions, and provide a detailed calendar of the next month's activities. These will be reviewed and approved at monthly meetings by USAID and a representative of the MPW. Either the Senior Engineer or the Engineer will attend these conferences, which will take place at USAID/Monrovia. Two weeks after each monthly meeting, a USAID representative will travel to the regravelling site to confer with the ORT team.

Finally, as COP, the Senior Engineer will be responsible for all administrative support for the ORT team in Liberia. He will have short-term TDY assistance at the beginning of the grant period to help accomplish the task.

b. Contractor Supervision

Two concurrent construction contracts will be awarded each year for three years. USAID/Liberia will provide the Senior Engineer with the information as to construction location, construction specifications and construction contract documents for the first season. Thereafter, he will carry out these tasks subject to the review and approval of the USAID Engineer. The Senior Engineer and assistant engineer will supervise the construction contracts to ensure compliance with the specifications and perform such testing as may be required to exercise quality control. The duties of the Senior Engineer and Engineer on their respective sites shall include, but not be limited to:

- 1) At least two weeks prior to construction, soil samples shall be obtained from laterite borrow areas designated by MPW. Each separate identifiable soil type in each borrow shall be sampled and each sample shall be of sufficient quantity to perform moisture and density tests

(AASHTO T-180), Atterberg limits, gradation including percent clay size particles and sand equivalent. The use of materials from any borrow shall be approved or disapproved as a result of these tests. Moisture-density tests will be performed in the field, and other testing shall be performed in the MPW laborarory. Field testing is required as part of the MPW inspector training. (While one engineer is conducting these tests, the other may continue efforts in Monrovia to mobilize the contractors and conduct initial training for the inspector traineers.)

2) The contractors shall be directed as to the length and depth of excavation from sites of unstable roadway material in the locations to be rehabilitated. When an excavation is complete, the volume of material excavated shall be accurately measured and thorough records of excavation quantities at all construction sites shall be maintained.

3) The construction shall be supervised to ensure compliance with the construction specifications. Daily logs shall be maintained of construction activities for their respective sites and a monthly report shall be submitted to USAID/Liberia. Each monthly report shall include contractor progress as compared to scheduled progress, any problems which may have arisen or are foreseen together with actions taken or recommended, and any directives which have been given to the contractor.

4) All the contractors' periodic invoices shall be checked for accuracy with a recommendation for approval or disapproval. If disapproval is recommended, the reasons shall be written and submitted to USAID/Liberia.

5) Each layer of embankment shall be tested for compliance with density specifications and approval must be given prior to the succeeding layer being placed. At least one density test per layer per 250 feet section of roadway length shall be taken.

c. On-the-job Training of Inspectors Trainees (dry season)

The MPW inspector trainees shall be trained in testing, construction supervision and contract administration. The inspector trainees shall take an active part in performing the various tests under the guidance and direction of the Engineer. They shall actively participate in measuring of quantities, reviewing invoices and all other aspects of inspection and supervising construction -- all under the direction of the Senior Engineer. An evaluation of each trainee and comments on the progress of the training program shall be included in monthly reports to USAID.

d. Training for Inspectors and Other MPW Personnel (rainy season)

During the first two construction seasons, the Senior Engineer and Engineer will work with a short-term ORT consultant to develop two rainy seasons of classroom and laboratory training in several fields relevant to MPW supervision of contractor road regravelling and periodic maintenance. Principal participants will be the 12 inspectors trainees who will work with the ORT team in the dry seasons, but the team will work closely with the USAID Engineer, MPW officials and technical advisors from the two World Bank-financed projects to provide at least one course or seminar in the first year, and one in the second, which will be designed to complement the training required by the inspectors and, at the same time, meet a part of the training needs of MPW in construction contractor supervision in either the Fifth Highway or Feeder Roads project. Details of this rainy season training program are to be worked out by ORT and approved by USAID and the MPW within six and a half months after the Senior Engineer's arrival in country but are likely to include: completing the training of the first group of inspector trainees; selection and induction training of next group of inspector trainees; coordination with the AID engineer, MPW headquarters, and Bank projects; conducting seminars for MPW management; organising courses for contractors' staff; assisting in preparation of the MPW long term road rehabilitation program; and the process of selecting the next seasons's contractors.

e. Long-range MPW Road Rehabilitation Plan

The Senior Engineer will also be responsible for working with the USAID engineer and the MPW Project Director to develop a long-range road rehabilitation plan which could guide the work of an MPW road maintenance contractor supervision unit and could be used to attract additional foreign donor funding for this activity.

f. Road Maintenance Contractor Supervision Unit

Finally, the Senior Engineer is responsible for working with the MPW Project Director to develop the job descriptions and other elements required for the MPW to open a contractor Maintenance Supervision Unit in an appropriate division of the Ministry. A detailed description of the mandate and functions of this unit must be included in the long-range MPW Road rehabilitation plan described in section e above.

2. Qualifications

The Senior Engineer must be a qualified engineer with at least five years' working experience in road rehabilitation, maintenance or construction. The Senior Engineer must also have had at least one year's experience in vocational training or in conducting a structured on-the-job training program in road rehabilitation, road construction or a related field. At least two years' experience in road rehabilitation, maintenance or construction in a developing country is also required, and African work experience is strongly preferred.

B. Engineer

The Engineer will be hired for 20 months and will be responsible to the Senior Engineer. He/she will arrive in Liberia within two weeks of the arrival of the Senior Engineer. His/her duties and qualifications will include at least the following:

1. Job Description

The purpose of this position is to provide the support required to achieve the objectives laid out in the Senior Engineer's scope of work. The Engineer will work with one construction contractor during each dry season while the Senior Engineer focuses his attention on the other. They will work as a team to develop weekly discussions with the field inspector trainees during the dry seasons.

During the rainy seasons, tasks must be accomplished simultaneously in Monrovia and in the field, and the workload will have to be clearly divided among the two engineers. Close daily collaboration on each task will be required in order to accomplish both the technical assistance and training objectives.

2. Qualifications

The Engineer must be qualified with at least three years' experience in road rehabilitation, maintenance or construction. Experience in vocational training of at least one year is also required and work experience in a developing country, particularly in Africa, is strongly preferred.

C. Short-term Consultants

The work of the short-term consultants, to be provided by ORT according to perceived need, subject to prior agreement with AID Monrovia and MPW, should include:

1. Analysis of MPW Inspector Trainees' formal training needs, specifically for supervision of contractors carrying out road maintenance.
2. Similar analysis of MPW mid-level management training needs, as well as other related training needs within the MPW which may be accommodated in this Sub-Project.
3. Similar analysis of contractors' staff training needs.
4. Design of training curricula related to the above analyses, in collaboration with the ORT Engineer, AID Monrovia and MPW.
5. Design of detailed training courses, write training material, prepare training aids, all in collaboration with the above, especially the ORT Engineers.
6. If necessary, locate, and in any case, ensure the proper preparation of suitable training premises, including accommodation.

7. If necessary, identify, and in any case, provide liaison with suitable specialist instructor staff from the MPW, AID; other training institutions, other consultants connected with the project, etc.
8. Carry out these and any other duties related to the above as agreed with AID and MPW, which cannot be performed by either of the ORT Engineers for reasons of time constraint or geographic location.
9. Assist the ORT Senior Engineer in preparing the project work plan by the end of the sixth month of the project.
10. Join in any evaluation, monitoring or any other related activities, at the request of AID.

D. ORT Home Office Support

The ORT home office will supply the technical assistance staff as described elsewhere in this document, and be fully responsible for their administration and personal affairs. ORT will provide whatever technical backstopping is requested by its field staff or which is observed to be required on home office visits. An ORT Project Coordinator will visit the project about three times a year either as a home office visit or as a short term consultant. During these visits AID and MPW will be met with to verify satisfactory performance, to take corrective action if needed and to provide whatever is reasonably requested in the way of technical backstopping.

ANNEX I

LETTER OF REQUEST FROM GOL

Ref: PP-176/111/MPW/'85

July 22, 1985

Mary C. Kilgour
Director
United States Agency for International
Development (USAID)
Monrovia, Liberia

BLOCK STAMP ROUTER		
ROUTE TO	ACT.	NO.
D/DO		✓
DP/IRG		✓
S/PPD	✓	
E/CON		✓
H/RD		
C/UN		✓
A/RD		
ED		
PER		
GSG		
RF		✓
FILE STATION # 03		
CCR Chron		
DATE REPLY DUE: 8/13		
APPROVED BY: [Signature] NAN []		

SUBJECT : Request for a grant for
Improvement of Zwedru-Pleebo
Road

Madame Director:

I have the honour, through this medium to request on behalf of the Government of Liberia (GOL) your Agency's kind assistance in the amount of US \$4.3 million to finance the regravelling of approximately 155 miles of road from Zwedru (Grand Gedeh County) to Pleebo (Maryland County) through the use of local (private) contractors.

In addition, the Ministry of Public Works (MPW) would like to use a portion of the Grant to train its personnel in contract supervision in order to establish a permanent road contractor maintenance supervision unit within the MPW.

I understand that our respective staff have discussed the project in its entirety and are in agreement with all of the tenants appertaining thereto.

It is our hope that a Grant Agreement can be signed at the earliest time.

Kind regards,

Very truly yours,


James V. Burphy
M I N I S T E R

cc: Emanuel Gardiner
Minister of Planning & Economic Affairs

ANNEX J

STATUTORY CHECKLIST

5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481. Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully? No

2. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government? No such case exists for Liberia

3. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? No. The GOL has taken no such action.
4. FAA Sec. 532(c), 620(a), 620(f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver? No.
5. ISDAC of 1981 Secs. 724, 727 and 730. For Specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727 and 730 of the ISDCA of 1981. N/A
6. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property? No.

124

7. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC? No. Liberia has an Investment Guaranty Agreement with the U.S.
8. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters? No.
- (b) If so, has any deduction required by the Fishermen's Protective Act been made? N/A
9. FAA Sec. 620(q); FY 1982 Appropriation Act Sec. 517. (a) Has the government of the recipient country been in default for more than six months on interest or principal or any AID loan to the country? (b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the appropriation bill appropriates funds? (a) Yes, but every effort is being made to repay the debt before the one year arrearage date is reached. (b) No.
10. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into N/A

125

Consideration" memo:
"Yes, taken into account
by the Administrator at
time of approval of
Agency OYB." This
approval by the
Administrator of the
Operational Year Budget
can be the basis for an
affirmative answer during
the fiscal year unless
significant changes in
circumstances occur.)

11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No.
12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.) Liberia is not in arrears in U.N. obligations
13. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or No.

116

abetted, by granting
sanctuary from
prosecution to, any
individual or group which
has committed a war crime?

14. FAA Sec. 666. Does the No.
country object, on the
basis of race, religion,
national origin or sex,
to the presence of any
officer or employee of
the U.S. who is present
in such country to carry
out economic development
programs under the FAA?
15. FAA Sec. 669, 670. Has No.
the country, after August
3, 1977, delivered or
received nuclear
enrichment or
reprocessing equipment,
materials, or technology,
without specified
arrangements or
safeguards? Has it
transferred a nuclear
explosive device to a
non-nuclear weapon state,
or if such a state,
either received or
detonated a nuclear
explosive device, after
August 3, 1977? (FAA
Sec. 620E permits a
special waiver of Sec.
669 for Pakistan.)
16. ISDCA of 1981 Sec. 720. No.
Was the country
represented at the
Meeting of Ministers of
Foreign Affairs and Heads
of Delegations of the
Non-Aligned Countries to
the 36th General Session
of the General Assembly
of the U.N. of Sept. 25
and 28, 1981, and failed

127

to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.)

17. ISDCA of 1981 Sec. 721. N/A
See special requirements for assistance to Haiti.

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria. No.

a. FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

2. Economic Support Fund Country Criteria No.

a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

100

b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interests of the U.S.?

N/A

c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that (1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicted in connection with the murder of Orlando Letelier?

N/A

17A

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B applies to projects funded from specific sources only: B.1 applies to all projects funded with Development Assistance Funds, B.2 applies to projects funded with Development Assistance loans, and B.3 applies to projects funded from ESF.

CROSS REFERENCE: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT? Yes

A. GENERAL CRITERIA FOR PROJECT

1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;
(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

(a) A Congressional notification (CN) was sent to Congress and in June, 1985, the waiting period expired on June 27, 1985.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be

(b) Yes

- (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance? (a) Yes. (b) Yes.
3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? N/A
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.) N/A
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? Yes

6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.
- This project is being executed as a part of the \$21.85 million Fifth Highway Project which includes an \$11.4 million loan from the World Bank (IDA).
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
- The project will (a) not affect international trade, (b) stimulate the Liberian private construction industry, (c) not affect cooperatives, etc., (d) discourage monopolistic practices by encouraging new construction firms to bid for regravelling contracts, (e) improve the efficiency of the road maintenance effort of Liberia, and (f) not affect labor unions.
8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- This project will provide U.S. technical assistance and commodities. Most of these inputs will be obtained in the U.S. Project will have no effect in encouraging U.S. private trade and investment abroad.

11/11

9. FAA Sec. 612(b), 636(h);
FY 1982 Appropriation
Act Sec. 507. Describe
steps taken to assure
that, to the maximum
extent possible, the
country is contributing
local currencies to meet
the cost of contractual
and other services, and
foreign currencies owned
by the U.S. are utilized
in lieu of dollars. GOL contributions to this
activity will be assured
through normal budget al-
locations, and through as-
signing existing person-
nel, equipment and facili-
ties to the project.
10. FAA Sec. 612(d). Does
the U.S. own excess
foreign currency of the
country and, if so, what
arrangements have been
made for its release? No.
11. FAA Sec. 601(e). Will
the project utilize
competitive selection
procedures for the
awarding of contracts,
except where applicable
procurement rules allow
otherwise? Yes.
12. FY 1982 Appropriation Act
Sec. 521. If assistance
is for the production of
any commodity for export,
is the commodity likely
to be in surplus on world
markets at the time the
resulting productive
capacity becomes
operative, and is such
assistance likely to
cause substantial injury
to U.S. producers of the
same, similar or
competing commodity? N/A
13. FAA 118(c) and (d).
Does the project comply
with the environmental
procedures set forth in
AID Regulation 16? Does Yes.

the project or program take into consideration the problem of the destruction of tropical forests?

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?

N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

- a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and

(a) The project will effectively extend access to the economy for the poor in the target area by making the national highway between Zwedru and Pleebo accessible year-round.

(b) The project will not directly affect the development of cooperatives.

(c) It will assist the GOL to carry out road maintenance more economically in the future by using local contractors.

(d) Increased road access to the target area will increase economic opportunities for women.

(e) N/A

12/11

otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?

Yes.

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

Yes. Only relatively simple regravelling operations are planned, as opposed to major redesign or paving.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

Yes. But as an element of a multilateral effort, the project is exempt from this requirement.

e. FAA Sec. 110(b).
Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed?" (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than \$100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character.

No.

f. FAA Sec. 122(p). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Yes, because growth cannot occur without essential infrastructure to such a large and populated area

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage

It provides an improvement in infrastructure which can benefit anyone in the target area. It encourages local contractors and channels them toward meeting a public need. Finally, it will train MPW Officials and help them to

136

institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

reorganize their Ministry to do the job of road maintenance more effectively.

2. Development Assistance Project Criteria (Loans Only) N/A

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

c. ISDCA of 1981, Sec. 724 (c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?

3. Economic Support Fund Project Criteria N/A

a. FAA Sec. 531(a). Will this assistance promote economic or political

stability? To the extent possible, does it reflect the policy directions of FAA Section 102?

- b. FAA Sec. 531(c). Will assistance under this chapter be use for military, or part .itary activities?
- c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?
- d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

- | | |
|---|-----|
| 1. <u>FAA Sec. 602.</u> Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? | N/A |
| 2. <u>FAA Sec. 604(a).</u> Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? | Yes |
| 3. <u>FAA Sec. 604(d).</u> If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? | N/A |
| 4. <u>FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a).</u> If offshore procurement of agricultural commodity or product is to be | N/A |

129

financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in U.S.)

5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas? No.
6. FAA Sec. 603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per cent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at far and reasonable rates? No.
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Yes.

Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? Yes
9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? Yes.
- B. Construction
1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used? Yes. A PVO registered in the U.S. will be granted funds to supervise the re-graveling and train MPW personnel.
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes.
- 144

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)? Yes.
- C. Other Restrictions N/A
1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by a international organization, does Comptroller General have audit rights? Yes.
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? Yes.
4. Will arrangements preclude use of financing:
- a. FAA Sec. 104(f); FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family Yes.

- planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion? Yes.
- b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property? Yes.
- c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes.
- d. FAA Sec. 662. For CIA activities? Yes.
- e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes.
- f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or Yes.

adjusted service
compensation for military
personnel?

g. FY 1982 Appropriation
Act, Sec. 505. To pay
U.N. assessments,
arrearages or dues? Yes.

h. FY 1982 Appropriation
Act, Sec. 506. To carry
out provisions of FAA
section 209(d) (Transfer
of FAA funds to
multilateral
organizations for
lending)? Yes.

FY 1982 Appropriation
Act, Sec. 510. To
finance the export of
nuclear equipment, fuel,
or technology or to train
foreign nationals in
nuclear fields? Yes.

j. FY 1982 Appropriation
Act, Sec. 511. Will
assistance be provided
for the purpose of aiding
the efforts of the
government of such
country to repress the
legitimate rights of the
population of such
country contrary to the
Universal Declaration of
Human Rights? No.

k. FY 1982 Appropriation
Act, Sec. 515. To be
used for publicity or
propaganda purposes
within U.S. not
authorized by Congress? No.

FAA SECTION 611 (a), (c) and (e) CERTIFICATIONS

MEMORANDUM

Date: June 27, 1985

From: Robert C. Brader, ^{RGK}Engineer

Subject: Liberia Road Maintenance Project (669-0200); FAA
Sections 611 (a) and (c) Certifications

To: Mary Kilgour, Director

I have examined the information contained in the project paper and find that it meets the requirements of Sections 611 (a) and (c) of the Foreign Assistance Act of 1961, as amended.

Pursuant to Section 611 (a), I certify that the construction cost breakdown for the road regravelling activities to be carried out by private contractors under this project are reasonable. The breakdown includes estimates of the unit costs and quantities required for excavation, scarifying the existing road surface, laterite resurfacing, installation of culverts and rehabilitation of one bridge for the 155-mile section of laterite national highway between Zwedru and Pleebo.

The final plans, specifications and bid documents will be reviewed and approved by the USAID Engineer prior to obligation and competitive bids will be received from local contractors for construction, in keeping with FAA Section 611 (c).

Clearances:

SPPD:DKline (in draft)

A/DD:MRugh _____

CERTIFICATION PURSUANT TO SECTION 611(e)
OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I hereby certify to the Administrator of the Agency for International Development that the Government of Liberia (GOL) possesses both the financial and human resources to maintain and utilize effectively the Road Maintenance Project (669-0200).

The Road Maintenance Project will provide the funds, technical assistance and training required for the Ministry of Public Works to regravell and selectively rehabilitate the laterite road which connects Zwedru to Pleebo. In order for the GOL to sustain this project, both during and after its roughly three-year life, it will have to allocate public resources to pay for the salaries of MPW site supervisors and ministry management personnel, finance additional regravelling contracts and establish a permanent Contractor Supervision Unit in the MPW.

The necessary personnel are already working for the Ministry. An office in the MPW is already charged with contractor regravelling work and the project will encourage further institutionalization of this activity in the Ministry. Finally, the MPW is strongly committed to shifting some of the resources which it currently devotes to force account road maintenance into contractor regravelling. I therefore conclude that the GOL meets the criteria of Section 611 (e).

In so certifying, I have also taken into account the maintenance and utilization of projects in Liberia financed and assisted by the United States of America, and I have more particularly taken into account the demonstrated capability of the GOL to effectively utilize development projects of this nature.

Date:

Mary Kilgour
Mary Kilgour
Director

Clearances:

SPPD:DKline (in draft)

A/DD:MRugh

Drafter: ^{CB}CBrown:aa:6/26/85

ANNEX L

Initial Environmental Examination

INITIAL ENVIRONMENTAL EXAMINATION

Project Location: Liberia
Project Title: Liberia Road Maintenance
Project Number: 669-0200
Project Funding: \$3,100,000 DA (ARDN)
Life of Project: FY 1985 - FY 1987
IEE Prepared By: James Pagano, Assistant Project
Development Officer, USAID/Liberia

Environmental Action

Recommended: Negative Determination

Concurrence:

Date: February 12, 1985

Lois Richards
Lois Richards
Mission Director
USAID/Liberia

Environmental Officer Approval:

Date: February 21, 1985

Bessie L. Boyd, AFR/TR/SDP

Clearance:

GC Date:

I. Project Description

The Liberia Road Maintenance Project is part of a joint effort by AID, the IBRD and Government of Liberia to arrest the deterioration of Liberia's road network and improve Liberia's capability to maintain roads. The AID component focuses on three specific objectives: the rehabilitation of select roads, the development of the capacity of private Liberian construction firms to undertake road maintenance as a low-cost alternative to force account work, and the improvement of management and technical capabilities of the GOL's Ministry of Public Works (MPW), especially in the area of supervising contractor road construction and maintenance.

The project will fund the rehabilitation and regravelling of 100-150 miles of laterite-surfaced roads in the southeast of Liberia by private Liberian contractors. Three candidate roads have been identified: Harper-Zwedru (168-mile primary road); Greenville-Zwedru (116-mile primary road) and Pleebo-Barclayville (48-mile secondary road) (see Figure 1). Final selection of the road or roads to be rehabilitated/regraveled will be made before completion and authorization of the project paper. The project will probably rehabilitate/regravel one road in its entirety along with a segment of a second road if adequate funds exist. The project is scheduled for authorization no later than July, 1985, to allow for its implementation in conjunction with the IBRD project which began in June, 1984.

All the candidate roads have been inspected by USAID/Liberia's engineer. It has been concluded that none of the roads require regravelling for their entire length as much laterite gravel is still present on the roadway or in drainage ditches. In many such areas, the road merely needs to be reshaped by a motor grader. In other areas, two to four inches of laterite gravel must be added to the existing road surface. All three roads contain several short segments where the roadway becomes a morass during Liberia's six-month rainy season and is impassable to vehicles for extended periods. These segments require spot rehabilitation. Unsuitable material would be removed and backfilled with appropriate material and a laterite surface added.

In addition to the rehabilitation/regravelling, the project will fund in-country, overseas and on-the-job training of MPW personnel on various technical and management subjects.

II. Project Impact

While the training component of the project will have no impact on the environment, the road rehabilitation/regravelling component is expected to have some. This impact will be both, directly, from the roadwork and, indirectly, from improved, year-round access by road to certain areas of the Southeast region of the country that will result from the regravelling/rehabilitation work.

Among the direct impacts of the project will be the addition of laterite to several segments of the roadway. A total of 160,000 cubic yards (yds³) will be added to road surfaces (based on a total of 150 miles of

rehabilitation/ regraveling work and the average requirements of the three candidate roads). This material will be taken from existing laterite borrow pits that were created during the roads' construction or later regraveling work. The USAID/Liberia engineer has already identified many of these pits adjoining the road during his inspection of the candidate roads. Though these pits will be enlarged by this additional excavation, the contractors will be obliged to ensure that these pits properly drain. The environmental impact of removing this laterite from existing pits would not be significant.

The excavation and refilling of roadway subsurface in areas prone to failure during the rainy season will also have some impact. Approximately 25,000 yds³ of material will be excavated and an equal amount added as backfill (again based on average requirements of the candidate roads and 150 miles of rehabilitation/regraveling). The excavated material will be used to level road embankments or dumped in designated waste areas. These waste areas are typically low-lying marshy ground where the waste material will not be washed into streams, etc. The backfill material will be taken from laterite borrow pits. Again, the excavation and dumping of 25,000 yds³ over a 150-mile road will not have a significant impact on the environment.

The roadwork will also entail cleaning ditches and drainage structures, reshaping the roadway and replacing some undersized culverts. This work will have a beneficial environmental impact by reducing erosion from the roadway and standing water in ditches and behind clogged or undersized culverts.

Some indirect impacts from the project are expected from the effect of the project on the accessibility of the Southeast and transportation costs in the region. At present, all three roads are impassable to cars, buses and small trucks for some periods of the rainy season and occasionally to four-wheel-drive vehicles and large trucks as well. Delays of several days are frequent during the rainy season because of bogged-down vehicles blocking the roads. The project will bring the rehabilitated/regraveled roadway up to all-weather standards, thus providing year-round road access to certain sections of the Southeast. It will also lower vehicle operating costs, thus lowering the cost of transporting goods and people to and from the region.

As the project is simply returning the rehabilitated roads to the all-weather standard that previously existed, it is not expected to have a disruptive impact on society in the region affected. Instead, it should restore the economic and social benefits that were derived when the road was first constructed. Better and cheaper transport costs will make marketing of agricultural produce more attractive and should, in the long run, increase the acreage of cash crops (largely tree crops) at the expense of slash-and-burn subsistence agriculture. Lower transport costs will lower the price of goods imported into the region. This will all probably lead to an increase of traffic on the road but not to the extent that it will significantly affect environment quality. Cheaper goods and more income opportunities from agriculture may slow the out-migration from the

area. (Rural area population growth is estimated at 2.0 percent compared to 3.5 percent for the nation as a whole.) Because the population density in the area is so low -- approximately 22 persons per square mile -- any impact on population growth rates will not have a significant impact on the environment. The project is not expected to effect in-migration. Because the project will only rehabilitate roads, it is not providing access to any new areas for settlement or farming. Also, any major in-migration is not socially feasible since almost all land is controlled by local chieftancies which normally will not distribute it to people outside of the local clan or tribe. Given low population densities, there is little incentive for such migration, anyway.

A primary user of two of the candidate roads is Liberia's logging industry. About 180,000 m³ of logs and processed wood moves over the Harper-Zwedru and Greenville-Zwedru roads to the ports of Harper and Greenville for export. This represents about 70 percent of Liberia's timber exports. (No significant amount moves over the third candidate road, Pleebo-Barclayville.) Heavily loaded logging trucks are major contributors to the deterioration of the Harper-Zwedru and Greenville-Zwedru roads.

Liberia falls entirely within the humid tropical zone. Southeast Liberia is heavily forested and is one of the two areas within the country that still contains extensive humid forests which are not being presently affected by logging or shifting cultivation. Liberia's logging industry harvests around 450,000 cubic meters (m³) each year, of which about 60 percent is exported (based on 1982 and 1983 average). Virtually all forested areas fall within the concessions of logging companies, including the entire Southeast with the exception of Sapo National Park, Liberia's sole national park.

According to AID's recent policy and program guidance on humid tropical forests (84 State 328482), AID may not fund, among other things, road projects passing through primary humid tropical forests "in the absence of safeguards to prevent uncontrolled destruction of the forests by virtue of this new or improved access" (paragraph 8.J). The proposed road maintenance project, however, is not expected to have a significant impact on primary humid forests because the rehabilitation of roads will not significantly increase access to humid forests and these forests probably do not meet the criteria of "primary" forest anyway, since they are not in a pristine condition.

The project is rehabilitating roads which were built in the early 1960's. By definition, it will not extend access to any new area, only make access easier and year-round. Though the Southeast is sparsely populated and heavily forested, the candidate roads themselves pass through areas that are relatively settled. Most areas along the right-of-way have already been cleared for cultivation. Moreover, logging along these roads have gone on for decades. According to FDA sources, the only significant forest areas that have not yet been exploited by logging companies are in remote areas of the Grebo National Forest (to the northeast of the Harper-Zwedru road), Krahn-Bassa National Forest (to the northwest of the Greenville road)

and Sapo National Park. The Sapo National Park is the only area which is not only protected from hunters and farmers (as are national forests) but from loggers as well (as national forests are not). It is too early to assess the effectiveness of this protection as the national park is just being established.

Even these few enclaves of forest that have not been disturbed in recorded history may not themselves be primary forest. "Primary forest" is taken to mean virgin or climax forest that has been allowed to develop relatively undisturbed for several centuries. Some foresters have argued, based on the number and types of species found in Liberia's forests, that these forests are too "new" to be primary.^{1/} Liberia was probably more heavily populated in recent centuries than it is now and areas which are today undisturbed high forest are likely to have been under shifting cultivation within the last two centuries. Thus, most of Liberia's high forest is probably "old" secondary forest on the order of 100 to 150 years old rather than primary forest.

It can be argued that, while the candidate roads do not transverse any primary or recently undisturbed secondary forests, the "probable impact zone" of the project should be defined as extending beyond the area directly accessible to the candidate roads to include secondary and logging roads that feed into the candidate roads. By improving the primary road, economic activities, notably logging, will be encouraged on these feeder roads. However, it does not seem likely that the project will have a significant impact on logging in these areas.

Presently logging exports decrease during the rainy season, in part because logging trucks cannot deliver the logs to port. With this project, logging trucks would have year-round access to either the Greenville or Harper ports (assuming that the logging and secondary roads are themselves passable). However, this does not appear to affect the rate of felling. Rather, when roads are closed, logging companies merely continue to fell and stockpile logs until the roads are clear enough to move them again.

A more relevant factor is how the project will effect the economics of logging operations in areas that feed into the candidate primary roads. The IBRD in its 1983 forestry sub-sector assessment^{2/} noted that a constraint to the exploitation of secondary species (for which there is not a developed market) is the high cost of transportation and recommended the paving of primary roads carrying logs. However, the impact of the proposed rehabilitation/regraveling work would not significantly affect the marketability of these species. The proposed work would reduce the operating costs of a heavy truck approximately \$0.30 a mile or about \$60.00 for a 200-mile round trip. With an average truck payload of 24 m³, the

^{1/} See for instance A.G. Voorhoeve, Liberian High Forest Trees, Centre for Agricultural Publications and Documentation, Wageningen, 1965.

^{2/} The Forestry Subsector, Paper 2, Vol. II, Liberia Agricultural Sector Review, April 20, 1984.

cost of transporting logs would be reduced by \$2.50 per m³. This represents barely one percent of the F.O.B. price of primary species and two percent of secondary species. This minor price decrease would not come close to offsetting the steep price increase of Liberian logs in their principal markets (France, West Germany and other European countries) caused by the appreciation of Liberia's currency, the U.S. dollar. Thus, the project should have no significant impact on the marketability of Liberia's forest products.

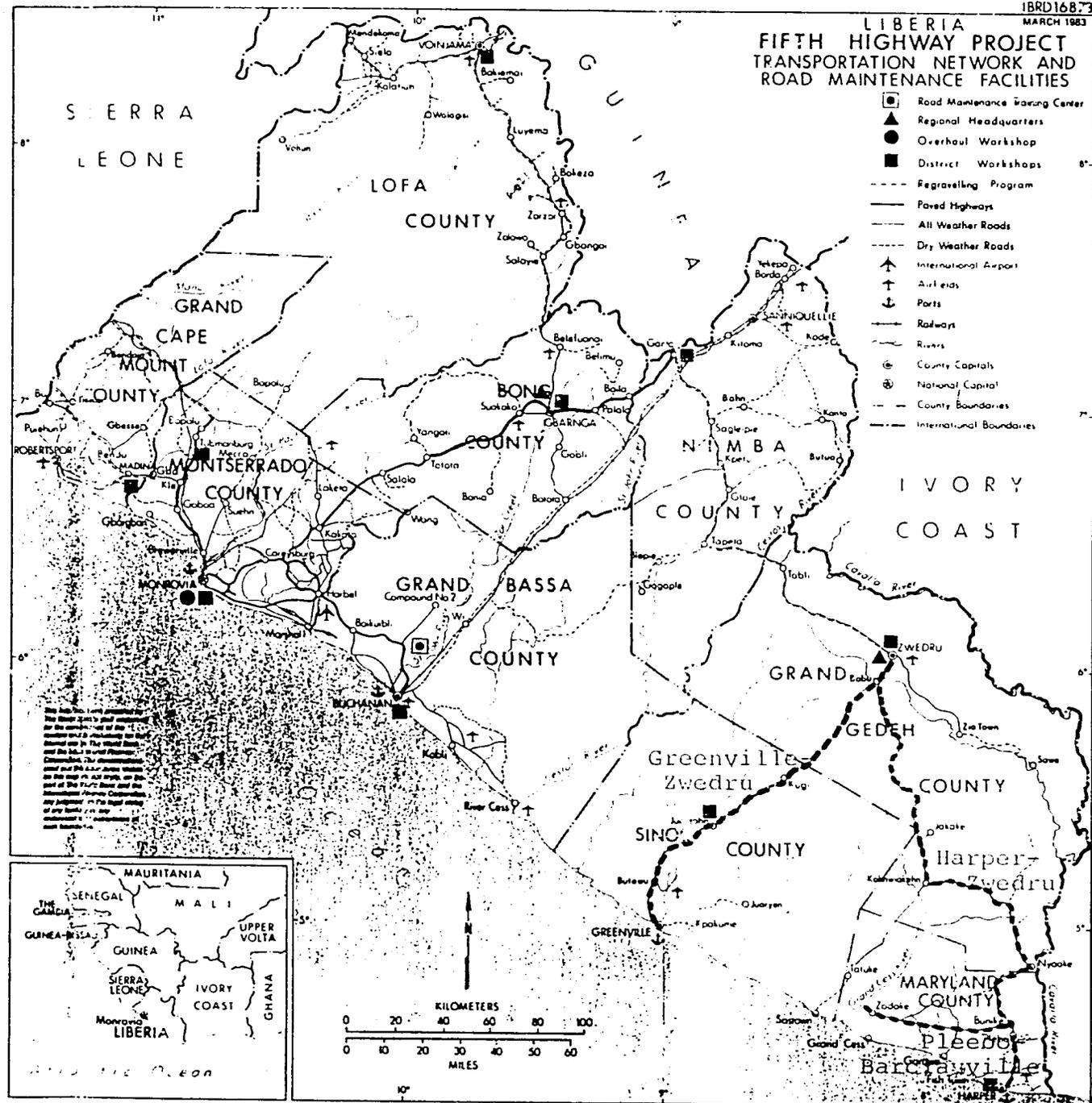
III. Recommendation for Environmental Action

It is believed that the project will not have a significant effect on the environment and, therefore, a Negative Determination is recommended.

IV. Monitoring Plan

While no significant impact on Liberia's forests is expected from the project, a detailed monitoring plan will be devised as part of the project to check for any unforeseen impact. The monitoring plan will include collecting existing aerial photographs and satellite imagery from FDA and other historical data on vegetational changes in the region. At the mid-point and end of the project, updated satellite or aerial imagery will be obtained (either from FDA if available, or at project expense) to evaluate any change in the rate of exploitation of the region's forests and in the status of existing primary forests. The project will fund outside environmental and forestry professionals to conduct mid-point and EOP evaluations of its impact on forestry. If the mid-point evaluation concludes that the project is having a significant adverse impact on the environment and humid forests in particular, the Mission will conduct further environmental analysis and propose mitigating procedures as needed.

FIGURE 1: Candidate Roads



UNCLASSIFIED
Department of State

OUTGOING
TELEGRAM-9

PAGE 01
ORIGIN AID-00

STATE 020188

9235 051272 AID5803

ORIGIN OFFICE AFDR-06
INFO AFCW-03 PPCE-01 PDPR-01 PPPB-02 ENGR-01 RELO-01 MAST-01
/016 A1 X23

INFO OCT-00 COPY-01 /001 R

DRAFTED: AID/AFR/PD/CCWAP: GHAZEL
APPROVED: AID/AFR/PD/CCWAP: HHELMAN
AID/PPC/PDPR: PKOSHEL (PHONE)
AID/AFR/CWA: HMARWITZ (PHONE)
AID/AFR/TR/SDP: BBOYD (SUBS)

-----166446 230525Z /13

P 222310Z JAN 85
FM SECSTATE WASHDC
TO AMEMBASSY MONROVIA PRIORITY PRIORITY
AMEMBASSY ABIDJAN PRIORITY

UNCLAS STATE 020188

AIDAC, ABIDJAN FOR REDSO/WCA FOR GOODSON

E. D. 12356: N/A

TAGS:

SUBJECT: LIBERIA ROAD MAINTENANCE (669-0200)

REF: STATE 328482

1. PLEASE RESUBMIT IEE FOR SUBJECT PROJECT AFTER TAKING INTO CONSIDERATION PARA 8J OF REFTEL SUGGEST YOUR REVISED IEE DESCRIBE IN SUMMARY FORM THAT THE IMPLEMENTATION OF THE SUBJECT PROJECT WILL NOT HAVE AN ADVERSE EFFECT ON THE TROPICAL FORESTS IN SOUTHERN LIBERIA NOR WILL IT CREATE ANY IMBALANCE TO THE CURRENT ENVIRONMENTAL CLIMATE FOR TROPICAL FORESTS IN LIBERIA. YOUR IEE SHOULD ALSO POINT OUT THE FACT THAT THE ROADS PROPOSED FOR REHABILITATION ARE ALL LOCATED IN SOUTHERN LIBERIA WHICH IS A SPARSELY POPULATED AREA.

2. FYI. DRAFT IEE ATTACHED TO PID WAS NEVER SUBMITTED TO AFRICA ENVIRONMENTAL OFFICE OR GC FOR REVIEW.
SHULTZ

UNCLASSIFIED

136

ANNEX M

Exemption from 25 Percent Host
Country Contribution Requirement

MEMORANDUM

FROM: Chris Brown, SPPD

THRU: John Pielemeier, A/D

TO: The Files

SUBJECT: Liberia Road Maintenance Project (669-0200);
Exemption from 25 Percent Host Country Contribution
Requirement of FAA Section 110 (a)

The purpose of this memorandum is to confirm, for the record, that the subject project is an integral element of the larger World Bank-financed Fifth Highway Project, which was signed between the World Bank and the Government of Liberia on April 30, 1985. As such, the subject project is exempt from the 25 percent host country contribution requirement, per guidance provided in AID Handbook 3, Appendix 2G, paragraph A.

Under the Fifth Highway Project, the World Bank has agreed to provide the GOL with a loan of \$11.4 million for technical assistance, training and commodities to be used in a program to strengthen the Ministry of Public Works' (MPW) capability to maintain existing road infrastructure. The project calls for the rehabilitation of MPW force account regravelling teams in 3 different areas and the development of a variety of management systems for the Ministry. The project also includes a component to provide technical assistance, training and financing to rehabilitate at least 100 additional miles of laterite highway through contractor regravelling. In the course of these discussions, representatives of the World Bank told USAID officials that the Bank does not have sufficient funds to finance the contractor regravelling and training portions of the project, and requested USAID to finance such. USAID agreed in principle.

Official World Bank and GOL documents reflect the fact that AID will finance this part of the project. The Fifth Highway Project's Development Credit Agreement, for instance, states in its preamble:

WHEREAS, (A) The Borrower has requested the Association and the United States Agency for International Development (hereinafter called USAID) to assist in financing the project...and... (B) USAID has agreed to assist in the financing of Parts C(iii) and E(2) of the Project by making available a grant (hereinafter called the USAID Grant) in the principal amount equivalent to three million one hundred thousand dollars; and (C) the Association has agreed, on the basis inter alia of the foregoing, to extend the Credit to the Borrower on the terms and conditions hereinafter set forth;
NOW THEREFORE...

This preamble refers to contractor regravelling and a program of training (parts C(iii) and E(2)) as being USAID's responsibility under the Fifth Highway Project. These components have been built into the design of the Road Maintenance Project. Similarly, the World Bank project document (pages 18-19) refers to and budgets the AID portion of the project; these pages are attached hereto as an annex.

AID Handbook 3, Appendix 2G entitled "Recipient Country Contribution to the Activity" provides AID with guidelines on implementing the requirement in Section 110(a) of the Foreign Assistance Act that all bilateral AID projects include a 25 percent host country contribution. According to paragraph A of that appendix, "The provision is not applicable to ... authentically multilateral, regional and inter-regional programs;...". Based on the multilateral discussions between AID, the World Bank and the GOL which led to the design of the subject project, as evidenced by the information presented above, USAID/Liberia concludes that the subject project is an "authentically multilateral" project and, hence, exempt from the provisions of FAA Section 110(a).

Clearances:

SPPD:DKline _____
A/DD:MRugh _____
REDSO/RLA:ANewton

FOR OFFICIAL USE ONLY

- 1 -

LIBERIA
FIFTH HIGHWAY PROJECT
STAFF APPRAISAL REPORT

TABLE OF CONTENTS

		Page
I.	<u>THE TRANSPORT SECTOR</u>	1
	A. Geographic and Economic Factors.....	1
	B. The Transport System.....	1
	C. Transport Policy, Planning and Coordination.....	2
	D. Previous Bank Group Involvement in the Sector.....	3
II.	<u>THE HIGHWAY SUBSECTOR</u>	4
	A. Road Network.....	4
	B. Road Fleet and Traffic.....	5
	C. Road Transport Industry.....	6
	D. Domestic Construction Industry.....	7
	E. The Ministry of Public Works.....	8
	F. Highway Financing.....	10
III.	<u>THE PROJECT</u>	12
	A. Objectives.....	12
	B. Description.....	13
	C. Cost Estimates.....	16
	D. Financing.....	18
	E. Implementation and Reporting Requirements.....	20
	F. Procurement.....	21
	G. Disbursements.....	22
IV.	<u>ECONOMIC EVALUATION</u>	23
	A. General.....	23
	B. Economic Analysis of the Road Maintenance Program.....	24
	C. Project Risks.....	25
V.	<u>AGREEMENTS REACHED AND RECOMMENDATION</u>	25

This report was prepared on the basis of an appraisal mission in September/October 1982, by Stanley Hayden and Nico Pijl. It was typed by Jacqueline Williams.

<p>This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.</p>
--

3.16 Cost estimates for equipment are based on recent bids received by MPW and local dealers' quotations. The cost of periodic maintenance of gravel roads by contractor is based on the mission's best estimate as no recent bids for similar works are available. The detailed cost estimates of periodic and routine maintenance operations (excluding local personnel cost and equipment depreciation) have been developed by MPW with the assistance of consultants Sauti-ICE of Italy. Man-month costs of consulting services including salary, overheads, profit, as well as international travel, local subsistence and other minor expenses, are expected to average about US\$13,000; rates are in line with recent experience in Liberia. In addition, contract costs for consulting services include the cost of vehicles for local transportation and equipment for roughness measurements to be used in the preparation of a follow-up maintenance project.

3.17 Base cost estimates are as of November 1983 and price contingencies amounting to about 13% of total base cost, including physical contingencies, have been calculated using the following expected inflation rates: 8% in 1983; 7.5% in 1984; 7% in 1985 and 6% in 1986. Physical contingencies have been applied as follows: 10% on road maintenance and workshop equipment; 10% on equipment overhaul by contract; 10% on spare parts for equipment overhaul by force account; and 5% on technical assistance. No physical contingencies have been taken into account on the periodic and routine maintenance elements since these are based on a flexible program.

D. Financing

3.18 The Association and USAID will finance 75% of total project cost, net of taxes. The IDA Credit of US\$11.4 million equivalent will cover 66% of project capital costs and 38% of incremental recurrent cost of materials on a declining basis, namely, 60% of incremental recurrent expenditures for materials made before January 1, 1985, 40% in 1985, and 20% thereafter. The above percentages are equivalent to 30% of estimated total recurrent expenditures for materials made before January 1, 1985, 24% in 1985 and 15% thereafter (Annex 3-5). The USAID grant of US\$3.1 million will finance 21% of project capital costs. The Government is expected to finance US\$4.9 million, net of taxes, or 25% of total project costs; of this US\$0.6 million represent royalties on laterite ^{1/}. In addition, the Government will continue to finance the payroll of its maintenance staff, currently amounting to about US\$5 million per annum, as well as minor expenses for equipment replacement and administrative overheads, estimated at US\$1.5 million over the project period. A condition of effectiveness of the proposed IDA Credit will be that the Government makes satisfactory arrangements for obtaining the USAID grant. Details of project financing are given in Annexes 3-5 and 3-6 and are summarized below.

^{1/} Private land owners are legally entitled to compensation for laterite extracted from their land. The present royalty is US\$.50 per cubic yard; however, the new Government has suspended payment of all claims, pending a revision of the system. Allowance for the corresponding payment has been made, nevertheless, under the project.

Financing Plan 1984-86 ^{a/}
(in US\$ million, including contingencies)

	<u>GOVERNMENT</u>		<u>USAID</u>		<u>IDA</u>		<u>TOTAL</u>		<u>GRAND TOTAL</u>
	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	<u>Local</u>	<u>Foreign</u>	
A. <u>Capital Costs</u>									
I. Equipment and Workshop Rehabilitation	0.3	-	-	-	0.3	2.2	0.6	2.2	2.8
II. Force Account Regravelling	1.0	-	-	-	0.2	4.1	1.2	4.1	5.3
III. Contract Regravelling	-	-	0.7	2.2	-	-	0.7	2.2	2.9
IV. Consultant Services	0.4	-	-	-	-	2.5	0.4	2.5	2.9
V. Training	-	-	-	0.2	-	-	-	0.2	0.2
VI. PPF	0.1	-	-	-	-	0.3	0.1	0.3	0.4
B. <u>Incremental Recurrent Costs</u>									
Materials	<u>0.8</u>	<u>2.2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1.8</u>	<u>0.8</u>	<u>4.0</u>	<u>4.9</u>
TOTAL	<u>2.6</u>	<u>2.2</u>	<u>0.7</u>	<u>2.4</u>	<u>0.5</u>	<u>10.9</u>	<u>3.8</u>	<u>15.5</u>	<u>19.4</u>

a/ Excluding taxes.

Note: Detail may not add to total due to rounding.

3.19 Under the project the Government will increase its maintenance expenditures (excluding payroll, administrative overheads and equipment replacement) from US\$0.9 million in FY83 (before project start), to US\$1.4 million in the second half of FY84, US\$2.8 million in FY85, US\$3.1 million in FY86 and US\$1.6 million in the first half of FY87 (Annex 3-6). The additional amounts required from Government for operating expenditures will, to a large extent, be offset by personnel cost savings from staff reductions to the tune of about US\$3.0 million over the project period (para. 3.06). During negotiations the Government agreed to: (i) provide the minimum annual allocations for maintenance during project implementation as set out in Annex 3-6; (ii) include the amounts for routine and periodic maintenance in the Recurrent Budget as of

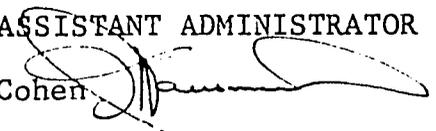
162

ANNEX N

AA/AFR Approval of Selection of ORT

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

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/PD, Norman Cohen 

SUBJECT: Liberia Road Maintenance Project (669-0200)

Problem: Approval of the Assistance Administrator is required before USAID/Liberia may limit proposals for the subject project to a single PVO, the American ORT Federation.

Background: USAID/Liberia is currently in the final design stages of the Road Maintenance project (669-0200), a \$4.3 million effort conceived as an element of the \$20 million World Bank - Government of Liberia (GOL) Fifth Highway project. The GOL, the World Bank and AID agreed to strengthen the Liberian Ministry of Public Works' (MPW's) ability to maintain and rehabilitate its existing primary road network. The network consists for the most part of laterite roads which could be restored to year-round use. While the World Bank financed elements of the project focus on maintenance and regravelling through force account, the USAID project will rehabilitate and then regravell 155 miles of primary laterite road through the effort of local construction contractors. Both the GOL and the World Bank are committed to stimulating a Liberian road maintenance and construction contracting industry and view the subject project as a critical first step in this direction.

The AID funded project will also train a core staff of contractor regravelling supervisors in the MPW and will help to institutionalize a contractor maintenance supervision unit in the Ministry. The training will be on-the-job at the regravelling sites during the dry seasons and will take place in seminars and lab sessions during the rainy seasons. The project will also assist the MPW in developing a long range contractor regravelling plan to guide and prioritize the contractor supervision unit's efforts after the project. The American ORT Federation, a registered U.S. PVO and a branch of the Organization for Rehabilitation Through Training based in Geneva, submitted a proposal for this activity in April 1985. ORT has had extensive experience in road maintenance and training in Africa. With AID financing, ORT has set up a training center and production/training unit for road construction and equipment maintenance personnel in Chad, and is currently running several road maintenance training and production units in Zaire. For the World Bank, ORT is now managing participant training for the

Cameroon Highway Directorate, providing technical assistance to the Senegal Ministry of Public Works, and training road maintenance personnel in Nigeria, Rwanda, Burundi, Lesotho and Tanzania.

After carefully reviewing qualifications statements of PVO's registered with AID, USAID/Liberia has found no other organization as qualified or as appropriate as ORT to provide the technical assistance and training required for this project. Under the provisions of AID Handbook 13, Section 1.B.2(e)(3), you are authorized to approve the invitation of an application for AID funding from a single PVO "Which the technical office deems unique or most appropriate to undertake the effort which the office wants to support or stimulate." ORT is clearly the most appropriate PVO for the job of supervising contractor regravelling and training MPW personnel under the subject project.

Recommendation: That you approve USAID/Liberia's request to limit proposals for technical assistance and training under the Road Maintenance project to a single entity (The American ORT Federation) by signing this memorandum and the attached cable.

Approved: Mark S. Edelman

Disapproved: _____

Date: 7-18-85

Drafted: AFR/PD/CCWAP:GHazel:632-9066:7/8/85:1645K

Clearances:
AFR/PD/CCWAP:HHelman H
AFR/CCWA:CSteele (Draft) _____
GC/AFR:AVance (Draft) _____
DAA/AFR:LRichards LR

165

ANNEX O

ORT Proposal

3. PAGE THIRTEEN AFTER LINE 3: INSERT QUOTE: THESE ACTIVITIES WILL BE MONITORED BY THE USAID/LIBERIA PROJECT OFFICER. HE OR SHE WILL VERIFY THAT THE FOLLOWING ACTIVITIES ARE ADEQUATELY CARRIED OUT. END QUOTE.
4. PAGE FOURTEEN THIRD PARAGRAPH: DELETE ALL EXCEPT LAST SENTENCE WHICH SHOULD READ QUOTE: MONITORING SHOULD BE ON THE BASIS OF: END QUOTE.
5. PAGE FIFTEEN FIRST PARA: DELETE PARAGRAPH. IN PARAGRAPHS TWO AND THREE, ADJUST FOR INTERIM EVALUATION IN JUNE AND FINAL IN JANUARY AND FEBRUARY.
6. AFTER PAGE SEVENTEEN: PLEASE DEVELOP DETAILED BUDGET TO SUPPORT SUMMARY ON PAGE SEVENTEEN. DETAILED BUDGET SHOULD PROVIDE ALL BREAKDOWNS INCLUDED IN ORTI WASHINGTON COST CALCULATION SHEET AND SHOULD BE BROKEN OUT INTO THE THREE PROJECT YEARS AND A TOTAL COLUMN. TOTAL COST FIGURES AS AMENDED ON PAGE SEVENTEEN SHOULD FORM BASIS OF CALCULATION.
7. ALSO RE. BUDGET: PLEASE TELEX USAID YOUR LEAVE POLICY INCLUDING SPECIFIC LEAVE RELATED BENEFITS (PAID TRAVEL, HOME LEAVE TIME ACCRUED SEPARATELY FROM ANNUAL LEAVE, ETC.) APPLICABLE TO ORT LONG TERM TEAM. USAID CONCERNED THAT LEAVE ALLOWANCES IN PROPOSAL NOT CONFLICT WITH THOSE PERMITTED UNDER THE FINANCING.
8. ANNEX II. SCOPES OF WORK, PAGE 8 TWO FIRST PARAGRAPHS: QUOTE: USAID AND THE MPW WILL REVIEW THESE REPORTS AND DEVELOP AND SPECIFIC RECOMMENDATIONS FOR CHANGES. USAID WILL THEN EITHER APPROVE THEM OR DEVELOP ACCEPTABLE CHANGES WITH THE SENIOR ENGINEER WITHIN TWO WEEKS AFTER THEIR SUBMISSION. END QUOTE.
9. PAGE 11 TWO PARA TWO. SECOND AND THIRD SENTENCES. CHANGE TO READ QUOTE: THESE REPORTS WILL SUMMARIZE PROJECT ACTIVITIES, COMMENT ON CONSTRUCTION PROGRESS RELATED TO PLANNED PROGRESS, DESCRIBE ANY PROBLEMS THAT HAVE ARISEN AND THEIR SOLUTIONS, AND PROVIDE A DETAILED CALENDAR OF THE NEXT MONTH'S ACTIVITIES. THESE WILL BE REVIEWED AND APPROVED AT MONTHLY MEETINGS BY USAID AND A REPRESENTATIVE OF THE MPW. EITHER THE SENIOR ENGINEER OR THE ENGINEER WILL ATTEND THESE CONFERENCES, WHICH WILL TAKE PLACE AT USAID/MONROVIA. END QUOTE.

CONCERNED WITH THE

LIBERIAN TELECOMMUNICATIONS

1/28

12. PAGE N NINE SECTION C, SHORT TERM CONSULTANTS: PLEASE DESCRIBE BRIEFLY WHICH TYPES OF CONSULTANCIES ARE PLANNED AND HOW MANY PERSON MONTHS ARE ESTIMATED FOR EACH TYPE (CURRICULUM DEVELOPMENT, MOBILIZATION/ADMINISTRATIVE SUPPORT, ETC.

13. WE ARE STILL DISCUSSING WHETHER IT WOULD BE MORE EXPEDITIOUS FOR ORT RATHER THAN AID TO PROCURE PROJECT VEHICLES. IF A DECISION IS MADE IN FAVOUR OF ORT PROCUREMENT WHICH WOULD REQUIRE A CHANGE IN THE BUDGET WE WILL ADVISE WEEK OF JUNE 17TH.

14. PLEASE TELEX REVISED DETAILED BUDGET TO PERMIT TIMELY PREPARATION OF DRAFT COOPERATIVE AGREEMENT. USAID GREATLY APPRECIATES EXCELLENT WORK OF IAN HAMILTON IN REFINING DESIGN OF SUBJECTPROJECT AND LOOKSFORWARD TO RECEIPT OF FINAL PROPOSAL.

REGARDS.

NINE RUSH,
ACTING DIRECTOR,
USAID/LIBERIA

HOW WELL RECD????????????????????????????????
89532610RTONI G
44247 STANLEY LINNNH
NNNN

LIBERIA
IN TELECOMMUNICATIONS

Best Available Document

169

LIBERIA

Road Maintenance Project 669 - 0510

Proposal for a Cooperative Agreement with USAID, Liberia

Country : Liberia
Sub-Project Title : Contract Supervision and Related Training
Budget : \$US 1,178,000
Location : Liberia - South East Region
PYO Name/Location : American ORT Federation, New York, USA.
Date of Submission: June 1985

CONTENTS

	<u>Page</u>
INTRODUCTION	1
A SUB-PROJECT PURPOSE	2
B PROBLEMS TO BE ADDRESSED	2
C ASSUMPTIONS	2
D OUTLINE PROJECT DESCRIPTION	2
E EFFORTS TO DATE	4
F ORT'S INVOLVEMENT AND BACKGROUND	4
G IMPLEMENTATION	6
H TIME FRAME	10
I REPORTING	10
J MONITORING AND EVALUATION	14
K FINANCIAL NARRATIVE/ BUDGET	16

ANNEXES

- I Experience of ORT
- II Scope of Work for the Senior Engineer and Engineer, Short-Term Consultants, and Home Office Support

INTRODUCTION

There is currently a concerted USAID and World Bank effort to assist the Ministry of Public Works (MPW) in the area of road maintenance. The 5th Highway Project includes a World Bank component which provides Technical Assistance to MPW and has several major objectives including the rehabilitation of the MPW'S road maintenance equipment and facilities; improvements to supervision and accounting and to the MPW'S financial position, the enhancement of technical skills of MPW road maintenance personnel and the routine maintenance of Liberia's entire road network of 4,700 miles. The technical assistance component of this project started in September 1984 and continues until April 1986.

The USAID Road Maintenance Project ("the Project") has three main objectives:-

- a) To selectively rehabilitate and regravell priority roads in the south-east region of the country.
- b) To develop the road maintenance capability of private contractors.
- c) To train MPW personnel in maintenance skills especially those needed to supervise the work of the contractors.

The Sub-Project which is addressed by this Proposal is concerned with providing technical assistance staff to deal with items (b) and (c) above, as described in detail within the Proposal.

There is another concurrent World Bank project to build feeder roads, which has, as a main objective, the development of private contractors and the training of the contractors' staff.

Coordination between the IBRD financed activity and the AID Project is a concern, especially in the fields of developing the private contracting sector and staff training both for MPW personnel and employees of the contractors.

171

A. SUB-PROJECT PURPOSE

The purpose of the Sub-Project is to supervise contract regraveling, to train MPW personnel in contract supervision and assist the MPW in developing a permanent contractor maintenance supervision capability.

B. PROBLEMS TO BE ADDRESSED

The problems to be addressed by the Sub-Project are:

1. The private contracting industry in Liberia is in a comparatively weak state, especially in the field of road work. There is a need to supervise their road maintenance activities, and possibly at the same time to support and train their field staff.
2. The MPW has limited recent experience of road maintenance by contract and there is thus a need to train selected mid-level managers and inspectors in this function.

C. ASSUMPTIONS

The main assumptions made in relation to the Sub-Project are:-

1. That MPW can make available appropriately qualified inspectors for joint selection by MPW/ORT/AID as trainees within the program.
2. That MPW has at least six engineer/ managers qualified to near-professional level who can be trained in the management aspects of road maintenance by contract.

D. SUB-PROJECT DESCRIPTION

1. This Sub-Project will attempt to strengthen the institutional capacity of the MPW to manage and supervise road maintenance activities implemented on its behalf by private contractors. The Sub-Project may also provide technical assistance in the form of management and skills training to private contractors implementing road maintenance activities.

110

2. There are two major sub-project elements:

2.1 Contractor supervision: ORT will have full responsibility for supervising contract regravelling and for making best efforts to assure that the project's road rehabilitation targets are met.

~~2.2 Major Sub-Project inputs for which ORT will be responsible for include:~~ *ORT will be responsible for rehabilitation & maintenance of the existing road system which comprises the following:*

2.2.1 On-the-job training of twelve MPW counterpart staff in the management, supervision and inspection of private contractors engaged in road maintenance. The staff selected will be inspector trainees.

2.2.2 Organizing seminars for mid-level MPW managers in contract management and supervision.

2.2.3 Assistance with training of private contractor employees in areas ranging from organizational management to technical skills in order to strengthen the role of private contractors in road maintenance.

2.4 Assistance with the coordination of training activities between the AID and IBRD portions of the Fifth Highway Project as well as with the second IBRD Feeder Roads Project.

3. The Project road is ^a 155 mile stretch of the 174 mile laterite road from Zwedru to Harper in the South-East of Liberia, the most isolated part of the country. There is at present a paved road from Monrovia to Ganta and between Ganta and Zwedru there is a laterite road which is scheduled for rehabilitation under the IBRD component of the 5th Highway Project.

4. The direct beneficiaries are the mid-level Managers and Inspector Trainees, gaining new skills, and MPW gaining an extra capacity. This Sub-Project is an essential part of the overall project which will bring greater and cheaper access to markets, goods and services to the rural population.

E. EFFORTS TO DATE

In recent years, several donors including IBRD, the West German and Japanese governments have provided support to MPW in an attempt to improve road maintenance. It has been difficult to sustain these various donor efforts through the period since the coup of 1980. An example of this is the Camp Mechlin training centre, which has received significant aid from West Germany and Japan, and is now side-lined for lack of recurrent funds and appropriate staff.

F. ORT'S INVOLVEMENT AND BACKGROUND

1. The American ORT Federation was invited by AID to submit this proposal in view of ORT's extensive experience of road maintenance training in West Africa. ORT's experience in other fields of technical assistance and training is listed in Appendix I.
2. ORT's current and recent projects in the field of road maintenance in West Africa include the following:
 - 2.1 For the Cameroon Highway Directorate, ORT is arranging participant training in technical subjects, which will be conducted in French, for 33 senior staff, partly at the ORT France training schools (World Bank financed).
 - 2.2 At the request of the Government of Chad, ORT set up a Training Centre and a Production and Training Unit for road construction and equipment maintenance personnel (World Bank and USAID financed).
 - 2.3 In Senegal, following a training needs study, ORT was selected to provide a seven-person training team for the Ministry of Public Works. The team is now fully engaged in the training program

including the use of Training Production Units (World Bank financed).

- 2.3 In Nigeria, ORT is responsible for training and upgrading road maintenance personnel. Three Training Centers and several Training Production Units have been set up where over 2,000 employees have already received instruction (World Bank financed).
3. ORT road maintenance activities in other parts of Africa include:
 - 3.1 In Zaire ORT established and is still running Training Centers and Training Production Units for road maintenance and repair, and for the use, maintenance and repair of the equipment pool. Over 2000 km of road have been rehabilitated to date (Financed by USAID, CIDA, KfW and World Bank).
 - 3.2 In Burundi, ORT is training Ministry of Public Works road maintenance staff at the Bujumbura Technical School and at the new Gilega Road Maintenance Training Center, which ORT helped to develop (World Bank financed).
 - 3.3 In Lesotho, ORT is supplying a training specialist to a consulting team implementing labor-based road maintenance and rehabilitation. (World Bank and SIDA financed).
 - 3.4 In Tanzania, a team of 21 ORT specialists assisted the Tanzanian Ministry of Works in the creation of a road maintenance section, and also by equipping and staffing a training center and establishing a permanent training structure (World Bank financed).
 - 3.5 In Rwanda ORT is responsible for the training or retraining of over 500 Public Works employees in the operation and maintenance of heavy equipment and the construction, repair and maintenance of roads (World Bank financed).
4. ORT has also been involved in road maintenance studies in Africa in Botswana, Cameroon, Ivory Coast, Kenya, Mali, Niger, Sierra Leone, Swaziland, Uganda and Zambia, as well as road projects in other parts of the world - eg. Afghanistan, Bolivia, Brazil, Dominican Republic (USAID), Indonesia, Iran and Peru.

G. IMPLEMENTATION

1. ORT will provide an Senior Engineer full-time for three years, and an Engineer full-time for twenty months, both of whom will have significant training responsibilities. ORT will also supply short-term consultants for around eight months on special duties which may include two months of initial administrative and mobilization support to the ORT Team, curriculum development and revision if required, visits during the first two dry seasons and possibly short-term specialized teaching visits during the rainy seasons. (See Scopes of Work below for indicative plan for short-term TA). Home Office backstopping will be fully available including at least two Home Office visits per year.
2. The main duties of the ORT team will be:-
 - 2.1 To supervise regravelling of existing roads carried out by private contractors.
 - 2.2 To train MPW personnel to carry out contract supervision.
3. The Senior Engineer will be at post for 36 months which will encompass three wet and three dry seasons. The Engineer will be at post for 20 months which will cover the first two dry seasons and the wet season in between. An outline of their duties, described in detail in the Scope of Work Annex II include:
 - 3.1 During the dry season, the two engineers will be occupied with the supervision of contracts on two separate sites. They will be responsible for testing and approving materials; for measuring quantities and verifying them on the contractors' monthly invoices as well as the other normal site duties which are elaborated on Annex II.
 - 3.2 On each of the two concurrent contracts over three dry seasons three MPW Inspector Trainees will be directly supervised by the Senior Engineer and the Engineer. They will be trained in all aspects of contract supervision and administration.

- 3.3 During the wet season there will be a coordinated programme of lectures, seminars and site visits for the Inspector Trainees based in Monrovia, which may also include trainees from the IBRD road maintenance projects.
- 3.4 The Senior Engineer will prepare a training plan which is described in Section I, on reporting. The Senior Engineer and Engineer will be supported in this effort by short-term consultants provided by ORT.
- 3.5 By the completion of two dry seasons, with two concurrent contracts and three Inspector Trainees per contract, twelve Inspectors will have been trained. For the third dry season, the best six of the twelve Inspector Trainees will be selected on the basis of their performance to form the inspection team under the supervision of the Engineers for the two contracts which will be implemented in the third dry weather season. They will be given further training to enable them to form a permanent cadre of contract maintenance supervisors for the MPW.
- 3.6 In addition to training Inspectors on site, the Senior Engineer will select, in discussion with the AID Civil Engineer and MPW, suitable middle-level managers who will receive training in the management aspects of supervision of maintenance by contract.
4. Training of Inspector Trainees will be in three phases:-

4.1 Introductory

A two-week seminar for each group of 6 trainees with lectures and case studies on contract supervision including visits to workshops and the soil laboratory. Topics will include:-

- Responsibilities (AID/ Contractor)
- Relations with contractors
- Attitudes and Integrity
- Inspection
- Specifications

- Materials testing
- Log Book
- Compaction
- Drainage

Note: Since the trainees must be qualified technicians some of this may be revision. During this phase, the trainee profile described in Section J, Monitoring and Evaluation, will be prepared.

On-the-Job Training

Three Inspector Trainees will be assigned to each regravelling contract and will work under the ORT Engineers. They will gradually be given increasing responsibility and will be expected to keep a detailed log-book which will be inspected at least weekly. This will form the basis for a half-day seminar each week at which any technical or supervisory issues that have arisen will be discussed. A specific technical or supervisory topic will also be selected each week by the Senior Engineer for discussion on a structured pattern.

Wet Season Training

Both the ORT Engineers and the Inspector Trainees will take leave in this period leaving some 8-10 weeks for more formal training. The field staff will be supported by short-term specialists provided by ORT who will prepare a syllabus based on observed deficiencies.

The short-term specialist will arrive at the end of the contract period, and arrange to meet with ORT Engineers and trainees before they go on leave. During the leave period he will design a training program for implementation during the balance of the wet season.

The personnel to be trained in this wet season period will include:

- The six Inspector Trainees from the previous contract supervision season.
- The six Inspector Trainees being prepared for the next contract supervision season.
- Mid-level engineers and managers from MPW.

Other potential participants in these training sessions may include:

- Contractors Staff
- MPW Staff from the World Bank Projects.

4.4 Liaison with IBRD/ 5th Highway/ Feeder Roads Project - Contractor Training

The IBRD 5th Highway and Feeder Road Projects contain a training element. The 5th Highway Project technical assistance team will carry out on-the-job training for MPW staff and in their Implementation Report it is stated that courses and training materials will be prepared. A study to include training is due to be carried out in late 1985. The Feeder Road technical assistance team will be training contractors' staff in the management of road contracts.

There is an obvious need to continue the close collaboration that already exists to ensure the provision of an efficient overall training programme. The possibility of cross-assignment of trainees between the projects will be investigated if the projects are running concurrently.

There may be some involvement in the training of contractors' staff, depending upon the availability of technical assistance personnel time, if such a need is identified.

4.5 Mid-level Management Training

Some engineers from the MPW will be trained in the management of maintenance by contract. This initial training will be in the

179

form of seminars during the wet seasons and on-the-job training on the regravelling sites during the dry seasons.

H. TIMEFRAME

1. The timeframe for this Project and Sub-Project is set out in the Bar Chart 1.
2. The actions to be taken in the period leading up to the implementation of the project are marked with asterisks. It will be seen that these are critical if the target of starting the first contract at the beginning of the 1985/1986 dry season is to be met.
3. The flow of activities between construction and training, between the regravelling sites and Monrovia are dictated by the extreme variations between wet and dry seasons in Liberia. The intent is to spend the whole of the dry season in the regravelling of roads in the south-east of the country: the whole of the wet season to be occupied with the training of MPW staff in Monrovia.

I. REPORTING

1. After six weeks the Senior Engineer will provide a Preliminary Work Plan including an on-the-job training plan for the first dry season and a scheme for contract supervision.
2. At the end of six months the Senior Engineer will deliver a Project Work Plan, which will include:-
 - 2.1 A schedule of contract supervision by the Senior Engineer and Engineer.
 - 2.2 A program of on-the-job training for Inspector Trainees.

AID LIBERIA : ROAD MAINTENANCE PROJECT

		1985				1986					1987					1988					Person Mtns		
		M/J	J/A	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	J/F	M/A	M/J		J/A	S/O
	DRY SEASONS 																						
AID	PP Approved	*																					
	PRUAG/MPW Evaluations	*																					
	PSC Engineer																						(18)
URT	Submit Final Proposal	*	*																				
	Sign Cooperative Agreement	*	*																				
	Senior Engineer				M					L						L		M				M	
	Assistant Engineer									M		L					M						(36)
Contractors																							(20)
MPW	Inspector Trainees x 6			M						M	M					M	M						
									
									
									

Key: = Monrovia; L = Leave; — = Site; — = Contract

1/5

2.3 An outline training program for the wet season to include:

- A list of personnel to be trained.
- Training objectives.
- A schedule of training events
- A summary of training events.
- A summary of the subject matter to be taught.
- A description of presentation methods and training materials.
- A list of nominees to conduct the training.
- Proposed location of training.

2.4 Procedures for coordination between the IBRD and USAID road projects and with MPW.

In the preparation of this Work Plan, the Senior Engineer will be assisted by an ORT short-term consultant.

3. The Senior Engineer will submit reports to the Mission every month which will summarize events on each of the two regravelling contracts for the preceeding month. The reports will include comments on construction progress related to the schedule; progress of the training program; any problems which have occurred or are foreseen, with recommendations on solutions. They will be delivered by the Senior Engineer or the Engineer at each monthly conference at the Mission in Monrovia for discussion and review.
4. In preparation for the second evaluation, the Senior Engineer will prepare a Final Report, summarizing the events of the previous thirty months of work.

J. MONITORING AND EVALUATION

1. The activities of the Sub-Project divide into two discrete elements, which are closely inter-related:-

- 1.1 Contractor Supervision

- 1.2 Training of MPW employees in contract supervision.

These activities will be monitored by the USAID/ Liberia Project Officer, who ~~she~~ will verify that the following activities are adequately carried out:

2. Monitoring of Contractor Supervision.

- 2.1 This has both managerial and engineering aspects. It is a requirement that the Senior Engineer submits a report every month to the Mission which will be a summary of their site log which itself will be eventually deposited with USAID. In addition, one of the Engineers will attend monthly review conferences with Mission staff in Monrovia.

- 2.2 The monitoring effort will include examination of:-

- 2.2.1 Regularity of reporting
- 2.2.2 Accuracy and coherence of reports
- 2.2.3 Control of specified construction standards.
- 2.2.4 Timely supervision of material test samples and results.
- 2.2.5 Efficient administration of contractors' invoices and claims.
- 2.2.6 Relations with contractors.
- 2.2.7 Assistance to contractors.

3. Monitoring of Training of MPW Employees in Contract Supervision.

- 3.1 For each pair of contracts to be issued six Inspector Trainees will be jointly selected by ORT/AID/MPW from the MPW nominees, to be trained in contract supervision.

- 3.2 At the outset, a profile of each trainee will be established to include:-

- i) Age
- ii) School/education
- iii) Certificates/ grades
- iv) Post school education
- v) College education
- vii) Vocational training received
- viii) MPW length of service
- ix) Other employment
- x) Relevant experience
- xi) Specific competencies eg: measurement of quantities, carry out soil tests etc.

3.3 This information will be recorded in a log-book that each trainee will keep, in which he will record a daily log of his tasks, work carried out by contractors, tests undertaken, travel etc. There will be a weekly summary, commented on by the ORT Engineers.

3.4 These summaries and comments will be discussed with the trainee and the most significant points raised at a weekly seminar on site which either the Senior Engineer or Engineer will conduct. Monitoring of the on-the-job training will center around a reading of each trainee's log-book as well as the end of season report prepared by the Engineers and discussed with each trainee. Monitoring should be on the basis of:

- 3.4.1 Thoroughness of log-book
- 3.4.2 Engineers' comments
- 3.4.3 Attitude of trainees
- 3.4.4 Measurable gain in skills
- 3.4.5 Knowledgeability of trainees on contract supervision (check-list of questions).
- 3.4.6 Field test of trainees.

4. Evaluations

- 4.1 The first interim evaluation of the AID project is planned for June 1986 which will be an initial evaluation of outputs from the contractors in terms of regravelling as well as progress of the Sub-Project activities of contract supervision and training of MPW staff.
- 4.2 The final evaluation is planned for January/ February 1988. This will be in the middle of the third dry season and thus considerable experience will have been gained of the whole process of using local contractors and having them supervised by trained MPW staff. The main outputs to be considered in this evaluation are as follows:
- 4.2.1 Contract regravelling against scheduled program.
- 4.2.2 Quality of contractor work.
- 4.2.3 The effectiveness of institution building in establishing competent management within the private contracting industry in terms of road maintenance activities.
- 4.2.4 The institutional effects of training MPW staff in the supervision of road maintenance by contract.

K. FINANCIAL NARRATIVE

1. Two budget statements are attached. The first contains totals for the three year project period giving some detail of what is included in each item.
2. The second statement is the same items and totals distributed through the three Fiscal Years Items I-IV, VIII-XI and XIII in the proportions 42%/ 33%/ 25% which is a best guess at the likely use of funds. The other items have been apportioned according to an estimate of when these resources will be used.

126

LIBERIA ROADS

PERIOD: FYS 1985/6, 1986/7, 1987/8

	<u>US \$</u>
I Field Personnel Renumeration	385,915
II International Travel, Transport and Perdiems (Also includes 2 medical Evac. Trips and 6 Inspection Trips)	99,131
III Local Travel	30,000
IV Local Costs for Expatriate Personnel (Rent, Furnishing, Utilities, Security Guards)	190,000
V Short-term Consultants (Fee, Per Diem, Travel)	110,000
VI Training (In-Country Allowances)	66,000
VII Training Materials	15,000
VIII Vehicle Running Costs (Petrol and Maintenance)	65,600
IX Home Office Backstopping	69,600
X Overhead	54,854
XI Field Support Staff (2 Drivers and Secretarial Services)	55,000
XII Radio Equipment (2 x Fixed, 4 x Mobile)	10,000
XIII Other Direct Costs (Communications, Pre/ Post Medical Exams, Storage of Household Effects, Field Office Supplies, Misc).	27,500
	<u>1,178,000</u>

I. FIELD PERSONNEL REMUNERATION

	<u>YR I</u>	<u>YR II</u>	<u>YR III</u>	TOTALS
A. Senior Engineer				
Salary	55,000	57,750	60,640	173,390
Fringe Benefits	16,500	17,325	18,200	52,025
Educ. Allow.	10,000	10,000	10,000	30,000
	<u>81,500</u>	<u>85,075</u>	<u>88,840</u>	(A) <u>255,415</u>
B. Engineer		(4375/mo x 8)		
Salary	50,000	35,000		85,000
Fringe Benefits	15,000	10,500		25,500
Educ. Allow.	10,000	10,000		20,000
	<u>75,000</u>	<u>55,500</u>		(B) <u>130,500</u>
			(A + B)	<u>385,915</u>

II. INTERNATIONAL TRAVEL AND TRANSPORT

	<u>YR I</u>	<u>YR II</u>	<u>YR III</u>	<u>TOTAL</u>
a. <u>Senior Engineer</u>				
To post: 4 x 1,500/t = 6,000		Home Leave: 4 x 3,000/rt = 12,000	Return Home: 4 x 1,500/t = 6,000	
* R & R: 4 x 1,500/rt = 6,000				30,000
b. <u>Engineer</u>				
To post: 6,000		Home Leave: 6,000		
R & R: 6,000				<u>18,000</u>
TOTAL			c/f	<u>48,000</u>

c/f 48,000

- b. Unaccompanied Baggage (300 kg) x \$8/k x 2 trips = 4,800
- c. Medical Evacuation/ SOS Insurance = 4,056
 (\$ 159/person/year x 8 persons x 3 years)
₁₆₇
- d. Inspection Trips 3 X \$3,000 x 3 = 27,000
 Per Diem \$120/day x 45 days = 5,400

89,256
 Inflation 9,875

 99,131

III. LOCAL TRAVEL

Assume Air Charter = \$2,000 return (Harper-Monrovia)
 Air Liberia = \$200 return (Harper-Monrovia)

Assume 10 flights per year 4 x Charter = 8,000
 6 x Schedule = 1,200

 9,200
 x 3

 27,600
 Inflation 2,400

 30,000

IV LOCAL COSTS EXP. PERSONNEL

I. Housing-

- a. Rent:
 - Monrovia Hotel/ Apartment: 17 @ 1,500/ mo 27,200
 - Harper 1 House : 30 @ 600/mo 18,000
 - Harper. 1 House : 18 @ 600/mo 10,800
 - 2000*
- 56,000

(Note: Based on continuous rental of houses in Harper and short-term rental in Monrovia)

- b. Furnishings \$18,000 x 2 = 36,000
-

c/f 92,000

c/f 92,000

c. Utilities

Monrovia:	: 17 @ 700/mo	11,900
Harper : 1 House	: 30 @ 700/mo	21,000
<i>2 weeks</i> Harper : 1 House	: 18 @ 700/mo	12,600
2 Generators @ 3,500		7,000
		<u>52,500</u>

d. Security Guard

Harper : 1 House: 30 @ 600/mo	18,000
Harper : 1 House: 18 @ 600/mo	10,800
<i>2 weeks</i>	<u>28,800</u>

Sub Total	173,300
Inflation	16,700

GRAND TOTAL	<u><u>190,000</u></u>
-------------	-----------------------

V. SHORT-TERM CONSULTANTS (8 MAN/MOS)

a. Fee \$250/day x 24 days x 8	40,000
b. Per Diem \$120/day x 240 days	28,800
c. Travel 5 round-trips x \$3,000/trip	15,000
d. Local Travel (8 x Charters x \$ 2000)	16,000
	<u>99,800</u>
	Inflation 10,200
	<u>110,000</u>

VI. TRAINING

In Country: 12 trainees x 333 x \$15 per day	66,000
	Inflation 6,000
	<u>66,000</u>

VII TRAINING MATERIALS

(Allowance for inflation included)	<u><u>15,000</u></u>
------------------------------------	----------------------

VIII VEHICLES (PETROL AND MAINTENANCE)

a.	16,000 gallons at \$3/gallon	48,000
b.	Maintenance \$ 1000/yr x 11 vehicle yrs	11,000
		<hr/>
		59,000
	Inflation	6,000
		<hr/>
		65,000
		<hr/> <hr/>

IX. HOME OFFICE BACKSTOPPING

69,600

X. OVERHEAD

	17% x 258,390	43,926
	17% x 64,287.50	10,928
		<hr/>
		54,854
		<hr/> <hr/>

XI FIELD SUPPORT STAFF

	Drivers - 2 @ \$5,000/yr x 3	30,000
	Secretarial Services	20,000
		<hr/>
		50,000
	Inflation	5,000
		<hr/>
		55,000
		<hr/> <hr/>

XII RADIO EQUIPMENT

10,000

XIII OTHER DIRECT COSTS

a.	Pre/Post Medical Exams \$200 x 8	1,600
b.	Storage of household effects: \$2,000/yr x 2 yrs x 2 + 3,400	11,400
c.	Communications \$2,000 x 3	6,000
d.	Field Office Supplies, (misc.) \$2,000/yr x 3	6,000
		<hr/>
		25,000
	Inflation	2,500
		<hr/>
		27,500
		<hr/> <hr/>

ANNEX I

ANNEX I

ORT - USAID FINANCE PROJECTS IN AFRICA

1960 to PRESENT

AFRICA - REGIONAL PROJECT - 1960-61

After making evaluations of needs for vocational training in 10 African countries, namely Cameroon, Dahomey (now Benin), Ethiopia, Gabon, Guinea, Mali, Nigeria, Central African Republic, Sierra Leone and Chad, ORT formulated recommendations in response to the needs identified.

AFRICA - REGIONAL PROJECT - 1969

In four countries (Cameroon, Central African Republic, Gabon and Chad), studies were made of training needs and resources. The results of these analyses were examined thereafter at a conference organised by UDEAC (Union Douanière des Etats d'Afrique Centrale).

UPPER VOLTA - VOCATIONAL TRAINING - 1975

ORT carried out a series of training programme surveys at the request of the Government, following a project identification visit. They included : a) Rural Development ; b) Vocational Education ; c) Health ; d) Small Industry.

CENTRAL AFRICAN REPUBLIC - AGRICULTURE - 1968-1971

Following an ORT study, a special training programme was designed for Ministry of Agriculture employees in the maintenance and operation of farm machinery and equipment. The training was conducted at the central maintenance facility at Bangui. This activity required the design of a new curriculum base and the production of new training aids. Graduates of this programme are now serving as skilled workers, technicians and trainers in other Government agricultural training institutions.

CHADEDUCATION - 1972

Prior to the design and construction of a new Industrial Training Institute, ORT completed a survey for the Ministry of Education which provided detailed specifications regarding course syllabi and the equipment and materials needed to support the designated teaching assignments.

ROADS - 1979- 1980

Under USAID funding, ORT completed the training of road construction and equipment maintenance personnel, a project started by IBRD in 1975. Chad is one of the Sahelian countries which have placed a high priority on improving road transport networks to facilitate badly needed supplementary food distribution.

ETHIOPIA - RURAL DEVELOPMENT - 1977 - 1982

This is an integrated rural development programme in the Gondar Province of Ethiopia, which includes a broad range of activities. These fall into four major areas: 1) agriculture; 2) primary education; 3) handicrafts and cottage industries; and 4) health. ORT has undertaken appropriate construction and training activities in all of these areas. Credit funds have been made available for farming and cottage industries, practical training has been given to agricultural extension agents and artisans, and schools have been set up and operated.

GABON - EDUCATION - 1966-1969

This project consisted of the design, establishment and subsequent management of a Training Centre in Libreville. Training and upgrading of personnel were conducted in the fields of electro-mechanics and refrigeration. Counterpart instructors and administrators received specialised training in teaching techniques at the Central ORT Institute in Geneva.

GHANA - VOCATIONAL TRAINING - 1975

In response to a Government request, ORT staff made a series of visits and then drafted training survey proposals in the fields of hospital equipment maintenance, highway maintenance, agro-mechanics training and community development.

GUINEA - EDUCATION - 1962-1970

The creation and operation of an Industrial/Technical Training School in Conakry was the objective of this project. It was constructed and run by ORT to offer high-level technical training in 17 vocational skill areas. Training programmes were also implemented for various Government departments. Counterpart training at ORT's Central Institute prepared nationals to replace the ORT specialists upon departure.

KENYA - VOCATIONAL TRAINING - 1966-1971

Following recommendations made by ORT advisers, the National Youth Service set up new courses in the repair of heavy equipment and agricultural machinery, on a nationwide scale. A new centre was set up to offer training in electricity, welding, automobile mechanics, machine-tools and building trades. The programme also included training 25 Kenyans as teachers. The Training Centre is running successfully to the present day.

LIBERIA - EDUCATION - 1978

This project design mission made recommendations for the comprehensive reform of the Booker T. Washington Institute, a technical training school. The recommendations were based on national objectives and on the existing manpower demand in the country. Revision in curriculum, the organisation and management of the Institute, and training and upgrading of the staff were all included.

MALIVOCATIONAL TRAINING - 1962-1968

ORT was responsible for organising and putting into operation a National Science Laboratory and Technical Centre for training mechanics and laboratory technicians. In addition, retraining facilities and programmes for various other Government departments were established. Some Malian teachers received training at the Central ORT Institute in Geneva to prepare them to assume full programme and administrative responsibilities at the conclusion of ORT's assignment.

AGRICULTURE - 1973-1979

On-the-job training for laboratory equipment maintenance personnel in the Central Veterinary Laboratory located in Bamako has been recently phased out. This laboratory produces all of the vaccine for the livestock industry, the major economic base of the country. Surplus vaccine manufactured is exported.

VOCATIONAL TRAINING - 1975

A series of training survey requests by the Government of Mali, submitted to ORT following a project identification visit, were fulfilled in the following fields : a) Rural Development ; b) Vocational Education ; c) Health ; d) Transportation.

RURAL DEVELOPMENT - 1978-1980

The primary objective of this prototype rural community development project was to create an indigenous development capability by means of involving local villages in all stages of planning, selecting, financing and executing some 200 modest rural works and community enterprises. A five-person ORT team played an advisory role, planning, conducting seminars, training and assisting Malian rural community development agents as they worked with the villagers.

196

NIGER - RURAL HEALTH - 1972-1975

Following analysis of rural, maternal and child health services and needs, a pilot programme was established in one of the rural districts to train and upgrade nurses, midwives and other para-medical personnel to improve these services. The programme included the dissemination of information on family planning.

SENEGALVOCATIONAL TRAINING - 1975

A series of training programme requests was presented by the Government to ORT following a project identification visit. They include surveys in the following fields : a) Rural Development ; b) Vocational Education ; c) Health ; d) Industry.

AGRICULTURE - 1977

After a preliminary survey done in 1975, ORT designed a programme for training agricultural mechanics in the Government agricultural and development agency (SAED), and for reorganising the workshop and maintenance facilities.

AGRICULTURAL MECHANICS - 1980-Present

This contract with the 'Société d'Aménagement et d'Exploitation de Terres du Delta' (SAED) calls for ORT to create a permanent training structure to upgrade staff and train new staff in the operation, maintenance and repair of agricultural equipment. This is a follow-up of the above survey and implementation programme.

VOCATIONAL TRAINING - 1979-Present

Working together with the the Ministry of Community Development of Senegal, and, until October 1983 with the YMCA, an ORT technical assistance team is participating in the development of an integrated and decentralised system of training services in Dakar. Training is aimed at currently unemployed youth, both men and women, providing them with marketable skills, and following up with job counselling and placement services.

USAID STAFF TRAINING - 1980

This one-year project has as objective the improvement of performance and the expansion of the roles of foreign national staff of USAID in Dakar, through modification of the work environment and enlargement of career opportunities.

TOGO - AGRICULTURE - 1977

A team of two ORT specialists assisted the Ministries of Education and Vocational Training, and of Rural Development by proposing a number of training programmes to improve the level and increase the scope of technical and rural training in Togo. The current situation, including all existing training institutions and potential recruitment sources, was reviewed ; needs were identified, and proposals were made both for enlarging and improving current programmes and for creating new ones.

ZAIREP.V.O. TRAINING - 1983-Present

ORT is managing a project which is designed to expand and strengthen the long-term capacities of Zairois P.V.O.s to implement development projects. The main project areas are farm to market access roads, rural health and rural mini-hydro electrification.

ZAIRETRANSPORTATION - 1971-1975

A survey of requirements for training of road construction, rehabilitation and maintenance personnel, led to a Government contract for the design and operation of five regional training centres and five mobile road maintenance brigades. Training of counterparts was carried out, and 2,000 km of roads were rebuilt and maintained.

1983 - Current

The Office des Routes has entrusted ORT with the management of Lubumbashi CFR (Regional Training Centre). To this end, three ORT specialists are to run this Centre and concurrently train their Zairian counterparts.

FOOD FOR PEACE/ NUTRITION - 1984 - 1985

AID has requested ORT to carry out a study of causes and the importance of malnutrition in Kinsasa. This mission, called "Food for Peace" will be the first of its kind for ORT and the project aims to feed malnourished children in hospitals and improve the sale and distribution of cheap foods for the worst sufferers of malnutrition. This project has just been approved by USAID and will start June - July 1985.

ZIMBABWE - EDUCATION - 1985 - Current

ORT is purchasing educational equipment for Belvedere College in Harare, within the context of the Basic Education and Skills Training Project (BEST).

1/11

AFRICA - General

EDUCATION

1960 - 1961

After making evaluations of needs for vocational training in 10 African countries, namely Cameroon, Dahomey (now Benin), Ethiopia, Gabon, Guinea, Mali, Nigeria, Central African Republic, Sierra Leone and Chad, ORT made recommendations in response to the identified needs.

1969

In four countries (Cameroon, Central African Republic, Gabon and Chad), studies were made of training needs and resources. The results of these analyses were examined thereafter at a conference organised by UDEAC (Union Douanière des Etats d'Afrique Centrale).

URBAN - 1983 - 1984

ORT is involved in a regional project financed by the World Bank and, UCHS (Habitat) to develop a Training Needs Assessment Methodology for use in local authorities in East Africa. The manual has been field tested in Kenya, will be tested also in the Ivory Coast and its use may be extended world-wide.

2016

ORT INTERNATIONAL COOPERATION DEPARTMENT

COUNTRY	SECTOR	DESCRIPTION OF PROJECT ACTIVITIES	FUNDING SOURCE AND DATE
<u>AFGHANISTAN</u>	<u>Transportation</u>	1. In collaboration with Kampsax, a Danish consulting engineering firm, a basic training programme for road maintenance personnel was designed and implemented.	UNDP/IBRD 1973-1974 Completed
		2. At the request of the Renardet-Sauti ICE, an Italian consulting engineering company, a new survey of road maintenance training needs on a national level for the Ministry of Public Works was completed.	IBRD 1975 Completed
<u>ARGENTINA</u>	<u>Education</u>	A survey was made for the Ministry of Education of the Buenos Aires Province to determine its needs in vocational and technical education. As a parallel activity, 15 Argentinian trainee teachers were sent to the Central ORT Institute.	Govt./Province B.Aires/DDA 1970 Completed
<u>BANGLADESH</u>	<u>Education</u>	Two distinct aspects of education were involved in this survey : first, rural vocational education, once the relevant trades for each training centre were identified and specifications were made for establishing new centres and upgrading existing ones ; and second, the feasibility of indigenous production of educational materials, with recommendations for more efficient procurement where production was not a possibility.	Asian Development Bank 1977 Completed
<u>BOLIVIA</u>	<u>Transportation</u>	a) In collaboration with a US Civil Engineering Consultant, ORT completed a study of road maintenance personnel training needs. Recommendations were made as to the number and types of staff to be trained, appropriate training methodology, and specifications for equipment needed. A proposed training programme and budget were included.	IBRD 1979 Completed

1981

- b) Following this study, ORT took part in a project aiming to improve road maintenance. ORT was responsible for the vocational training of the staff.
- IBRD
1981 - 1982
Completed.

BOTSWANA

Transportation

ORT was requested to prepare a road maintenance pilot project including recommendations for organisation and operational procedures, as well as equipment needs. This project was designed to be labour-intensive, employing and training as much unskilled labour as possible. The resulting roads also improved access to rural areas.

Kampsax
1977
Completed

Urban

1. ORT led a team preparing a preliminary study for a pilot training project in road maintenance, water supply, sewage and housing for local government authorities.
2. ORT completed a survey to determine the training needs of the municipality staff. This study was carried out by several urban specialists from ORT, USAID and IBRD.
3. Following the preparation of an ORT programme by an ORT training specialist working with World Bank missions, ORT, with CHF/CIPFA, was awarded the contract for a Pilot Project for one year. Following this project, it is hoped that funding will permit a longer two/three year project. The team of 4 training officers will be mobile, moving between Gaborone and Francistown, developing training programmes on the job in the Administration, Finance, Technical and Social/Community areas.

IBRD
1983-1984
Completed

IBRD
1984
Completed

IBRD
1985 -
Current

BRAZIL

Transportation

This one-man survey Mission assessed the training needs in Highway Maintenance in the two provinces of Rio Grande do Sul and Minas Gerais. In the light of the findings, a programme for the improvement of training throughout the national Ministry of Roads was prepared.

ORT
1980
Completed

2024

<u>BURKINA-FASO</u>	<u>General</u>	ORT carried out a series of training programme surveys for the Government, following a project identification visit. They included : a) Rural Development ; b) Vocational Education ; c) Health ; d) Small Industry.	USAID 1975 Completed
	<u>Education</u>	Within the framework of a World Bank Education Project, ORT provided an architect for a two-year period, in charge of coordinating the construction of various regional training centres.	IBRD 1980-1982 Completed
	<u>Urban</u>	A 1977 survey assessed needs of municipal services of two major cities in Burkina-Faso (previously Upper Volta). The organisation, operation and maintenance of all municipal services were considered, as well as city management, including administration of taxation. Problems of integrating and upgrading disadvantaged urban areas were stressed. The recommendations made in the survey have been implemented by an ORT team of three, who carried out the necessary training, so that national employees can carry out the municipal services functions.	IBRD 1979-1982 Completed
<u>BURMA</u>	<u>Transportation</u>	ORT was requested to train personnel of the Burma Ports Corporation in the use of equipment, as part of a project funded by the World Bank. Courses were planned and implemented, including motor-truck mechanics, stationary engines mechanics, sheet metal construction and welding, and general maintenance mechanics.	IBRD 1980 Completed
<u>BURUNDI</u>	<u>Industry</u>	A survey was conducted by an ORT specialist to identify the training needs of the Construction Industry, and a crash course was designed for the urgent training of construction workers.	IBRD 1980 Completed
	<u>Transportation</u>	1. In response to a national priority of improving road and highway services, ORT carried out a survey for the Government of Burundi and IBRD to determine training requirements of the Ministry of Public Works staff.	IBRD 1974 Completed

2. This is a project to train and retrain students in the Public Works Section of Bujumbura Technical School, as well as at the new Gitega Centre for Road Maintenance Training. Counterparts will participate in courses in technical subjects and teaching methods to prepare them for staffing the Public Works Section at the close of the project. ORT is responsible for acquiring the necessary equipment, and participate in the selection of trainees. IBRD
1978 -
Current
3. A survey was carried out by an ORT specialist to assess the needs in manpower, material and equipment, as well as the means to effectively manage the Central Workshops attached to the various Training Centres of the Ministry of Public Works. IBRD
1982
Completed

CAMEROON

Education

1. A survey was undertaken for the Ministry of Education to identify technical and vocational needs and resources in the Northern provinces. The report served to substantiate the Government's request for a major loan and to determine its current and future needs in planning its vocational and technical training system. IBRD
1973
Completed
2. This project covers the provision of two specialists to assist the Cameroon Ministry of Education in all matters relevant to the finances and equipment in various Education Projects financed under IBRD loans. IBRD
1982 -
Current
3. This was a one-man Survey Mission to establish the needs of the manpower and equipment and corresponding budget necessary to implement an expansion of the existing "Collège des Travailleurs". CIDA
1981
Completed

Transportation

1. Railways

Under an IBRD-funded programme for improvement and maintenance of the Cameroon Railways, ORT evaluated existing training programmes and recommended modifications to bring them in line with planned improvements in management and operations. IBRD
1977-1982
Completed

Following its preliminary study, ORT participated in a reorganisation of the Cameroon Railways. This began with a detailed analysis of the function of each post within the railway, on the basis of which, job requirements and an organisational diagram were drafted. Recommendations for the reorganisation of the Training Department were made and training programmes set up to meet the defined needs of the railway over the next five years.

CAMEROON

A natural follow-up implementation of the recommendations made in the study in the areas of overall organisation and personnel management of the Railway System.

IBRD
1982-1985
Current

2. Public Works

A total of 33 participants of the Cameroon Ministry of Equipment, Highway Directorate, are trained in Europe, at various institutions, including ORT France. The participants are employees coming from all sections and levels of the Directorate from managerial to maintenance and workshops operatives.

IBRD
1984-1985
Current

CENTRAL
AFRICAN
REPUBLIC

Agriculture

Following an ORT study, a special training programme was designed for Ministry of Agriculture employees in the maintenance and operation of farm machinery and equipment. The training was conducted at the central maintenance facility at Bangui. This activity required the design of a new curriculum base and the production of new training aids. Graduates from this programme are now serving as skilled workers, technicians and trainers in other Government agricultural training institutions.

USAID
1968-1971
Completed

For the purpose of this project, new study programmes and teaching material had to be created. Five counterpart instructors were trained at the ORT Central Institute, Anières, and, on their return, took up total responsibility of the Centre.

Education

ORT was commissioned by the E.E.C. to carry out a survey of the equipment needs of the existing "LYCEE TECHNIQUE DE BANGUI" in Central African Republic and, based on the local industry skill needs, an ORT specialist compiled a comprehensive list of equipment and materials destined to be the object of appeals for tender for purchases to be ultimately made under an E.E.C./E.D.F. grant. Selection of supplier and verification of tender lists outstanding.

E.E.C.
1982
Completed

C H A D

Education

1. Prior to the design and construction of a new Industrial Training Institute, ORT completed a survey for the Ministry of Education which provided detailed specifications regarding course syllabi and the equipment and materials needed to support the designated teaching assignments.

USAID
1972
Completed

		2. The Government's new Industrial Training Institute in N'Djamena is under construction, ORT entered into an agreement with the UNDP through which it prepared a detailed list of necessary training equipment for publication for supplier bidding.	UNDP 1975 Completed
<u>CHAD</u>	<u>Transportation</u>	1. At the request of the Government of Chad and the IBRD, ORT trained road construction and equipment maintenance personnel. Chad is one of the Sahelian countries which have placed a high priority on improving road transport networks to facilitate badly needed supplementary food distribution.	IBRD 1975 Completed
		2. Under the funding of USAID, the above project continued and expanded until operations were suspended owing to adverse political conditions.	USAID 1979-1980 Completed
<u>CHILE</u>	<u>Education</u>	In co-operation with INACAP, the National Training Institute, ORT participated in this training effort for eight years. Full-time and part-time students received instruction in air conditioning, industrial refrigeration, and food preservation through cold storage. The principal training centre was established in Santiago, and two satellite centres were opened.	DDA 1969-1977 Completed
<u>COLOMBIA</u>	<u>Agriculture</u>	At the request of DDA, an evaluation was made of the Agricultural Training Centre at Buga.	DDA 1975 Completed
	<u>Education</u>	A training sequence for precision mechanics was designated by ORT for the Government apprenticeship training programme (SENA). The project is operational under Government direction in Medellin.	DDA 1975 Completed
<u>COSTA RICA</u>	<u>Agriculture</u>	An evaluation of the past and current operations of an agromechanics training programme, sponsored by DDA, was undertaken. The study included specific recommendations concerning past, present and future actions bearing on programme content, training aids, and employment of graduates.	DDA 1975 Completed

1975

DOMINICAN
REPUBLIC

Transportation

Within a Louis Berger team, ORT provided the manpower development element of the USAID-sponsored Highway Maintenance Project, initially in accounting, administration and plant maintenance. Berger's project terminated in 1982, but the ORT mechanical training specialist is continuing to develop workshop manpower capability.

USAID
1981-1984
Completed

ECUADOR

Agriculture

Having financed an agricultural mechanisation training project in Quito, DDA requested ORT to determine the applicability of the Costa Rica training experience to the needs and circumstances of Ecuador. Recommendations were made to DDA.

DDA
1975
Completed

EGYPT

General

A one-man Mission was sponsored by ORT to assess the training needs in Vocational Education, Port Maintenance and Cotton Industry.

ORT
1982
Completed

ETHIOPIA

Agricultural

A desk study of available material on manpower needs and requirements was made by an ORT specialist for the Peasant Agricultural Development Project (PADEP) in six regions of Western Ethiopia. This included the MOA staff and staff for the Peasant Association, Service Cooperatives and Producer cooperatives. This required looking at career ladders, job descriptions and service conditions for all staff with particular reference to the introduction of the Training and Visit System of Extension.

IBRD
1984
Completed

Rural Development

This is an integrated rural development programme in the Gondar Province of Ethiopia, which includes a broad range of activities. These fall into four major areas : 1) agriculture ; 2) primary education ; 3) handicrafts and cottage industries ; and 4) health. ORT has undertaken appropriate construction and training activities in all of these areas. Credit funds have been made available for farming and cottage industries, practical training has been given to agricultural extension agents and artisans, and schools have been set up and operated.

USAID : BMZ
CIDA : SIDA
DDA
1977-1982
Completed

GABON

Education

1. This project consisted of the design, establishment and subsequent management of a Training Centre in Libreville. Training and upgrading of personnel were conducted in the fields of electro-mechanics and refrigeration. Counterpart instructors and administrators received specialised training in teaching techniques at the Central ORT Institute in Geneva. USAID
1966-1969
Completed
2. At the Government's request, a survey was made of training needs and a related curriculum was programmed for an Industrial/ Technical Training Centre subsequently located in Franceville. Govt. Gabon
1973
Completed

Industry

At the request of Shell Elf Gabon, a public-private joint enterprise and one of Gabon's largest employers of skilled labour, ORT designed, established and operated a series of specialised training programmes. These included on-the-job and formal training in electromechanics, instrument repair and pneumatic specialities. Shell-Elf
(Gabon)
1969-1975
Completed

GHANA

General

In response to a Government request, ORT staff made a series of visits and then drafted training survey proposals in the fields of hospital equipment maintenance, highway maintenance, agro-mechanics training and community development. USAID
1975
Completed

GUINEA

Education

1. The creation and operation of an Industrial/Technical Training School in Conakry was the objective of this project. It was constructed and run by ORT to offer high-level technical training in 17 vocational skill areas. Training programmes were also implemented for various Government departments. Counterpart training, at ORT's Central Institute, prepared nationals to replace the ORT specialists upon departure. USAID
1962-1970
Completed
2. ORT is providing the services of an architect attached to the Directorate of the Second Education Project and in charge of supervision and execution of contracts for schools, institutes and other educational buildings. IBRD
1983-1986
Current

3. An evaluation of Education projects financed by EEC was done by a two-man team. These projects included the Faculté des Sciences et Techniques, l'Institut Polytechnique Secondaire Maritime and the Faculté d'Agronomie. EEC
1983
Completed

Industry

A comprehensive technical training programme including both on-the-job and formal training was initiated in 1968 for the Guinea Bauxite Mining Company. ORT training has focused on organisation and maintenance of mine site installations, port facilities and 150 km of railway line essential to the flow of minerals and base supplies. Counterpart training was given in related skill areas at the Central ORT Institute. In 1975, training was shifted to the Boké region - the headquarters of mining operations. CBG-HALCO
1968-1975
Completed

ORT designed and supervised construction of a CBG Training Centre Kamsar, where most of the training now takes place. CBG/HALCO
1975-1983
Completed

The last phase includes the extramural training of Guinean counterparts in a variety of areas including hydrographic studies, trainer training and language studies. CBG/HALCO
1983
Current

Voced/Agr. Dev.
Small Enterprises

A three-man study Mission was carried out to identify the training needs in Vocational Education Agricultural Development and small scale enterprises, at the request of the Ministry of International Cooperation. ORT
1983
Completed

INDONESIA

Transportation

Five post-graduate courses, together with appropriate industrial attachments, were organised in the UK for 48 engineers and other senior staff from Bina Marga. IBRD
1982
Completed
Courses were organised in Transportation Planning, Project Management Information Systems, Finance and Contract Administration, and Training Management.

IRAN

Transportation

1. A survey to identify training and retraining needs of supervisory and technical personnel in road construction and maintenance was conducted for the Ministry of Roads. Govt.Iran
1974
Completed

2. A survey of training requirements led to the formulation and implementation of a training programme for the personnel (5,000) of the Iranian Ports and Shipping Organisation. This programme involved the training and retraining of specialists in such skills as diesel mechanics, electricity, maintenance, general mechanics, fire and safety procedures, storekeeping, warehousing and maritime specialities. IBRD
1974-1975
Completed

IVORY COAST

Agriculture

1. Advisory services to the National Office of Vocational Training led to new courses in agricultural and heavy equipment maintenance and repair. These courses were adopted on a national level. Govt. Ivory Coast
1971-1972
Completed
2. A survey by ORT, of teaching capabilities in the field of agricultural equipment repair and maintenance, led to the establishment of a new agromechanics training centre in San Pedro and the practical application of training skills to improve performance of maintenance and construction work for local industries. CIDA/Govt.
Ivory Coast
1972-1976
Completed

Education

1. Operation of five rural vocational training centres and preparation of counterpart trainers were ORT's major responsibilities. Instruction was focused on motor mechanics, machine tools, metalwork, woodwork and electricity. Govt. Ivory Coast
1965-1968
Completed
2. After conducting a study of technical education and vocational training, ORT initiated a national programme designed to upgrade the quality and increase the quantity of skilled manpower. Govt. Ivory Coast
1965-1968
Completed
3. At the request of the National Office of Vocational Training, ORT established and operated an Audio-Visual Training Centre in Abidjan to upgrade and retrain secretarial and administrative personnel. Complete takeover by Ivorian personnel was achieved on the completion of ORT's assignment. Govt. Ivory Coast
1969-1972
Completed
4. Advisory services were extended to the National Office of Vocational Training in the fields of automotive and general equipment maintenance. The recommendations made were in turn adapted by the Government to meet similar needs in other departments. Govt. Ivory Coast
1972-1973
Completed

<u>IVORY COAST</u>	<u>Industry</u>	ORT initiated a proposal for the establishing of a Regional Research Centre in Abidjan into the applications of Information Technology and Renewable Energies in four West African States. A four week one man mission was sponsored to establish the Terms of Reference for a future Project Design Mission.	CIDA 1984 Completed
	<u>Transportation</u>	At the request of the World Bank, an ORT representative participated in a Highway Sector Loan post-appraisal mission. A survey was made of personnel training needs at the Ministry of Public Works.	IBRD 1979 Completed
<u>KENYA</u>	<u>Education</u>	Following recommendations made by ORT advisers, the Vocational Training Centre of the National Youth Service set up new courses in the repair and maintenance of heavy equipment and agricultural machinery, on a nationwide scale. A vocational Training Centre was designed and set up to offer training in electricity, welding, automobile mechanics, machine-tools and building trades. The programme also included training 25 Kenyans as teachers.	USAID 1966-1971 Completed
	<u>Transportation</u>	At the request of the IBRD and the Swedish International Development Authority, an evaluation of the national road maintenance training programme was carried out, which began in 1971. Specific recommendations for improvement of curricula, training methods, and training aids, as well as programming of future activities, were included in the report.	SIDA 1975 Completed
	<u>Urban</u>	An assessment was made of the training needs of the Nakuru Municipal Council as part of an overall training needs assessment methodology for Eastern Africa.	IBRD 1984 Completed
<u>KOREA</u>	<u>Education</u>	A survey was conducted to establish the groundwork for a model vocational high school in Suwon.	World Council of Churches 1970 Completed

<u>LESOTHO</u>	<u>Transportation</u>	SWK are implementing a labour-based road project in various regions of Lesotho. ORT is providing a senior administrator/trainer who is attached to the H.Q. of the project.	SIDA 1984-1986
	<u>Urban development</u>	<ol style="list-style-type: none">1. An ORT expert has prepared an initial programme for employment and manpower training for the first local government in Maseru.2. The World Bank are funding a low-cost housing programme in Lesotho which is combined with the restructuring of local government. This was an initial study for this programme.	BIRD 1984 Completed IBRD 1984 Completed
<u>LIBERIA</u>	<u>Education</u>	This project design mission made recommendations for the comprehensive reform of the Booker T. Washington Institute, a technical training school. The recommendations were based on national objectives and on the existing manpower demand in the country. Revision in curriculum, the organisation and management of the Institute, and training and upgrading of the staff were all included.	USAID 1978 Completed
<u>MADAGASCAR</u>	<u>Education</u>	<p>A national centre for production of physics and chemistry laboratory equipment has been created. ORT first evaluated the country's needs and current resources in this area, and then proceeded to set up the centre and commence production. Local counterparts have been trained to run the centre and its manufacturing functions. In addition, local teachers receive training in the use of the materials.</p> <p>A one-man Mission was undertaken to assess the viability of establishing a printing facility.</p>	IBRD 1977-1982 Completed IBRD 1982 Completed

2/10

MALI

General

A series of training survey requests by the Government of Mali, submitted to ORT following a project identification visit, were fulfilled in the following fields : a) Rural Development ; b) Vocational Education ; c) Health ; d) Transportation.

USAID
1975
Completed

Agriculture

On-the-job training for laboratory equipment maintenance personnel in the Central Veterinary Laboratory located in Bamako has been recently phased out. This laboratory produces all of the vaccine for the livestock industry, the major economic base of the country. Surplus vaccine manufactured is exported.

USAID
1973-1979
Completed

Education

ORT was responsible for organising and putting into operation a National Science Laboratory and Technical Centre for training mechanics and laboratory technicians. In addition, retraining facilities and programmes for various other Government departments were established. Some Malian teachers received training at the Central ORT Institute in Geneva to prepare them to assume full programme and administrative responsibilities at the end of ORT's assignment.

USAID
1962-1968
Completed

Rural

The primary objective of this prototype rural community development project was to create an indigenous development capability by means of involving local villages in all stages of planning, selecting, financing and executing some 200 modest rural works and community enterprises. A five-person ORT team played an advisory role, planning, conducting seminars, training and assisting Malian rural community development agents as they worked with the villagers.

USAID
1978-1980
Completed

Transportation

1. An ORT specialist participated in the World Bank's Fourth Highway Project Appraisal Mission to Mali, identifying manpower, training, and technical assistance requirements within the framework of the loan to be negotiated.
2. A three-month training programme for five Trainers from the Centre de Formation Professionnelle et des Travaux Publics de Bamako, was carried out at the ORT Anières Institute and the Public Works School in Paris.

IBRD
1978
Completed

IBRD
1980-1982
Completed

	<u>Urban</u>	ORT assisted again in the preparation of a World Bank project design, identifying training needs in all municipal services in Bamako. Aspects of organisation, operation, maintenance and coordination of services were considered.	IBRD 1978 Completed
<u>MAURITANIA</u>	<u>Health</u>	Following analysis of training needs of hospital equipment maintenance personnel, an in-hospital, on-the-job training programme was designed and carried out. The two-year project ended with hospital/Government takeover at its conclusion.	EEC 1975-1976 Completed
<u>MOROCCO</u>	<u>Education</u>	Yearly short-term training programmes in teaching techniques were given to volunteer instructors from European countries serving in vocational training/educational programmes in Moroccan schools.	EIRENE Int. Christian Assoc. for Peace 1974-1975 Completed
	<u>Forestry</u>	ORT is providing a forestry training specialist for eleven man months over a period of three years to the Gharb-Mamora Forestry project. He will be training staff in silvicultural practices, charcoal production, forestry industries and in the use of satellite imagery for the study of soil erosion control and forest management. He will also make recommendations for the creation of a forestry training Centre for the region.	IBRD 1984 - 1986 Current
	<u>Tourism</u>	A survey was made of personnel training requirements in hotel management and maintenance. Two specialists from ORT and Sema Metra estimated personnel and equipment needs and evaluated existing vocational courses.	Govt. Morocco 1977 Completed

<u>NEPAL</u>	<u>Education</u>	The aim of this study was to identify skills that would be immediately employable in the Eastern region of Nepal. Current skill requirements in industry were assessed and existing training programmes evaluated, and then a detailed programme was designed in the skill areas found to be necessary. Choice of sites for training centres, curriculum design, and equipment and staff needs were assessed.	Asian Development Bank 1976 Completed
	<u>Rural Development</u>	ORT was commissioned to provide a training adviser for 5 months to assist in a study of the training needs within the Karnali-Bheri Integrated Rural Development Programme (K-BIRD).	CIDA 1982 Completed
<u>NIGER</u>	<u>Health</u>	1. Following analysis of rural, maternal and child health services and needs, a pilot programme was established in one of the rural districts to train and upgrade nurses, midwives and other para-medical personnel to improve these services. The programme included the dissemination of information on family planning.	USAID 1972-1975 Completed
		2. An ORT specialist carried out a one month study assessing the possibilities of computerizing the rural files of the Ministry of Health.	USAID 1984 Completed
	<u>Industry</u>	This one-year survey focused on technical and market considerations related to the establishment of a workshop for the assembly, maintenance, repair and sale of motor-cycles and bicycles.	UNDP 1976 Completed
	<u>Transportation</u>	The organisation and supervision of a motor pool system for heavy duty trucks involved in food transportation in the Sahel was the subject of this assignment.	UNDP 1975-1978 Completed

NIGERIA

Agriculture

One ORT specialist joined a team of 7 on a World Bank Appraisal Mission, aimed at assessing the present state of agricultural progress in Borno State, in view of the proposed Agricultural Development project.

IBRD
1982
Completed

Banking

1. This programme for the United Bank for Africa is designed to train and upgrade more than 2,800 employees of the Bank, while creating a permanent indigenous training capacity within the Bank. Formal and on-the-job training are given in a wide range of banking operations, including general orientation, savings and current accounts, securities, lending, bills, credits, foreign exchange, payroll procedures, computer and telephone techniques, cashier operations and management and supervisory skills. One regional training centre opened in the autumn of 1977 and a second early in 1978. Counterpart trainers have received further training in Geneva, elsewhere in Europe and the United States.

United Bank
for Africa
1975-1979
Completed

In addition to its training work, ORT has carried out a major recruitment exercise in order to help the Bank step up the Nigerianisation of its middle and senior management. Through its offices in the UK and North America, ORT contacted over 400 Nigerians working abroad, and the Bank was able to appoint and repatriate 50 experienced and qualified nationals from overseas.

2. ORT carried out a study of personnel training needs for the National Bank of Nigeria (NBN). A report was presented containing recommendations regarding the creation of a permanent training structure in such areas as savings, portfolio management, banking procedures, loans, etc.
3. ORT is to assist with a survey on improving O & M procedures, expanding Corporate Planning and enlarging the recruiting and training structure. This involves conducting training courses for existing and newly recruited personnel for specific tasks, following an elaborate curriculum.

National Bank
of Nigeria
1976
Completed

Bank of the
North
Nigeria
1979
Completed

2/1/79

4. Following a study carried out for the Bank of the North in 1979, ORT has been contracted to provide technical assistance in the areas of corporate planning, organisation and management procedures. In addition, ORT has assisted in the setting up of a Training Centre in Kano. ORT specialists are now running the centre and developing the Bank's own recruitment and training capabilities and rewriting the Bank's Book of Instructions.
- Bank of the North
1979-1984
Completed

5. At the request of the Mercantile Bank of Nigeria, ORT carried out a study into the training and staff development needs of the Bank staff, and a report was issued in April 1982.
- Mercantile Bank
1983-1987
Current

Following the submission of the above report, a project is now being implemented whereby ORT is setting up a fully equipped Training Centre in Calabar and organising all the necessary training programmes as per the identified needs. A three-man team will be present for 4 years before handing over to Nigerian staff.

Commerce

- ORT completed a study mission aimed at identifying training needs for management personnel of the Technical and Motor departments of the United Trading Company Ltd of Nigeria. The report included recommendations for the creation of a training centre, a proposed training programme, and listed the necessary equipment and personnel.
- UTC
1977-1982
Completed

Following this study, ORT prepared a UTC Operations Manual. To this end, existing rules and procedures, which were originally scattered in separate bulletins and announcements, are now simplified and codified into a single manual arranged to allow for occasional revisions. The new version of the manual is now used by company managers and supervisors and serves effectively as a basis for designing supervisory training courses.

217

NIGERIA

Industry

1. ORT was requested by the International Beer and Beverages Industries of Kaduna, Nigeria, to survey the training needs and the need for improving the skills of local maintenance and operation staff. The study was completed and a Project Proposal submitted. IBBI
1983
Completed
2. Under a contract with Peugeot and PAN (Peugeot Automobile Nigeria), ORT conducted a feasibility study and established a training centre for PAN employees working in the Peugeot assembly plant at Kaduna. Currently, workers are being retrained and upgraded and new personnel are being trained to meet the future needs of an expanded labour force. A major effort to recruit both expatriates and Nigerians for participation in the programme has been undertaken. Some of the Nigerian training staff are being trained in Europe under ORT supervision. The project has been extended until 1985 under a new contract with 3 remaining ORT specialists. Peugeot
1977-1985
Current

Transportation

1. In collaboration with Kampsax, a survey of training needs for highway maintenance personnel was carried out for the Federal Ministry of Public Works and Housing. This led to the establishment of a comprehensive training programme, to train new employees and upgrade existing ones, both for the Federal Ministry and the States. Four Training Centres have been set up, concentrating initially on Road Foremen, Plant Maintenance Mechanics, and Plant Operators, and on the training of local instructors. Production and Training Units have been set up to carry out on-the-job training, and a Training Services Unit has produced a wide range of course material and training aids. The programmes were then modified and extended to the training of Highway Inspectors, Bridge Inspectors and Technical Assistance. IBRD
1974-1985
Current
2. ORT provided a specialist to study the manpower and training needs of the 30,000 employees of Nigeria Railways. IBRD
1984
Completed

2/16

<u>PERU</u>	<u>Transportation</u>	Sponsored by the IBRD, ORT undertook a one-man Study Mission to assess the training needs of personnel employed in the Road Maintenance and Equipment department of the Peruvian Ministry of Transport.	IBRD 1981-1982 Completed
<u>PORTUGAL</u>	<u>Education</u>	In association with the OECD Cooperative Action Programme, ORT was requested by the Portuguese Government to review several areas of concern in vocational training. As a result, ORT conducted two seminar/workshops, one in the Psycho-Sociology of Vocational Training, and the other in Vocational Training and Work for Women.	OECD 1978-1979 Completed
<u>RWANDA</u>	<u>Transportation</u>	<ol style="list-style-type: none">1. An ORT survey of national road maintenance training requirements led to the design of a training programme for use in collaboration with the Rhein-Ruhr Ingenieur-Gesellschaft m.b.H. roads improvement programme.2. An ORT team of three specialists with RRIG is implementing the recommendations of an updated version of the 1973 study. The training or retraining of over 500 personnel of the Department of Public Works in the operation and maintenance of heavy equipment and the construction, repair and maintenance of roads is ORT's responsibility. The latter designs programmes responsive to the identified needs, participates in the selection of trainees, and produces all didactic material.	IBRD 1973 Completed IBRD 1978 - Current
<u>SENEGAL</u>	<u>General</u>	A series of training programme requests was presented to ORT by the Government following a project identification visit. They include surveys in the following fields : a) Rural Development ; b) Vocational Education ; c) Health ; d) Industry.	USAID 1975 Completed

SENEGAL (Cont'd)

Agriculture

ORT is providing 23 specialists for the staffing and equipping of agricultural and technical training centres. This includes identification, acquisition and installation of necessary equipment and teaching materials, and revision of curricula. Counterparts are being trained as instructors in the areas of agriculture, water and forests, and animal husbandry. Some of the instructors have had previous experience at lycée and university levels.

DDA
1977 -
Current

Agromechanical

After a preliminary survey done in 1975, ORT designed a programme for training agricultural mechanics in the Government agricultural and development agency (SAED), and for reorganising the workshop and maintenance facilities.

USAID
1980-1984
Completed

This contract with the 'Société d'Aménagement et d'Exploitation des Terres du Delta' (SAED) calls for ORT to create a permanent training structure to upgrade staff and train new staff in the operation, maintenance and repair of agricultural equipment. This is a follow-up of the above survey.

Education

1. The objective of this project was the improvement in performance and the expansion of the roles of local national staff of USAID in Dakar, through modification of the work environment and enlargement of career opportunities.
2. Working together with the YMCA and the Ministry of Community Development, an ORT team is participating in the development of an integrated and decentralised system of training services in Dakar. Training is aimed at currently unemployed youth, both men and women, providing them with marketable skills, and following up with job counselling and placement services. This project was taken on by ORT in September 1984 with financing from USAID, UNDP and the Ford Foundation.

USAID
1980-1981
Completed

USAID
1979 -
Current

3. Women Training

ORT carried out a Market Survey followed by an investigation into the feasibility of integrating women into the construction trades traditionally limited to men. Furthermore, ORT assessed the possibilities of establishing a draftsman workshop section with 50% women students within the framework of the existing CFPJ.

Ford Foundation
1983
Completed

4. Fisheries

An evaluation of the performance of the Maritime Fisheries School in Dakar was undertaken for the Ford Foundation. This included recommendations for updating the curriculum and the upgrading of buildings and equipment. The technical assistance requirements were also studied.

Ford Found.
1983
Completed

Transportation

ORT was involved in 1978 and 1980, in two stages of the IBRD Appraisal Team for its highway project in Senegal. The first was a survey and assessment of personnel and training needs within the Ministry. Several months later, an ORT consultant designed a training programme for the Public Works employees, and also determined the availability of trainees within the Department, facilities and equipment needed, technical assistance requirements, as well as costs of the programme.

IBRD/Louis Berger
1981
Completed

In 1981, ORT was chosen to execute this project, including the construction of a new Training Centre and the organisation of Training Production Units (TPU). This 9-man project is now in progress.

IBRD
1981 -
Current

SIERRA LEONE Transportation

As part of an IBRD survey, in preparation for a programme of assistance to the Ministry of Works in improving highway maintenance, ORT prepared a report on the training facilities available and the training needs, with detailed recommendations for a comprehensive training programme.

IBRD
1980
Completed

SOUTH PACIFIC Education

A two-man study mission was undertaken by ORT to identify the training needs in the rural development sector of the South Pacific Area, with particular emphasis on remote islands in that part of the world.

USAID
1981
Completed

<u>SUDAN</u>	<u>Agriculture</u>	<p>1. The project is to develop the extension capabilities of the five Agricultural Production Cooperations of New Halfa, Rahad, Geizra Blue Nile and White Nile by the introduction of the T & V system. This will require the Agricultural Research Corporation to become more involved with adaptive research and at the same time for the University of Gezira to develop an information dissemination unit for the sifting and packaging of research results. The University will also be introducing a post-graduate diploma and MSc in Extension methodology.</p> <p>2. The Northern Agriculture Production Corporation (NAPC) manages fourteen pump schemes along the River Nile North of Khartoum. The project is designed to rehabilitate a number of the engineering works and assist in developing the management and financial accounting systems as well as the infrastructural development of the corporation. A manpower and training specialist from ORT prepared recommendations on the establishment of a training capability within the corporation.</p>	<p>IBRD 1983 Completed</p> <p>ODA 1984 Completed</p>
	<u>Transport</u>	<p>A survey was undertaken to assess training needs in Road Maintenance in Southern Sudan.</p>	<p>USAID/IBRD 1983 Completed</p>
<u>SWAZILAND</u>	<u>Education</u>	<p>This survey of vocational training needs was aimed at the creation of a number of rural vocational training centres based on the specific manpower needs and potential of the various Districts. Recommendations included the location of the District Vocational Training Centres, and the choice of basic skills to be offered by each centre.</p>	<p>IBRD 1977 Completed</p>
	<u>Transportation</u>	<p>1. Following up an initial study made in autumn 1976, a detailed investigation was made of the organisation and capabilities of the Roads Branch of the Ministry of Works. Proposals were made for reorganisation and staffing and a detailed assessment of training needs over the next five years was made, taking into consideration anticipated increases in traffic and plans for road improvement.</p> <p>2. A survey was undertaken to examine training needs of the entire Ministry of Works.</p>	<p>IBRD 1977 Completed</p> <p>1982 Completed</p>

<u>TANZANIA</u>	<u>Education</u>	A survey on behalf of the Tanzanian National YMCA, and in cooperation with the International University Exchange Fund, was conducted to prepare recommendations on the planning, construction, equipping and operation of a vocational and farm training school.	International University Exchange Fund 1971 Completed
	<u>Transportation</u>	A 21-man ORT team assisted the Tanzanian Ministry of Works to develop a road maintenance capability. This included training all categories of road maintenance personnel and establishing a permanent training structure. A training centre was equipped and staffed at Morogoro. The programme dealt with the Southern half of the country, and the last part of the project was the preparation of a comprehensive series of training manuals.	IBRD 1976-1979 Completed
<u>TOGO</u>	<u>Education and Agriculture</u>	A team of two ORT specialists assisted the Ministries of Education and Vocational Training, and of Rural Development by proposing a number of training programmes to improve the level and increase the scope of technical and rural training in Togo. The current situation, including all existing training institutions and potential recruitment sources, was reviewed ; needs were identified, and proposals were made both for enlarging and improving current programmes and for creating new ones.	USAID 1977 Completed
	<u>Urban</u>	At the request of the IBRD, an ORT training specialist joined a consultant team in charge of the pre-identification of a project directed towards Lome. This specialist's task covered the various technical services of the town ; fire services, refuse collection, road maintenance....	IBRD 1981 Completed
<u>TONGA & WESTERN SAMOA</u>	<u>Education</u>	Under the auspices of the Foundation for the People of the South Pacific, ORT carried out a survey of Tonga and Western Samoa to identify areas in which training would be feasible. A training specialist was assigned to each of the two countries to participate in the implementation of programmes in the areas selected.	USAID 1978-1979 Completed

TURKEY

Education

Following an analysis in 1974-1975 of technical training needs, particularly technical teacher training requirements, a centre is now being developed in Ankara for teaching micro-technics. The training will include maintenance and repair of medical and navigation instruments, micro-electronics, data processing and computer studies.

OECD
1974-1979
Completed

UNITED
KINGDOM

Community Project

This Community Project is designed to train unemployed young people under the age of 18 in a variety of skills which will help them to gain employment. 80 trainees are being trained as carpenters, decorators, typists, hairdressers, child-nurses and caterers. The carpenters make toys for local nursery schools ; decorators paint the homes of elderly people ; the cooks provide meals for all the trainees and also for old-age pensioners ; secretarial services are provided for local charities.

Manpower
Services
Commission
1984-Current

Education

After an in-depth survey of the current situation and available resources, an ORT team drafted a project design for advising and training disadvantaged youth in the Lambeth area of London's inner city. This was the first technical assistance survey ever done at the request of an advanced industrial nation. Recommendations were made for the creation of a Resource Centre and a Vocational Centre to deal with the problem of large numbers of unskilled and unemployable youth. ORT continues to work with the local authorities in an advisory capacity in considering ways of implementing the recommendations made.

ER II Silver
Jubilee Fund
1977-1979
Completed

Micro Computer
Training

An information Technology Centre (ITeC) was designed and equipped in a section of a factory in Manchester belonging to G.E.C., our partners in this project. At any time 30 disadvantaged youths are being trained in micro computer usage and repair and in electronics.

Manpower
Services
Commission
1982-Current

This community project aims to train unemployed youngsters, under 18 years of age, in various skills to enable them to slot into the work market. 80 trainees are being trained in carpentry, decorating, typing, hair-dressing, child care or catering.

Manpower
Services
Commission
1984-Current

ZAIRE

Educ/Agriculture

This programme of assistance to the Government relates to the training of 26 Zairians in two groups on an eight-month extramural programme sponsored by the World Bank and the Government of Zaire. The training in various Agricultural/Technical disciplines was initially done at the ORT Anières Institute. Then, it was continued in various establishments in Europe.

IBRD
1980-1982
Completed

Nutrition

AID has requested ORT to carry out a study of causes and the importance of malnutrition in Kinshasa. This mission, called "Food for Peace" will be the first of its kind for ORT and the project aims to feed malnourished children in hospitals and improve the sale and distribution of cheap foods for the worst sufferers of malnutrition.

USAID
1984-1985
Completed

Health

A four-person team conducted training in family planning techniques, assisted in setting up Maternal and Child Health Care Centres and developing a network for distribution of MCH/FP materials and information. Medical, paramedical and administrative personnel were trained to take over the Centres upon ORT's withdrawal.

USAID
1973-1977
Completed

PVO Support Programme

The aim of this project is to upgrade the contribution to development of local and international PVO's in Zaïre. will be on agricultural development, health facility upgrading the introduction of alternative energy sources. ORT is providing a four person team for technical assistance to the US \$ 5 Million Project.

USAID
1983-
Current

Transportation

1. A survey of requirements for training of road construction, rehabilitation and maintenance personnel, led to a Government contract for the design and operation of five regional training centres and five mobile road maintenance brigades. Training of counterparts was carried out, and 2,000 km of roads were rebuilt and maintained.

USAID/
Govt. Zaïre
1971-1975
Completed

2/13

2. Following the completion of a previous project, a new agreement was entered into by ORT providing for the creation of a Public Works Equipment Maintenance Service (SGMTP). This provides for the management, by ORT, of Zaire's principal road maintenance equipment pool (bulldozers, graders, trucks, etc) and the supervision of a road maintenance training brigade. Seven Regional Maintenance centres, a spare parts depot, and ancillary facilities have been established.

IBRD
1975
Current
3. The Office des Routes has entrusted ORT with the management of Lubumbashi CFR (Regional Training Centre). To this end, three ORT specialists are to run this Centre and concurrently train their Zairian counterparts.

USAID
1983
Current
4. Parallel to the SGMTP project, CIDA sponsored a programme of procurement of necessary equipment and spare parts. During 1978 the scope of the programme was enlarged, and five more specialists were added to the existing SGMTP team to provide on-the-job training in repair and maintenance of the equipment, and forecasting spare parts requirements. In addition, training was given in provision and management of spare parts.

CIDA
1977-1982
Completed
5. Three new Training Centres and a Programming Unit have been created following the reorganisation of all training facilities. The curricula includes maintenance and repair of roads and maintenance of plant and equipment.

IBRD
1979-1982
Completed
6. Under IBRD financing, a programme has been carried out to train 2,000 of the 30,000 employees in the National Office of Transport (ONATRA). This training programme called for specialists in such fields as computer programming, diesel mechanics, river barge operation, electricity, administration, and ports operation and maintenance.

IBRD
1975-1980
Completed
7. Efficient operation and maintenance of Zaire's network of some 400 ferries were the objectives of this project. Following a preliminary study in 1975, a system of training in ferry operation and maintenance was organised and implemented. A central spare parts depot was set up, and a continuing on-the-job training programme was initiated. Counterpart training was emphasised.

IBRD
1975-1980
Completed

8. A management team of 6 Highway construction specialists has taken over direction of a road construction unit, which is building a trunk road between Bukavu and Goma in the Kivu region. KfW
1983-1985
Current
9. ORT was asked by ONATRA (National Office of Transport) to provide them with its technical assistance in various fields :
- Strengthening the training management ;
- Training of the instructors ;
- Preparing the necessary equipment list ;
- Training in the harbour security field ;
- Training in the railways telecommunication field ;
- Improving the technical equipment of the ONATRA schools. IBRD
1984-1987
Current
10. At the request of Office des Routes, ORT was asked to supply road equipment and spare parts for the Bandundu Region. The roads are being used primarily for the transport of farm produce to the main centres of population. USAID
1981-1984

Water Supply

Under IBRD sponsorship, a survey was carried out in early 1975 to evaluate current training programmes and work requirements. Subsequently, a training programme was designed for the employees of the Zaïre National Water Distribution System. IBRD
1975
Completed

ZAMBIA

Local Construction

ORT surveyed the training needs and manpower requirements of the construction industry. IBRD
1983
Completed

Rural Development

An ORT training specialist surveyed the training needs and manpower requirements for an Integrated Rural Development Project in Kabompo province. Training needs were assessed for the following occupations : maintenance supervisors, mechanics, drivers and equipment operators. GTZ
1982
Completed

ZIMBABWE

Agriculture

1. A report was prepared on the establishment of an internal staff development and training capability for the Agricultural and Rural Development Authority (ARDA). The Authority is one of the largest employers in Zimbabwe and manages over 25 large agricultural estates throughout the country. ORT
1984
Completed
2. This was an ORT sponsored study mission to identify the training needs in local agriculture with emphasis on the cotton industry. ORT
1982
Completed

Education

ORT is purchasing educational equipment, for Belvedere College in Harare, within the context of the Basic Education and Skills Training Project (BEST). USAID
1985
Current

Urban

ORT is surveying in detail the training needs in road maintenance, supply, sewage and housing. Training programmes are being designed for staff at all levels in these categories. IBRD
1982-1983
Current

AFRICA

Regional projects

Education

1. After making evaluations of needs for vocational training in 10 African countries, namely Cameroon, Dahomey (now Benin), Ethiopia, Gabon, Guinea, Mali, Nigeria, Central African Republic, Sierra Leone and Chad, ORT made recommendations in response to the identified needs. USAID
1960-1961
Completed
2. In four countries (Cameroon, Central African Republic, Gabon and Chad), studies were made of training needs and resources. The results of these analyses were examined thereafter at a conference organised by UDEAC (Union Douanière des Etats d'Afrique Centrale). USAID
1969
Completed
3. A technical training programme in administration and management was developed by ORT to assist small and middle-sized enterprises of the five countries of the Entente (Ivory Coast, Dahomey, Upper Volta, Niger and Togo) to operate more efficiently. The assistance centred around seminars and upgrading courses, organised in existing institutions, to help local personnel. Conseil de l'Entente
1973
Completed

Télécommunications

The Commission of European Communities sponsored a study aimed at identifying the training needs in the telecommunication sector of the ECOWAS countries, using as a basis a report published in 1979. Two ORT specialists visited 8 out of the 16 ECOWAS countries : Nigeria, Ghana, Ivory Coast, Niger, Burkina-Faso, Senegal, Guinea and Sierra Leone. The study included the technological progress made since 1979 in terms of equipment and telecom methods, the staffing of the present telecoms services, the need for technical assistance and the present foreign staffing. Following this, the training of present staff, the current and future training facilities in each of these countries was investigated.

1984-1985
EEC

Completed

Urban

ORT is involved in a regional project financed by the World Bank, USAID and, UCHS (Habitat) to develop a Training Needs Assessment Methodology for use in local authorities in East Africa. The manual has been field tested in Kenya, will be tested also in the Ivory Coast and its use may be extended world-wide.

WORLD BANK
USAID
Habitat
1983-1984

WORLD-WIDE

Various

At the request of UNICEF, a guide was prepared for setting up vocational training units at the pre-apprenticeship level. The guide focused on eleven skill areas.

UNICEF
1963
Completed

MARCH 1985

2/2/85

ANNEX II

ANNEX II
SCOPE OF WORK

Scope of Work for ORT Team

USAID/ Liberia will enter into a three-year cooperative agreement with ORT to provide the technical assistance and training required to implement the sub-project. USAID inputs, other than in vehicle procurement, in advertising for construction contracts and in developing with the MPW a long range road rehabilitation plan, should be restricted to project monitoring and evaluation. The Scopes of Work and desired qualifications of the ORT Senior Engineer and Engineer are outlined below. It is envisioned that the two engineers will be of similar background and will share equally most of duties described except for those listed as the Chief of Parties duties of the Senior Engineer.

1. Senior Engineer

The ORT Senior Engineer will ^{be} in Liberia for three years (36 months) and will be charged with full responsibility in the field for accomplishment of the tasks outlined in the cooperative agreement. The Senior Engineer's duties and qualifications will include at least the following:

1.1 Scope of Work

- 1.1.1 As Chief of Party (COP), the Senior Engineer will be responsible for producing all the required reports and conducting liaison with USAID on all matters pertaining to project implementation. The reports shall include a preliminary work plan to be submitted six weeks after arrival including an on-the-job training plan for the first dry season and a scheme for contractor supervision by the Engineers. After six months, a project work plan discussing all activities through to the end of project will be submitted. This report will include, at minimum:

- A list of personnel to be trained
- Training objectives
- A schedule of training events
- A description of presentation methods and training materials
- A list of nominees to conduct the training courses
- Proposed location of training courses
- A statement of recommended regravelling sites for second and third year regravelling contracts
- An implementation plan scheduling these and other activities mandated in this scope of work

USAID and the MPW will review these reports and develop any specific recommendations for changes. USAID will then either approve them or develop acceptable changes with the Senior Engineer within two weeks after their submission.

During the dry seasons, the Senior Engineer will also submit monthly reports on contractor progress to the USAID engineer. These reports will summarize project activities, comment on construction progress related to planned progress, describe any problems that have arisen and their solutions, and provide a detailed calendar of the next month's activities. These will be reviewed and approved at monthly meetings by USAID and a representative of the MPW. Either the Senior Engineer or the Engineer will attend these conferences, which will take place at USAID/ Monrovia. Finally, as COP, the Senior Engineer will be responsible for all administrative support for the ORT team in Liberia.

1.1.2 Contractor Supervision

Two concurrent construction contracts will be awarded each year for three years. USAID/ Liberia will provide the Senior Engineer with the information as to construction location, construction specifications and construction contract documents for the first

season. Thereafter, the Senior Engineer will carry out these tasks subject to the review and approval of the USAID Engineer. The Senior Engineer and Engineer will supervise the construction contracts to ensure compliance with the specifications and construction contracts and perform such testing as may be required to exercise quality control. The duties of the Senior Engineer and Engineer on their respective sites shall include, but not be limited to:-

- 1.1.2.1 At least two weeks prior to construction, the Senior Engineer shall obtain soil samples from laterite borrow areas designated by MPW. Each separate identifiable soil type in each borrow shall be sampled and each sample shall be of sufficient quantity to perform moisture and density tests (AASHTO T-180), Atterberg limits, gradation including percent clay size particles and sand equivalent. The use of materials from any borrow as a result of these tests in the field shall be approved or disapproved. Other testing shall be performed in the MPW laboratory. Field testing is required as part of the MPW Inspector Training. (While one engineer is conducting these tests, the other may continue efforts in Monrovia to mobilize the contractors and conduct initial training for the Inspector Trainees).
- 1.1.2.2 The contractors shall be directed as to the length and depth of excavation from sites of unsuitable roadway material in the locations to be rehabilitated. When an excavation is complete, the volume of material excavated shall be accurately measured and thorough records of excavation quantities at all construction sites shall be maintained.
- ~~1.1.2.3 Each layer of embankment shall be tested for compliance with density specifications and approval prior to the succeeding layer being placed. At least one density test per layer per 250 feet section of roadway length shall be taken.~~
- 1.1.2.4 The construction shall be supervised to ensure compliance with the construction specifications. Daily logs shall be maintained of construction activities for the respective sites and a monthly report shall be submitted to USAID/ Liberia. Each monthly report

Handwritten notes and signatures at the bottom of the page, including an arrow pointing to the left and some illegible text.

shall include contractor progress as compared to scheduled progress, any problems which may have arisen or are foreseen together with actions taken or recommended and any directives which have been given to the contractor.

1.1.2.4 End of the Project

1.1.2.5 Each layer of embankment shall be tested for compliance with density specifications and approval prior to the succeeding layer being placed. At least one density test per layer per 250 feet section of roadway length shall be taken.

1.1.3 On-the-job Training of Inspector Trainees (dry season)

The MPW Inspector Trainees shall be trained in testing, construction supervision and contract administration. The Inspector Trainees shall take an active part in performing the various tests under the guidance and direction of the Senior Engineer/ Engineer. They shall actively participate in measurement of quantities, reviewing invoices and all other aspects of inspection and supervision of construction - all under the direction of the Senior Engineer/ Engineer. An evaluation of each trainee and comments on the progress of the training program shall be included in monthly reports to USAID.

1.1.4 Training for Inspectors and Other MPW Personnel (rainy season)

During the first two construction seasons, the Senior Engineer and Engineer will work with a short-term ORT consultant to develop two rainy seasons of classroom and laboratory training in several fields relevant to MPW supervision of contractor road regravelling and periodic maintenance.

Principal participants will be 12 Inspector Trainees who will work with the ORT team in the dry seasons, but the team will work closely with the USAID Engineer, MPW officials and technical advisors from the two World Bank-financed projects to provide at least one course or seminar in the first year, and one in the second, which will be designed to complement the training required by the Inspector Trainees and, at the same time, meet a part of the training needs of MPW in construction contractor

supervision in either the Fifth Highway or Feeder Roads project. Details of the rainy season training program are to be worked out and approved by USAID within six and a half months of the Senior Engineer's arrival in country but are likely to include: completing the training of the first group of Inspector Trainees; selection and induction training of next group of Inspector Trainees; coordination with the AID engineer, MPW headquarters, and Bank projects; conducting seminars for MPW management; organizing courses for contractor's staff; assisting in preparation of the MPW long-term road rehabilitation program; and the process of selecting the next season's contractors.

1.1.5 Long-range MPW Road Rehabilitation Plan

The Senior Engineer will also be responsible for working with the USAID Engineer and the MPW Project Director to develop a long-range road rehabilitation plan which could guide the work of an MPW road maintenance contractor supervision unit and could be used to attract additional foreign donor funding for this activity.

1.1.6 Road Maintenance Contractor Supervision Unit

Finally, the Senior Engineer is responsible for working with the MPW Project Director to develop the job descriptions and other elements required for the MPW to open a Contractor Maintenance Supervision Unit in an appropriate Division of the Ministry. A detailed description of the mandate and functions of this unit must be included in the long-range MPW Road Rehabilitation Plan described in section 1.5 above.

1.2 Qualifications

The Senior Engineer must be qualified with at least five years' working experience in road rehabilitation, maintenance or construction. The Senior Engineer must also have had at least one year's experience in vocational training or in conducting a structured on-the-job training program in road rehabilitation,

road construction or a related field. At least two years' experience in road rehabilitation, maintenance or construction in a developing country is also required, and African work experience is strongly preferred.

2. Engineer

The Engineer will be hired for 20 months and will be responsible to the Senior Engineer. The Engineer will arrive in Liberia within two weeks of the arrival of the Senior Engineer. The Engineer's duties and qualifications will include at least the following:

2.1 Scope of Work

The purpose of this position is to provide the support required to achieve the objectives laid out in the Senior Engineer's scope of work. The Engineer will work with one construction contractor during each dry season while the Senior Engineer focuses his attention on the other. They will work as a team to develop weekly discussions with the field Inspector Trainees during the dry season.

During the rainy seasons, tasks must be accomplished simultaneously in Monrovia and in the field and the workload will have to be clearly divided among the two engineers. Close daily collaboration on each task will be required in order to accomplish both the technical assistance and training objectives.

2.2 Qualifications

The Engineer must be qualified with at least four years' experience in road rehabilitation, maintenance or construction. Experience in vocational training of at least one year is also required and work experience in a developing country, particularly in Africa, is strongly preferred.

3. Short-term Consultants

3.1 A total of eight person months of short-term technical assistance is envisioned under this cooperative agreement at the rate of

- 3.2.7 If necessary, identify, and in any case, liaise with suitable specialist instructor staff from the MPW, AID, other training institutions, other consultants connected with the project etc.
- 3.2.8 Carry out these and any other duties related to the above as agreed with AID and MPW, which cannot be performed by either of the ORT Engineers for reasons of time constraint or geographic location.
- 3.2.9 Assist the ORT Senior Engineer in preparing the project work plan by the end of the sixth month of the project.
- 3.2.10 Join in any evaluation, monitoring or any other related activities, at the request of AID.

4. ORT Home Office Support

The ORT Home Office will supply the technical assistance staff as described in this Scope of Work and be fully responsible for their administration and personnel affairs. ORT will provide whatever technical backstopping is requested by its field staff or which is observed to be required on Home Office visits. An ORT Project Coordinator will visit the project at least three times a year either on a Home Office visit or as a short-term consultant. During these visits AID and MPW will be met with to verify satisfactory performance, to take corrective action if needed and to provide whatever is reasonably requested in the way of technical backstopping.

151

about two person months per year. Each year, at the beginning of the dry season, an ORT consultant will visit Liberia to work with the team to develop the coming rainy season's training program.

Short-term consultants will also be involved in the preparation of the project work plan to be completed in the first six months. Finally, they may also be made available for monitoring, evaluation or any other duties beyond the stage of the resident technical assistance personnel.

3.2 Scope of Work for Short-Term Consultants

The work of the short-term consultants, to be provided by ORT according to perceived need, subject to prior agreement with AID, Monrovia and MPW, should include:

- 3.2.1 Analysis of MPW Inspector Trainees' formal training needs, specifically for supervision of contractors carrying out road maintenance.
- 3.2.2 Similar analysis of MPW mid-level management training needs, as well as other related training needs within the MPW which may be accommodated in this Sub-Project.
- 3.2.3 Similar analysis of contractors' staff training needs.
- 3.2.4 Design of training curricular related to the above analyses, in collaboration with the ORT Engineers, AID Monrovia and MPW.
- 3.2.5 Design detailed training courses, write training material, prepare training aids, all in collaboration with the above, especially the ORT Engineers.
- 3.2.6 If necessary locate, and in any case ensure the proper preparation of suitable training premises, including accommodation.

270