

686-0215  
804241

PD-006-430

AGENCY FOR INTERNATIONAL DEVELOPMENT  <b>PROJECT PAPER FACESHEET</b>	1. TRANSACTION CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">C</div> A ADD C CHANGE D DELETE	PP  2. DOCUMENT CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div>
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3. COUNTRY/ENTITY Upper Volta	4. DOCUMENT REVISION NUMBER <div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div>
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5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; display: inline-block; padding: 2px;">686-0215</div>	6. BUREAU/OFFICE A. SYMBOL AFR	B. CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">6</div>	7. PROJECT TITLE (Maximum 40 characters) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Eastern ORD Rural Roads</div>
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8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">812</div>	9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">77</div> B. QUARTER <div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div> C. FINAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">79</div> (Enter 1, 2, 3 or 4)
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10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$1 - )						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L.C.	D. TOTAL	E. FX	F. L.C.	G. TOTAL
AID APPROPRIATED TOTAL	1,130	370	1,500	2,382	1,841	4,223
(GRANT)	( 1,130 )	( 370 )	( 1,500 )	( 2,382 )	( 1,841 )	( 4,223 )
(LOAN)	( - )	( - )	( - )	( - )	( - )	( - )
OTHER U.S.						
1.						
2.						
HOST COUNTRY	-	40	40	-	217	217
OTHER DONOR(S)						
<b>TOTALS</b>	<b>1,130</b>	<b>410</b>	<b>1,540</b>	<b>2,382</b>	<b>2,058</b>	<b>4,440</b>

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>77</u>		H. 2ND FY <u>78</u>		K. 3RD FY <u>79</u>	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	133	060		1,500	-	823	-	-	-
(2) SH	133	060		-	-	-	-	1,900	-
(3)									
(4)									
<b>TOTALS</b>				<b>1,500</b>	<b>-</b>	<b>823</b>	<b>-</b>	<b>1,900</b>	<b>-</b>

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	C. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) FN	-	-	-	-	2,323	-	<div style="border: 1px solid black; display: inline-block; padding: 5px;">           MM YY            10 79         </div>
(2) SH	-	-	-	-	1,900	-	
(3)							
(4)							
<b>TOTALS</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>4,223</b>	<b>-</b>	

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

1

 1 = NO  
 2 = YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE <i>[Signature]</i> TITLE Mission Director, Upper Volta	15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION DATE SIGNED <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">MM</div> <div style="border: 1px solid black; padding: 2px;">DD</div> <div style="border: 1px solid black; padding: 2px;">YY</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px;">03</div> <div style="border: 1px solid black; padding: 2px;">27</div> <div style="border: 1px solid black; padding: 2px;">79</div> </div>
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Eastern ORD Rural Roads

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I. FACESHELT DATA

As provided on Cover Sheet

II. PROJECT DESCRIPTION

The project is substantially the same as described in the Project Paper submitted to and approved by AID/W and resulting in an Authorization signed by the Acting Deputy Administrator on March 31, 1977. The purpose of this amendment is to request additional grant funding in the amount of \$1,900,000, to note some relatively minor deviations from the original project description, to revise financial and implementation plans, to reflect the current status and to prepare necessary analyses using and justifying the revised project costs.

A. Status

1. Funding (\$000)

	<u>Previously Authorized</u> (03/31/77)	<u>Projected Disbursements</u>	<u>Increase</u>
Grant			
FY 77	\$1,500	-	(-) \$1,500
FY 78	823	\$ 522	(-) 301
FY 79	-	1,538	(/) 1,538
FY 80	-	700	(/) 700
FY 81	-	663	(/) 663
FY 82	-	800	(/) 800
Totals	\$2,323	\$4,223	(/) \$1,900

2. Grant Agreement - The GA was executed on June 30, 1977. The initial Conditions Precedent were satisfied on April 26, 1978.

3. Waivers - The following waivers have already been authorized:

- a) Required Grantee 25% contribution to project costs (Section 110(a) FAA) by the Acting Deputy Administrator on April 26, 1978.
- b) Source Waiver for construction materials (not to exceed \$250,000) from AID Geographic Code 000 and host country to AID Code 941, (approved as per 3a) above).
- c) Source Waiver for motor vehicles (not to exceed \$23,000) from AID Code 000 to AID Code 935 (Section 636(1) FAA), approved as per 3a) above. (This source waiver was increased from \$12,000 by the Mission Director).

- d) A commodity procurement waiver from AID code 000 to AID code 935 in the amount of \$50,000 was approved by the Assistant Administrator for Africa on August 31, 1978.
  - e) A source and origin waiver from AID Code 000 to AID Code 935 in the amount of \$8,811 for the purchase of surveying equipment was approved by the Mission Director on November 22, 1978.
4. Environmental Examination - An analysis of the environmental aspects of the project (IEE) was submitted with the PP, and upon recommendation by AFR/DR, the DAA/AFR approved a "Negative Determination" on 12/20/76. As the actual construction, planning and procedures for the project have not changed as result of this revision, we recommend that the existing Negative Determination be accepted for this amended PP.
  5. Project Accrued Expenditures - Accrued expenditures up to the end of FY 1978 amounted to \$521,573.41. The bulk of this was for equipment (\$494,000), with \$2,000 attributable to small tools and the remainder for the project advisor.
  6. Status of Work - Approximately 15% of preconstruction design work has been completed by the SERS (Secondary Roads Maintenance Service) with completion of design for the first priority road (Namounou - Logobou) scheduled for March 1979. PIO/C's have been issued to AAPC for all equipment contained in Table II B. 2. except for those items noted which will be obtained locally.

#### B. Project Description

The detailed project description as contained in the Project Paper remains substantially unchanged except for the following items, which are described in II B.2.

- Changes in construction equipment.
- Drainage structures to be built by the GOUV instead of by contract.
- Elimination of the one bridge previously considered.
- Updating of project costs.

##### 1. Summary

A summary of the Project Description is given below (goal, purpose, outputs, remain unchanged):

a) Goal - The goal of this project is to increase the economic and social well-being of the rural population in the Eastern ORD by providing access to agricultural markets and to Government agricultural, health, and educational services. Current access is prevented or

severely impeded by an inadequate transport network.

b) Purpose - The project purpose is defined by the following three elements of improvement through the mechanism of upgrading selected rural roads in E/ORD:

- (1) Increase small farmer income by providing market access (economic purpose);
- (2) Increase access of villagers to health and education services not currently received because of isolation (social purpose);
- (3) Increase the E/ORD's management effectiveness by providing access to remote areas under its jurisdiction (administrative purpose).

c) Outputs - The project outputs are the construction of the three proposed roads in the E/ORD, which total 159 km, over three years:

Diabo - Comin Yanga	48 km
Fada - Bilanga	72 km
Namounou - Logobou	39 km

d) Inputs - The inputs to be financed by the AID grant include:

- (1) Road building equipment to equip one road brigade (see Tables II B-3 and II B-4 for detailed list.
- (2) All operating costs directly connected with the construction of the project roads including: a) salaries of brigade personnel and equipment operators (excluding permanent SERS civil servants); b) fuel, spare parts, tires, batteries, etc., for vehicle operation and maintenance.
- (3) 100 percent of the salary and support costs of one full-time expatriate project advisor (road construction superintendent) for three years, a maintenance advisor (master mechanic) for eighteen months, and an expatriate project manager for three years.

The inputs to be financed by the GOUV include:

- (1) All preconstruction design work including surveying;
- (2) Supply of special tools and equipment not procured with Grant funds;

(3) Provision of a full time construction supervisor.

In the opinion of the USAID the inputs described above are necessary and sufficient to produce the project outputs, i.e., the three proposed roads. The economic analysis in Part III.C. describes how the availability and utilization of the new roads will lead to the attainment of the project purpose.

2. Changes in Original PP

a) Changes in construction equipment - Changes in the equipment list fall into three categories: (1) items inadvertently omitted from the previous list, (2) equipment required to assume the additional task of constructing drainage facilities previously planned to be constructed utilizing Voltaic construction contractors; and

b) Changes in specifications/types of equipment. Table II B.1 below indicates the specific changes.

TABLE II B.1

Equipment required for construction of drainage structures:

- 1 ea. Backhoe - Loader
- 2 ea. Concrete Mixers
- 4 ea. Concrete Vibrators
- 1 ea. Flatbed Truck w/4T crane (also to be used for equipment repair).

Additional Equipment needed but not included in original PP:

- 1 ea. Disc harrow
- 1 ea. Air compressor w/accessories
- 1 lot Surveying equipment
- 1 lot SSB radios
- 2 ea. 50m<sup>3</sup>/hr water pumps
- 1 ea. Pugmill

Changes and substitutions from original equipment list:

<u>PP</u>	<u>Amended PP</u>
1 ea. 15 T Compacter )	
1 ea. Pneumatic Roller)	2 ea. Hyster Compactors
1 ea. Fuel Truck	1 ea. Trailer Mounted Fuel Tank

<u>PP</u>	<u>Amended PP</u>
1 ea. Service Truck w/tools )	
1 ea. Service Trailer w/tools )	1 lot Shop Tools
1 ea. 35m <sup>3</sup> /hr water pump	1 ea. 75m <sup>3</sup> /hr water pump

A summary of costs by category for the above will be found in Table II B.3. Changes and additions to the equipment list were based on post-authorization review by both the SERS and AID engineers, and are considered to be the best utilization of project funds to meet the project implementation plan.

c) Construction of Drainage Facilities by Force Account - The PP anticipated the utilization of Voltaic contractors for the construction of all culverts, fords and bridges. Later studies made by SERS indicated that local contractors who were experienced in this type of construction were heavily committed and SERS feels that they could not be counted on to provide contracting services when called upon. This lack of availability combined with the elimination of the one bridge originally scheduled for inclusion in the project has convinced SERS to undertake the construction/installation of culverts and fords.

d) Elimination of Bridge: The PP proposed the construction of a reinforced concrete bridge over an ephemeral river bed on the Diabo-Comin Yanga Road. Since the river only flows during the wet season, and then only periodically, SERS estimates that the combination of a ford with culvert pipe to accommodate low flows would permit year round crossing except for two or three times a year when peak flows would close the crossing down for periods estimated not to exceed 3 hours. Considering the low projected traffic count of 5 vehicles per day by 1982, and that the ford will be closed only during the rainy season which will not coincide with the marketing of crops by small farmers in the area of influence of the road, the Mission feels that the additional expense of constructing a bridge would not be justified.

e) The original PP overlooked the necessity of locating laterite within reasonable haul distances of the roads and performing soil tests on the material to determine if it had suitable characteristics for use in roadway surface. The costs of soil studies is based on estimates provided by the National Laboratory of Buildings and Public Works.

f) Project Costs - The \$2.32 million authorized on March 31, 1977 is now inadequate to assure project completion. This is due in part to a 14 month delay in meeting the initial set of conditions precedent, during which period project costs increased by about 15%. Other factors contributing to the shortfall are listed below:

- (1) The equipment list as contained in the PP allowed only 5% for inflation, and transportation costs from factory to Ouaga were underestimated. Although not broken down in the PP, it appears that inadequate information was available on overland shipping costs from Abidjan to Ouaga, resulting in a lower than actual cost-estimate of CIF Ouagadougou costs. In the recalculation of equipment costs, the actual FAS port of exit costs are used where purchase orders have already been issued, and the latest cost estimates from AID/W used for those items currently out for bids. No inflation factor has been used as all equipment is expected to be on order by the end of March 1979. See Table II B.2 for summary of increases in equipment costs.
- (2) Labor, materials and POL. In addition to the 14 month delay in commencement of project implementation, the drafters of the original PP made no allowance for increases in salaries, materials or POL. This paper updates the costs of these items and assumes reasonable increases in these items over the life of the project.
- (3) Premium Pay for Skilled Workers. SERS has advised USAID that it has been unable to hire trained equipment operators mechanics, etc. at the GOUV scheduled wages. There is a large disparity between the private sector and government service wages in Upper Volta, and the GOUV believes the only way it can locate adequate skilled labor necessary for construction of the project would be through the payment of an "indemnité" which would cover living costs and a family allowance to the journeymen working in the bush. Such an indemnité, averaging about 70% of basic salaries, will increase both the AID financed portion of the project and the local currency expenditures. Laborers would be recruited locally and would not receive the indemnité.
- (4) Devaluation of the Dollar. All local currency costs were increased by recent plunge of the US dollar against the French Franc. The PP used an exchange rate of \$ 1 US - 237 CFAF. This PP amendment uses 1 US \$ : 210 CFAF, which results in an eleven percent increase of all local currency expenditures.

Overall project costs are summarized below in Table II B.2:



Table II B.2  
(All Costs in U.S. Dollars 000)

	<u>Contributors</u>			<u>Totals</u>	<u>Increase or Decrease</u>
	<u>LC</u>	<u>AID</u> <u>1/</u> <u>FX</u>	<u>GOUV</u> <u>1/</u> <u>LC</u>		
Equipment Procurement	\$121	\$1,665		\$1,786	(+) 610
Design			\$ 81	81	(+) 16
Equipment Operat.	664			664	-0-
POL (424)					
Parts (240)					
Local Personnel	527			527	(+) 389
Drainage Struct. <sup>2/</sup>					(-) 580
Materials	225			225	(+) 225
Soil Tests	42			42	(+) 42
Construction Supervision			116	116	(+) 22
Miscellaneous	95			95	(+) 43
Techn. Assistance		500		500	(+) 260
Sub Total	\$1,674	\$2,165	\$197	\$4,036	(+) 1,027
Sub Total AID		\$3,839			
Contingency (10%)	\$ 384		\$ 20	\$ 404	(+) 404
TOTALS	\$4,223		\$217	\$4,440	(+) 1,430

<sup>1/</sup> CFA 210 : 1 \$ U.S.

<sup>2/</sup> Drainage structure costs now contained in equipment, local personnel and materials.

TABLE II B.3

<u>EQUIPMENT LIST</u>		FAS PRICE	ESTIMATED OTHER COSTS	TOTAL UNIT PRICE	NO. UNITS	TOTAL
ITEM DESCRIPTION	\$	\$ 2/	\$			\$
1 Tractors, CAT D6C	76,800 <u>1/</u>	59,150	135,900	2 ea.	271,900	
2 Grader, CAT 120 G	57,850 <u>1/</u>	44,550	102,400	2 ea.	204,800	
3 Loaders, CAT 920	39,000 <u>1/</u>	30,000	69,000	2 ea.	138,000	
4 Tractor, Farm 75 HP <u>3/</u>	15,000		15,000	1 ea.	15,000	
5 Compactors, Hister 530	28,000 <u>1/</u>	21,600	49,600	2 ea.	99,200	
6 Backhoe/Loader JD500	36,000	28,000	64,000	1 ea.	64,000	
7 Dump Trucks 6 Y <sup>3</sup>	36,000	27,700	63,700	6 ea.	382,200	
8 Water Trucks 10m <sup>3</sup>	39,500	30,500	70,000	4 ea.	280,000	
9 Flatbed Truck w/crane	38,700	29,800	68,500	1 ea.	68,500	
10 4 WD Vehicle <u>3/</u>	11,000		11,000	2 ea.	22,000	
11 P.U. Trucks 1/2 T	8,000	6,000	14,000	2 ea.	28,000	
12 Disc Harrow	9,000 <u>1/</u>	6,000	15,000	1 ea.	15,000	
13 Air Compr. 250 CEM w/accessories	25,000	19,000	44,000	1 ea.	44,000	
14 Conc. Mixer <u>3/</u>	7,800		7,800	2 ea.	15,600	
15 Vibrators <u>3/</u>	1,500		1,500	4 ea.	6,000	
16 Generator f. Vibrators <u>3/</u>	3,700		3,700	1 ea.	3,700	
17 Surveying Equipment <u>4/</u>	10,000	2,000	12,000	1 lot.	12,000	
18 Water Pump 50m <sup>3</sup> /hr <u>3/</u>	3,000		3,000	2 ea.	6,000	
19 Water Pump 75m <sup>3</sup> /hr <u>3/</u>	4,000		4,000	1 ea.	4,000	
20 Shop Equipment	11,000	9,000	20,000	1 lot	20,000	

(Continued)

EQUIPMENT LIST (cont.)

ITEM DESCRIPTION	FAS PRICE \$	ESTIMATED OTHER COSTS \$	TOTAL UNIT PRICE \$	NO. UNITS	TOTAL \$
21 SSB Radios	25,000	20,000	45,000	1 lot	45,000
22 Watertanks, TRL mtd 3,000 liter <u>3/</u>	3,700		3,700	4 ea.	14,800
23 Fuel Tank, TRL mtd 5,000 liter <u>3/</u>	5,500		5,500	1 ea.	5,500
24 Trailers (offices) <u>3/</u>	7,500		7,500	2 ea.	15,000
25 Pug Mill (towed) <u>3/</u>	5,400		5,400	1 ea.	5,400
			TOTAL.....		\$1,785,600

1/ Actual FAS Prices taken from Purchase Orders.

2/ Includes all sea and inland shipping costs, insurance and 6% fee for AAPC (where applicable).

3/ Local Procurement

4/ Combined Local and US Procurement.

Total Original Equipment List : \$ 923,000

Total Amended Equipment List : \$1,785,600

Difference : \$ 862,600

TABLE II B.4

Brigade Equipment Composition

Earthworks brigade

Description	Quantity
Tractors, CAT D6C	2
Graders, CAT 120G	2
Loaders, CAT	2
Compactors, Hyster 530	2
Dump Trucks 6Y3	6
Water Trucks 10m <sup>3</sup>	4
Disc Harrow	1

Structures Brigade

Backhoe/Loader JD 500	1
Flatbed Truck w/crane	1
Air Compressor, 250 CFA w/accessories	1
Concrete Mixers	2
Vibrators	4
Generator for Vibrators	1
Watertank, TR1 mtd. 3,000 liter	4

Equipment to be used for both structures  
and earthworks as well as supervision

Tractor, Farm, 75 HP	1
4 WD Vehicle	2
P.U. Trucks, 1/2 T	2
Surveying Equipment	1 lot
Water pumps	3
Shop Equipment	1 lot
SSB Radios	1 lot
Full Tank TR1 mtd 5,000 liter	1
Trailers (offices)	2

## PART III PROJECT ANALYSIS

### A. Choice of Technology

Various methods of Project Implementation were discussed in the PP. A summary of the PP team's findings are listed below.

1. Capital vs Labor-Intensive Construction. The PP team concluded that a labor-intensive project would significantly add to the cost of the project and to the time needed to complete the proposed work. In addition it noted that the Eastern ORD is not a labor surplus area, and for these reasons a capital-intensive project was recommended (see page 6 of original PP).

2. Force Account Construction. It is generally accepted that there are few Voltaic contractors that have the necessary equipment to undertake a project of this magnitude, and that work done by a contractor would cost considerably more than by force account. In addition there was a desire to support the newly instituted SERS. The reasons for selecting SERS as the implementing agency are given in Part 2-A-1 of the original PP.

3. FARS. The possibility of using the Fixed Amount Reimbursement System (FARS) was investigated by the original PP team and discussed on pages 82 and 83 of the PP. It was concluded that the FARS should not be used for this project.

### B. Technical Analysis

#### 1. Technical Description of Road Inventories

##### a) General Features of the Terrain

The general area of the proposed road construction consists of plateaus whose rocky structure is overlaid by lateritic layers of variable thickness which in turn are often covered by layers of sand or clay. Occasionally the overlay has been washed away and outcrops of igneous rock formations are evident in the form of smoothly rounded projections of up to 8-10 feet in height.

During part of the year, depressed clayey sections of the alignment are often waterlogged forming what are locally called bas-fonds areas. During the rainy season (June-September) these areas receive considerable amounts of surface water which, due to the insufficient slope of the terrain, tends to be retained by the hygroscopic components of the sub-soil. The bas-fonds, rather than the beds of actual watercourses, represent a major obstacle to the passage of vehicles and will require substantial improvements during road construction in the form of drainage structures and paved fords.

In most cases, the villages and hamlets are located near the rim of depressions where water is more readily available than in the higher

areas. If the roads were to connect all of these settlements the resulting alignment would involve costlier construction than if kept near the crest of watershed divides where fewer drainage structures and lower embankments are required. Therefore, the planning and resulting cost figures for the proposed roads are based on an alignment which uses, wherever possible, the higher ground, and thus postulates the existence of short stretches of footpaths or tracks for human and animal portage leading from the villages to collection points on the roads proper.

A common characteristic of existing roadways is that, due to improper grading in the past, their level has sunk considerably below that of the surrounding land. As a consequence, during the rainy season they act as watercourses and thus become even more eroded each year.

Detailed physical features of each of the project roads are furnished in part 3-A-1 of the original PP.

#### b) General Construction Characteristics

The question of width of roadway was the subject of considerable study prior to developing the original PP including lengthy discussions with the various GOUV officials involved, and has continued to be subject to personal preferences since then. The expected traffic density normally would not warrant anything but single lane roads, with provision for passing at sufficiently close intervals. However, a narrow roadway, say of 4 m. width, tends to deteriorate more rapidly under heavy traffic as the vehicles travelling near the edge of the roadbed cause the slopes to fail. Also, the roadbed is subject to wind and water erosion, gradually reducing the effective width of the travelled way. The wider the roadbed, the more assurance we have that the road will maintain its utility. For these reasons, this project proposes a 5 m. wide roadway for the Diabo - Comin Yanga and Namounou - Logobou roads. USAID has accepted a 6 m. width for the Fada-Bilanga road based on its importance in the National Road System and its projected higher usage.

In general the soil existing along the proposed centerlines will probably be suitable after compaction as subgrade material but not for use in the section above the subgrade. The material above the subgrade including the surface will be select laterite and its thickness will vary but will never be less than 15 cm. All materials including the subgrade will be compacted in lifts not exceeding 20 cm. in thickness. Subgrade material will be compacted to at least 90% of its maximum dry density (Proctor) and materials above the subgrade to at least 95%.

In cases where rock is encountered, the possibility of a rock base or a rock base mixed with a finer material to fill the interstices, will be considered, and the decision will be made in the field by SERS with the approval of the USAID to use this type of construction.

Major portions of the project roads are located in sandy or clayey soil. Therefore, typical construction procedures will consist of clearing an 8 to 10 m. wide strip of land, compacting the subgrade material and subsequently placing roadbed fill compacted in lifts. The width of the traveled way will be 5.0 m. (6 m. on the E-U-road) with side slopes 1 (vertical): 1.5 (horizontal). Drainage ditches will be provided as required with particular attention given to interceptors which will protect the roadway from erosion caused by surface water flooding.

Laterite borrow areas exist throughout the length of the project and the suitability of the material and haul distances are being investigated in the soil studies. Haul distances will probably not exceed 2 - 3 km.

Some fills of 1 - 1.5 meter height may be required on drainage structures approaches and on the ramps adjoining proposed paved fords.

In the bas-fonds areas, a certain amount of waterlogged plastic material will have to be removed and replaced by granular material.

Culverts will be either corrugated metal pipe or locally fabricated concrete pipe or a mixture of both types depending on costs and availability at time of construction.

In order to protect the road from erosion, head-walls of stone masonry or reinforced concrete are foreseen both at the upstream and downstream of the pipe culverts. The added cost of these head-walls is partly compensated by the reduced length of pipe needed. As far as paved fords are concerned, SERS will use either a type incorporating gabions or cast-in-place concrete. The gabion system has proven very effective and economical on existing fords in the Eastern ORD's area and in Niger.

c) Equipment Maintenance. All preventive maintenance and minor repairs will be performed by SERS at the construction site. However, SERS does not have the personnel, tools, or equipment to perform major repairs or overhauls. This work will be contracted out to local dealers such as "Manutention Africaine" which is the agent for Caterpillar in Ouagadougou. Funds for transportation of equipment and labor costs of contract repair services are contained in the "Miscellaneous" item on the table II B.2.

The cost of spare parts amounts to 15% of the equipment costs. In Table II B.2 funds budgeted for spare parts are shown as part of Equipment Operating Costs.

Funds for spare parts will be used for procurement from local agents where such agents exist. If local dealers do not exist for certain equipment, spare parts will be included with the equipment purchase.

d) Road Maintenance. It has been agreed that the GOUV will perform all road maintenance necessary, utilizing equipment obtained under this project (Grant Agreement). Operating funds for maintenance will be provided by the GOUV through a fund developed for secondary road maintenance.

e) Technical Feasibility. All facets of the Project have been investigated and considered to be technically feasible. Physical characteristics of the terrain, climatic conditions and accessibility to the sites pose no technical problems that would seriously impair the project's feasibility.

f) Engineering Conclusions and 611(a). The engineering studies, preliminary information and reports and other data indicate that this is a feasible and sound project. The estimated cost of equipment, labor and materials have been carefully and realistically developed based upon the most reliable data available and taking into consideration probable escalation costs. These estimates are considered reasonably firm. All materials and equipment are available and the acquisition of these items poses no special problem. It is the judgement of the engineer that the requirements of Section 611(a) of the Foreign Assistance Act of 1961, as amended, have been met.



### C. Economic Analysis

The update of the economic analysis has had to take into account modification to the data base since the analysis was first undertaken almost three years ago. The most significant differences concern increases in construction costs and farmgate prices and are discussed in some detail below. The approach utilized in this update has been to first review the basic analytic methodology, then to note changes in the cost and benefit streams and, finally, conclude with the results of the revised cost-benefit analysis and updated recommendations.

Project Methodology - The original hypotheses as formulated in the Project Paper economic analysis not only remain valid in light of research undertaken in the E. ORD subsequent to the PP, but, indeed, appear to be reinforced by the new findings. The basic assumptions concerning existing levels of economic activity in the project zone of influence, the potential for increasing this activity and extent to which the implementation of the project roads will contribute to this change appear to have been prudently assessed. We concur, with the PP, that absence of the proposed project roads "is not the only constraint, but is undoubtedly the most important one to local agricultural development".

Costs - As was noted previously in this paper a more detailed analysis of project costs has revealed significant increases in procurement and general implementation estimates. Bottom-line economic costs for the three roads have therefore increased 48.9% since the initial analysis (438.8 MCFA to 653.5 MCFA), representing shifts due to inflation and revised technical design. Labor costs could have probably been shadow-priced, reducing total costs somewhat, but would be difficult to determine with any accuracy.

Maintenance costs were increased by 25% in line with latest DPW and Mission estimates.

Benefits - Two types of project benefits were evaluated (developmental benefits, user cost savings) for the Fada-Bilanga axis and only one (developmental benefits) for the Diabo-Comin Yanga and the Namounou-Logobou alignments. In retrospect and utilizing the new statistical data generated by the AID-funded Michigan State E. ORD team, the analytical model constructed by the PP team was reasonably accurate. The calculation of net-value added due to the project was modified, however, by recent government attempts to favor the rural sector through higher farmgate prices.

	<u>PP</u>	<u>Current</u>	<u>Increased</u>
Cereals	20 CFA/kg	40 CFA/kg	100%
Peanuts	30 CFA/kg	55 CFA/kg	83%
Rice	35 CFA/kg	63 CFA/kg	80%
Cotton	38 CFA/kg	55 CFA/kg	45%
Other	35 CFA/kg	40 CFA/kg	14%

Individual benefit streams for all projects were therefore reworked to take this into account and increased substantially (87% for Fada-Bilanga, 92% for Diabo-Comin Yanga and 89% for Namounou-Logobou).

Although representing only a minor part of the benefit stream for the Fada-Bilanga project, user costs savings were increased an estimated 20%, based on data drawn from the CILSS/Club du Sahel "Road Maintenance Diagnostic Study" and Ministry of Finance inflation statistics.

Conclusion - Revised economic cash flows for each of the project roads were assembled and are presented in the attached tables. Due to the fact that the benefit streams have evolved significantly faster than those on the cost side of the cost-benefit equation, a noticeable improvement has been noted in the internal rates of return registered for the project, as indicated below.

<u>Alignment</u>	<u>I.R.R.</u>	
	<u>PP</u>	<u>Current</u>
- Fada-Bilanga	15.0%	19.64%
- Diabo-Comin Yanga	21.3%	22.71%
- Namounou-Logobou	19.4%	20.53%

Virtually all costs appear in year 1 and the fact that the benefit stream develops very slowly means that the major part of the benefit stream appears in the latter half of the useful life of the project where they are drastically reduced in importance by the discount factor.

In addition to economic cash flows (which are part of the internal rate of return analysis above), there are a number of unquantifiable, but very important benefits associated with the construction of the project roads. Specifically, these include improved accessibility to education, health services, and agricultural extension services.

Access to education is likely to be improved in the short run by facilitating travel to villages and towns which already have schools, and in the long run by increasing the likelihood of the eventual placement of additional schools in rural areas. Population increases and greater population concentration (stemming from an improved rural infrastructure network) will further justify the creation of additional schools, and by making rural areas less remote, school teachers willing to serve in these areas will be more easily found (the same argument holds true for the assignment of other government civil servants such as health workers and agricultural extension agents).

The rural population will also benefit from being able to get to regional health facilities (dispensaries, hospitals, maternity clinics) more quickly. This is particularly important in medical emergencies such as severe hemorrhaging and snakebites. In addition, improved roads will better enable regional health workers to visit rural areas on a periodic basis throughout the year (currently most villages in the project area are accessible with difficulty during the dry season and inaccessible during the rainy season).

An improved rural road network will also increase the access of villagers to agricultural extension services (information, credit, agricultural inputs) for the same reasons that are mentioned above for education and health services. Extension agents are most likely to be placed in areas which have population concentrations and are accessible (for the placement of agricultural inputs as well as the evacuation of marketable surpluses).

Whereas economists have not yet developed precise measurement tools which permit the accurate calculation of these benefits in numerical terms, it is quite clear that they are economic and social benefits of great importance to the rural population, and they strengthen the justification for undertaking this project.

In concluding our economic analysis revision, however, it should be emphasized that the PP analysis has systematically utilized conservative hypotheses in evaluating the project (as was proper given the weak data base available at the time of the PP analysis). New data has since been compiled by the E. ORD team and our recognition of the accuracy of the original PP estimates permit us to adopt a more liberal stance toward the validity of the IRR calculations.

We conclude, therefore, that in the best professional opinion of this evaluation team, the project, as conceived in the technical description of this report, is economically feasible.

FADA-BILANGA  
ECONOMIC CASH FLOW  
(000,000 FCFA at 1978 prices)

Year	BENEFITS <sup>1/</sup>			COSTS		Net cash FLOW
	Ag	User Costs	Total	CONST. <sup>2/</sup>	MALNT. <sup>3/</sup>	
1	-	-	-	443.9	-	(443.9)
2	8.0	9.6	17.6	(105.2)	9.0	113.8
3	18.3	16.2	34.5		9.0	25.5
4	29.0	23.0	52.0		9.0	43.0
5	38.7	29.4	68.1		9.0	59.1
6	48.9	36.0	84.9		9.0	75.9
7	59.1	42.6	101.7		9.0	92.7
8	73.8	49.2	123.0		9.0	114.0
9	81.2	56.8	138.0		9.0	129.0
10	93.1	64.6	157.7		9.0	148.7
11	104.9	72.1	177.0		9.0	168.0
12	116.8	79.7	196.5		9.0	187.5
13	128.7	87.5	216.2		9.0	207.2
14	140.5	95.0	235.5		9.0	226.5
15	153.4	102.8	256.2		9.0	247.2
16	164.2	110.4	274.6		9.0	265.6
17	176.1	118.1	294.2		9.0	285.2
18	187.9	125.6	313.5		9.0	304.5
19	199.8	133.3	333.1		9.0	324.1
20	211.6	141.0	352.6		9.0	343.6
21	223.5	268.2	491.7	(83.7)	9.0	566.4

<sup>1/</sup> Ag. benefits increased by 1.87  
User cost benefits increased by 1.20

<sup>3/</sup> Increased by 25% over original estimate.

<sup>2/</sup> Economic Construction Cost : \$2,114,000  
Residual value of equipment: \$ 501,000  
\$ 1 : 210 CFA

DIABO-COMIN YANGA  
ECONOMIC CASH FLOW  
(000,000 FCFA at 1978 prices)

Year	TOTAL BENEFITS <u>1/</u>	COSTS		Net Cash Flow
		CONST. <u>2/</u>	MAINT. <u>3/</u>	
1	-	252.4	-	(252.4)
2	13.9	(59.8)	6.0	67.7
3	27.4		6.0	21.4
4	40.7		6.0	34.7
5	54.2		6.0	48.2
6	67.6		6.0	61.6
7	81.0		6.0	75.0
8	94.4		6.0	88.4
9	105.1		6.0	99.1
10	115.7		6.0	109.7
11	126.4		6.0	120.4
12	137.1		6.0	131.1
13	147.8		6.0	141.8
14	158.4		6.0	152.4
15	169.2		6.0	163.2
16	179.9		6.0	173.9
17	190.5		6.0	184.5
18	201.2		6.0	195.2
19	211.9		6.0	205.9
20	222.6		6.0	216.6
21	233.2	(44.4)	6.0	271.6

1/ Ag. benefits increased by 1,92

2/ Economic Construction cost ; \$1,202,000  
Residual value of equipment ; \$ 285,000  
\$ 1 : 210 CFA

3/ Maintenance costs increased by 1.25

NAMOUNOU-LOGOBOU  
ECONOMIC CASH FLOW  
(000,000 FCFA at 1978 prices)

Year	TOTAL BENEFITS <u>1/</u>	COSTS		Net Cash Flow
		CONST. <u>2/</u>	MAINT. <u>3/</u>	
1	-	236.0	-	(236.0)
2	8.4	(56.1)	4.9	59.6
3	19.5		4.9	14.6
4	30.5		4.9	25.6
5	41.7		4.9	36.8
6	52.8		4.9	47.9
7	63.8		4.9	58.9
8	74.9		4.9	70.0
9	84.1		4.9	79.2
10	93.2		4.9	88.3
11	102.4		4.9	97.5
12	111.5		4.9	106.6
13	120.7		4.9	115.8
14	129.8		4.9	124.9
15	139.0		4.9	134.1
16	148.1		4.9	143.2
17	157.2		4.9	152.3
18	166.4		4.9	161.5
19	175.5		4.9	170.6
20	184.7		4.9	179.8
21	193.8	(42.7)	4.9	231.6

1/ Ag. benefits increased by 1.89

2/ Economic Construction Cost : \$1,124,000  
Residual value of equipment : \$ 267,000  
\$ 1 : 210 CFA

3/ Maintenance Costs increased by 1.25

Project Implementation Schedule

PP Amendment submitted to AID Washington March 1979.

Complete design of Namounou-Logobou Road. Begin design of Diabo-Comin Yanga Road March 1979.

Begin construction of Namounou-Logobou Road. PP Amendment authorized April 1979.

Grant Agreement signed with GOUV June 1979.

Complete design of Diabo-Comin Yanga Road. Begin survey and design of Fada-Bilanga Road Sept. 1979.

Voltaic construction superintendent on board. Equipment specialist on board. All equipment in country October 1979.

Design of Fada-Bilanga Road completed. Construction of Diabo-Comin Yanga road begins Feb. 1980.

Construction of Namounou-Logobou road completed July 1980.

Construction of Fada-Bilanga road begins Nov. 1980.

Construction of Diabo-Comin Yanga road completed June 1981.

Construction of Fada-Bilanga road completed July 1982.

Terminal Disbursement Date March 1983.





EQUIPMENT USAGE AND DEPRECIATION

	Useful Life (hrs)	Used on Project (hrs)	%	Deprecia- tion \$ Value used	Residual Value 1/
Tractor Cat D6	8,000	3,400	42.5	\$46,200	\$89,700
Tractor Cat D6	8,000	3,400	42.5	46,200	89,700
Grader	8,000	3,400	42.5	34,800	67,600
Grader	8,000	3,400	42.5	34,800	67,600
Loader	8,000	3,200	40	22,100	46,900
Loader	8,000	3,200	40	22,100	46,900
Backhoe	8,000	2,500	31	15,900	48,100
Ag. Tractor	10,000	2,000	20	2,400	12,600
Compactor	10,000	3,000	30	11,900	37,700
Compactor	10,000	3,000	30	11,900	37,700
Dump Truck	6,500	4,000	62	31,600	32,100
Dump Truck	6,500	4,000	62	31,600	32,100
Dump Truck	6,500	4,000	62	31,600	32,100
Dump Truck	6,500	4,000	62	31,600	32,100
Dump Truck	6,500	4,000	62	31,600	32,100
Dump Truck	6,500	4,000	62	31,600	31,600
Water Truck	8,000	3,000	38	21,300	48,700
Water Truck	8,000	3,000	38	21,300	48,700
Water Truck	8,000	3,000	38	21,300	48,700
Water Truck	8,000	3,000	38	21,300	48,700
Flatbed	7,000	3,600	45	24,700	43,800
4 WD Vehicle	6,000	4,300	72	6,300	4,700
4 WD Vehicle	6,000	4,300	72	6,300	4,700
Pick-up	8,000	4,300	54	6,000	8,000
Pick-up	8,000	4,300	54	6,000	8,000
Compressor	10,000	1,300	13	4,600	39,500
Conc. Mixer	10,000	2,600	26	1,600	6,200
Conc. Mixer	10,000	2,600	26	1,600	6,200
Other Misc. Equip.			100	152,400	-0-
<b>TOTAL</b>				<b>\$ 732,600</b>	<b>\$ 1,053,000</b>

1/ Includes 20% salvage value

(41%)

(59%)

Project Personnel

	<u>Number</u>
1. Construction Superintendent	1
2. Construction Foreman	2
3. Head Mechanic	1
4. Heavy Equipment Operator	10
5. Assistant Heavy Equipment Operator	3
6. Carpenter, Mason, Steel Worker	6
7. Truck, Tractor driver	14
8. Light Vehicle Driver	4
9. Assistant Mechanic	3
10. Clerk, Timekeeper	6
11. Laborer	60
12. Watchman	4
13. Parts Warehouseman	1
14. Surveyor	1
15. Chainman	<u>3</u>
<b>Total</b>	<b>119</b>

Fada - Bilanga - 72 km

Estimate of Construction Quantities and Cost (CFA)

<u>Description</u>	<u>Unit</u>	<u>Oty.</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Total</u>
<b>A. <u>Drainage</u></b>					
1) Concrete pipe culvert	m.	488	65,000	31,720,000	
2) Headwalls for above	pr.	61	180,000	10,980,000	
3) Paved fords	m.	300	115,000	<u>34,500,000</u>	
					77,200,000
<b>B. <u>Earthwork</u></b>					
4) Clearing	ha.	69.1	130,000	8,983,000	
5) Borrow & Fill	m <sup>3</sup>	16,900	1,285	21,717,000	
6) Laterite surface	m <sup>3</sup>	130,000	960	124,800,000	
7) Overhaul	m <sup>3</sup> km	785,000	38	<u>29,830,000</u>	
					<u>185,330,000</u>
				CFA	262,530,000

Cost in U.S. Dollars

	<u>Per km.</u>	<u>Total</u>
Drainage	5,111	368,000
Earthwork	<u>12,250</u>	<u>882,000</u>
	\$17,351	\$1,250,000

Notes: \$ 1 : 210 CFA

Includes amortized value of equipment

Diabo-Comin Yanga (48 kms)

Estimate of Construction Quantities and Cost (CFA)

<u>Description</u>	<u>Unit.</u>	<u>Qty</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Total</u>
<u>Drainage and Structures</u>					
1) Repair of crown of Lorgo dam	L.S.	1	8,500,000	8,500,000	
2) Paved Fords	m.	210	90,000	18,900,000	
3) Concrete pipe culvert	m.	63	65,000	4,095,000	
4) Headwalls for above	pr.	9	180,000	<u>1,620,000</u>	
					33,115,000
<u>Earthwork</u>					
5) Clearing	ha.	35	130,000	4,550,000	
6) Borrow & Fill	m <sup>3</sup>	2,000	1,285	2,570,000	
7) Laterite surface	m <sup>3</sup>	77,000	960	73,920,000	
8) Overhaul	m <sup>3</sup> km	720,000	38	<u>27,360,000</u>	
					<u>108,400,000</u>
					CFA 141,515,000

Cost in U.S. Dollars

	<u>Per km.</u>	<u>Total</u>
Drainage	3,292	158,000
Earthwork	<u>10,750</u>	<u>516,000</u>
	\$ 14,042	\$674,000

Notes : \$ 1 : 210 CFA

Includes amortized value of equipment.

Namounou-Logobou (39 kms.)

Estimate of Construction Quantities and Cost (CFA)

<u>Description</u>	<u>Unit</u>	<u>Qty</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Total</u>
<u>Drainage</u>					
1) Concrete Pipe culvert	m.	105	65,000	6,825,000	
2) Headwalls for above	pr.	15	180,000	2,700,000	
3) Paved fords	m.	200	90,000	<u>18,000,000</u>	
					27,525,000
<u>Earthwork</u>					
4) Clearing	ha.	39	130,000	5,070,000	
5) Borrow & Fill	m <sup>3</sup>	2,000	1,285	2,570,000	
6) Crusher Rock Surface-Passage over escarpment	km	2	13,130,000	26,260,000	
7) Laterite surfacing	m <sup>3</sup>	58,000	960	55,680,000	
8) Overhaul	m <sup>3</sup> km	509,667	38	<u>19,367,000</u>	
					<u>108,947,000</u>
					CFA 136,472,000

Cost in U.S. Dollars

	<u>Per km</u>	<u>Total</u>
Drainage	3,361	131,000
Earthwork	<u>13,302</u>	<u>519,000</u>
	\$ 16,663	\$ 650,000

Notes: \$ 1 : 210 CFA

Includes amortized value of equipment.

Breakdown of Total Roads Costs \$

	:	Fada	:	Diabo	:	Namounou	:	Totals
	:	Bilanga	:	Comin-Yanga	:	Logobou	:	
Road Design	:	40,000	:	27,000	:	22,000	:	89,000
Soil Testing	:	20,000	:	13,000	:	13,000	:	46,000
Construction Superintendent (GOUV contribution)	:	56,000	:	37,000	:	35,000	:	128,000
Technical Assistance	:	247,000	:	166,000	:	137,000	:	550,000
Construction	:	1,250,000	:	674,000	:	650,000	:	2,574,000
<b>Totals</b>	:	<b>1,613,000</b>	:	<b>917,000</b>	:	<b>857,000</b>	:	<b>3,387,000</b>
Per kilometer road cost	:	22,403	:	19,104	:	21,974	:	21,437

VID 10-J-20 (1-72)

PROJECT DESIGN SUMMARY  
LOGICAL FRAMEWORK

Life of Project:  
From FY 77 \_\_\_\_\_ to FY 82 \_\_\_\_\_  
Total U S Funding \$4,223,000  
Date Prepared March 1979  
(PP Revision No. 1)

Project Title & Number: EASTERN ORD RURAL ROADS (686-0215)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: To increase the economic and social well-being of the rural population in the Eastern ORD.</p>	<p>Measures of Goal Achievement: 1. Increased quantities of farm supply reaching regional markets, 2. Reduced costs to farmers in marketing surplus &amp; obtaining supplies, 3. Reduced costs to traders serving regional markets. 4. Increased utilization of health, educational, financial, technical and communication services (measured in terms of numbers of visits to institutions &amp; offices providing those services)</p>	<p>National accounts and statistics on economic activity and income by ORD region.</p>	<p>Assumptions for achieving goal targets: 1. GOUV will provide SERS with sufficient support in human and financial resources to permit it to function effectively. 2. GOUV will continue to use AID and other donor resources as well as its own to increase quantity and quality of financial, technical and other services available in the Eastern ORD.</p>
<p>Project Purpose: 1. To increase small farmer income by providing market access (economic purpose). 2. To increase access of villagers to health and education services not currently received because of isolation (social purpose). 3. To increase E. ORD's management effectiveness by providing access to remote areas under its jurisdiction (administrative purpose).</p>	<p>Conditions that will indicate purpose has been achieved: End of project status. 1. Increased number of farmers and traders using regional markets, 2. Increased demand from rural people for services from health &amp; educational facilities, financial institutions &amp; gov't (particularly E. ORD) offices, 3. More frequent visits to field by Eastern ORD staff,</p>	<p>1. Data collection by E. ORD on agricultural production and farm income levels. 2. National and E. ORD statistics on population health and education. 3. E. ORD operational records.</p>	<p>Assumptions for achieving purpose: 1. Availability of reliable rural roads in areas of high intensity ORD activity will stimulate increased agricultural outputs because of improved marketing opportunities for farmers. 2. E. ORD staff will be motivated to take advantage of opportunities for greater access to clients. 3. E. ORD admin. will be more efficient and better informed with improved access to client population. 4. Choice of 3 roads selected represents top priorities for E. ORD secondary roads using economic, social and administrative criteria.</p>
<p>Outputs: 1. Project manager hired, working 2. Equipment in country 3. Road brigade organized, operational 4. Road construction completed on: a. Namounou-Logougou b. Diabo Comin-Yanga c. Fada-Bilanga</p>	<p>Magnitude of Outputs: 1. In country Jan 1979 2. 40 pieces equipment in country by Oct, 1979. 3. Organized &amp; operational by Oct, 1979 4. a, 39km secondary road 5m wide laterite surface w. drainage structures completed by July, 1980 b, 48 km secondary road same as a, above completed by June 1981 c, 72 km secondary road 6 m wide laterite surface w. drainage structures completed by June 1982</p>	<p>Operational records of Project Manager and SERS.  Inspections by REDSO engineer.  Surveys by Evaluation teams.</p>	<p>Assumptions for achieving output: Construction of roads &amp; drainage structures to prescribed standards feasible within AID Project grant amount &amp; GOUV contribution. SERS will be capable of maintaining roads after construction &amp; GOUV's fund for secondary road maintenance will be established as planned.</p>
<p>Inputs: 1. Design of drainage structures (GOUV) 2. Finance costs of 1 Proj. Mgr. (AID) 3. Finance cost of road building equipment (AID) 4. Finance cost of building 3 roads (AID 95%, GOUV 5%) 5. Select &amp; train 1 road brigade (GOUV).</p>	<p>Implementation Target (Type and Quantity) 1. One design for each road, 2-4 See Budget, 5. See PP for complete listing.</p>	<p>2-4. AID financing and procurement documents. 1&amp;5. Financial &amp; operating records of SERS. 2. Presence of project manager, 3. Inspection of equipment.</p>	<p>Assumptions for providing inputs: 1. 1 fully equipped road brigade is sufficient to construct planned roads. 2. SERS can recruit qualified personnel as equipment operators for the brigade. 3. SERS can design and construct drainage structures (culverts, radiers, etc.).</p>

611(e) Certification - PP Revision I

Eastern ORD Rural Roads

Certification Pursuant to Section 611(e) of the Foreign Assistance Act of 1961, as Amended.

I, John A. Hoskins, Mission Director for Upper Volta, having taken into account, among other things:

A. the existence of a viable Department of Public Works within the Government of Upper Volta and the role which it can play in constructing secondary roads and drainage structures;

B. the requirement for additional sources of grant funding if secondary farm-to-market roads are to be improved to allow rural farmers access to markets;

C. the inclusion of the Plan of the Ministry of Public Works for continued maintenance of these roads once they have been improved;

D. the importance which the Government of Upper Volta places on the improvement of rural roads to increase access of villagers to health and educational services not currently received because of isolation;

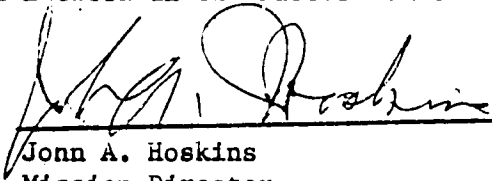
do hereby certify that in my judgment, the Department of Public Works has the financial capability and the human resource capability to implement, and effectively utilize the subject capital assistance project.

This judgment is based on the fact that:

1. The Government of Upper Volta has agreed to recruit one full road brigade and maintain the project roads as agreed upon in the Project Paper, and in the original Project Agreement.

2. The Department of Public Works has at its disposition complementary financial and technical resources permitting it to undertake these expanded activities.

3. The Government of Upper Volta wishes to proceed with the improvement of its secondary road network in the Eastern ORD.

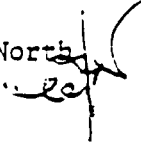


John A. Hoskins  
Mission Director  
Ouagadougou, Upper Volta



ACTION MEMORANDUM FOR THE ACTING ADMINISTRATOR

THRU : ES  
Acting AA/PPC, Alexander Shakow

FROM : Acting AA/AFR, W. Haven North 

SUBJECT : Eastern ORD Rural Roads

Problem: To authorize a grant of \$2,323,000 to the Government of Upper Volta for the construction of three rural roads in the eastern rural development sector of Upper Volta, your approval of the Eastern ORD Rural Roads Project (project number 686-0215) is required.

Discussion: The Eastern ORD (Regional Development Organization) is the location of an AID-assisted Integrated Rural Development Project. From the outset of this project, it was evident that the lack of transport infrastructure was a major and critical constraint to the area's development.

The Eastern ORD Rural Roads Project is designed to partially overcome this constraint through the construction of three all-weather roads (totalling 158 kilometers) in the major population and production centers of the region. The construction of these roads will result in greater marketing opportunities as well as increased access to social and developmental services for the people of the ORD. The roads, varying in length from 39 to 72 kilometers, will be five meters wide, using compacted lateritic soils for both the roadway fill and surfacing. The economic feasibility study performed during the project design showed an internal rate of return for the individual roads of 15% to 21.3%. The roads will be built by a division of the GOUV Department of Public Works through the creation and equipping of a "road brigade". The brigade consists of 37 people fully trained and equipped to operate and maintain the equipment needed to build the roads designated for construction under this project. It is proposed that AID finance the following inputs to the project:

- 1) approximately 31 pieces of road building equipment;
- 2) 75% of all operating costs directly connected with the construction of the project roads;
- 3) 100% of the salary and support costs of one full time expatriate project manager and two local hire assistants (one administrator, one mechanic).

The \$2,323,000 grant will be budgeted as follows:

-Commodities and Construction	\$ 1,953,000
-Technical Assistance	270,000
-Miscellaneous	100,000

The funding, by fiscal year will be <sup>(obligation)</sup> *two tranches*:

<u>FY 1977</u>	<u>FY 1978</u>	<u>TOTAL</u>
1,500	823	2,323

The Government of Upper Volta will contribute \$687,000 (23%) of the total project costs. Given the Government's severely limited development budget and the intense competition for these funds, this is considered a significant contribution and a good indication of the priority the Government of Upper Volta places on this project. This level of support does not, however, meet the AID requirement of 25% host country contribution to project costs and a waiver of this requirement has been requested.

Maintenance of the completed roads will be the responsibility of the GOUV. One condition of a \$7.5 million IDA loan to Upper Volta for rural road construction and maintenance is the creation by the GOUV of a secondary road maintenance fund. The roads to be built under the AID project will be maintained from this fund.

After studying the potential environmental impact of the road construction proposed in this project, a negative environmental threshold decision was made. The project will not have a significant detrimental effect on the human environment and conforms to the pertinent AID regulations. The Environmental Threshold Decision is attached as Annex D.

After completing its review, the project committee, due to the absence of unresolved substantive issues, recommended that further review by the ECPR was not necessary.

The Mission requested that waivers be granted in the Project Authorization Document for the elements listed below. The project committee concurred in the request. Justification for these waivers is attached as Annexes A through C to this memorandum. The waivers requested are:

- A) A waiver of the host country contribution of 25% of the project cost;

- B) A procurement source waiver from AID Geographic Code 000 to Geographic Code 941 for construction materials and to Geographic Code 935 for two four-wheel drive vehicles.

Recommendation: The project committee recommends the following:

1) That by your signature below, you approve the proposed grant of \$2,323,000 for the construction of three roads in the Eastern ORD of Upper Volta.

APPROVED *[Signature]*

DISAPPROVED \_\_\_\_\_

DATE 3/31/77

2) That you approve a waiver for Code 941 procurement of construction materials (cement, reinforcing steel, etc.) as described in Annex A of this memorandum and a waiver for Code 935 procurement for two vehicles as described in Annex B.

APPROVED *[Signature]*

DISAPPROVED \_\_\_\_\_

DATE 3/31/77

3) That you approve a waiver for the requirement of a 25% host country contribution to the project as required in Section 110(a) of the Foreign Assistance Act as described in Annex C.

APPROVED *[Signature]*

DISAPPROVED \_\_\_\_\_

DATE 3/31/77

Clearances:

- AFR/GC:STisa *[Signature]*
- PPC/DPRE:EHogan *[Signature]*
- AFR/SFWA:DShear *[Signature]*
- AFR/DR:JKelly *[Signature]*
- AFR/DP:WTate *[Signature]*
- SER/FM:TBlacka *[Signature]*
- SER/ENGR:RM MacDonald *[Signature]*
- AFR/DR/SFWAP:CHusick:3/9/77

GC:GMorgan *[Signature]*

AGENCY FOR INTERNATIONAL DEVELOPMENT  
 PROJECT AUTHORIZATION AND REQUEST  
 FOR ALLOTMENT OF FUNDS PART I

1. TRANSACTION CODE  
 A A: ADD  
 C C: CHANGE  
 D D: DELETE

2. DOCUMENT CODE  
 PAF  
 5

3. COUNTRY/ENTITY  
 Upper Volta

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits)  
 [686-0215]

6. BUREAU/OFFICE  
 A. SYMBOL: AFR  
 B. CODE: [1]

7. PROJECT TITLE (Maximum 40 characters)  
 [Eastern ORD Rural Roads]

8. PROJECT APPROVAL DECISION  
 A A: APPROVED  
 D D: DISAPPROVED  
 DE DE: DEAUTHORIZED

9. EST. PERIOD OF IMPLEMENTATION  
 YRS. [02] QTRS. [3]

10. APPROVED BUDGET AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 77		H. 2ND FY 78		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	133	060		1,500		823			
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		11. PROJECT FUNDING AUTHORIZED ENTER APPROPRIATE CODE(S) 1: LIFE OF PROJECT 2: INCREMENTAL LIFE OF PROJECT	A. GRANT	B. LOAN
	C. GRANT	D. LOAN	F. GRANT	G. LOAN	T. GRANT	U. LOAN			
(1) FN					2,323			2	
(2)									
(3)									
(4)									
TOTALS							C. PROJECT FUNDING AUTHORIZED THRU		FY [79]

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED (\$000)

A. APPROPRIATION	B. ALLOTMENT REQUEST NO. [1]	
	C. GRANT	D. LOAN
(1) FN	1,500	
(2)		
(3)		
(4)		
TOTALS		1,500

13. FUNDS RESERVED FOR ALLOTMENT

TYPE'S NAME (CHIEF, SECRETARY, EXECUTIVE) FOD  
 Jean McGill

SIGNATURE  
*Jean McGill*

DATE  
 7/11/77

14. SOURCE/ORIGIN OF GOODS AND SERVICES  
 300  341  LOCAL  OTHER

15. FOR AMENDMENTS, NATURE OF CHANGE PROPOSED

FOR PPC/PIAS USE ONLY	16. AUTHORIZING OFFICE SYMBOL	17. ACTION DATE	18. ACTION REFERENCE (Optional)	ACTION REFERENCE DATE
		MM DD YY		MM DD YY

Project Authorization and Request for Allotment of Funds

Part II

Country: Upper Volta

Project: Eastern ORD Rural Roads

Project Number: 686-0215

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended (the "Act"), I hereby authorize a Grant to the Government of Upper Volta (the "Cooperating Country") of not to exceed One Million Five Hundred Thousand United States Dollars (\$1,500,000) to assist in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The project consists of providing technical assistance, equipment, materials (including fuel) and related services to assist in the creation and operation of a road brigade that will construct a total of approximately 158 kilometers of rural roads from Fada N'Gourma to Bilanga (72 kms.), from Diabo to Comin Yanga (48 kms.) and from Namounou to Logobou (39 kms.) and to assist in the construction of related drainage structures by local contractors (hereinafter referred to as the "Project"). Detail design and supervision of construction under the Project shall be provided by Service d'Entretien des Routes Secondaires (SERS) of the Department of Public Works, and implementation of the Project will be supervised by an A.I.D.-financed Project Manager.

I approve the total level of A.I.D. appropriated funding planned for the Project of not to exceed Two Million Three Hundred and Twenty Three Thousand United States Dollars (\$2,323,000) Grant, during the period FY 1977 through FY 1978, including the amount authorized above and an additional increment of grant funding, during the period, of \$823,000 in FY 1978 subject to the availability of funds and in accordance with A.I.D. allotment procedures.

I hereby authorize the initiation of negotiations and execution of the Grant Agreement by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority, subject to the following terms, together with such other terms and conditions as A.I.D. may deem appropriate:

a. Source and Origin of Goods and Services

Except for ocean shipping, goods and services financed by A.I.D. shall have their source and origin in Upper Volta or the United States,

except as A.I.D. may otherwise agree in writing. Ocean shipping under the Grant shall be procured in the United States.

b. Conditions Precedent

1. Prior to the first disbursement of funds under the Project for construction services (other than with respect to the Project Manager) or operations or for equipment and materials, or to the issuance of any commitment documents with respect thereto, the Cooperating Country shall furnish to A.I.D. the following in form and substance satisfactory to A.I.D.:

A. Evidence of the creation of a Project Coordinating Committee consisting of a representative of the Eastern ORD and of SERS, the Project Manager and the Project Manager for the Integrated Rural Development Project in Fada N'Gourma, which will meet on a monthly basis to review the status of the Project and any operational problems;

B. A plan, including a schedule, for the maintenance of all roads constructed under the Project indicating the source and availability of funds for that purpose and evidence that the Cooperating Country has taken all legal steps necessary to assure that roads constructed under the Project will also qualify for funds for maintenance from the Highway Maintenance Fund established under the International Development Association loan to the Cooperating Country;

C. A plan for the coordination of construction of the Project roads by the brigade and the construction of drainage structures by local contractors to assure that the road and drainage structures are constructed in an efficient and economical manner;

D. Construction standards and specifications for the roads to be constructed under the Project;

E. A copy of executed contracts for the procurement of equipment required for the Project with firms acceptable to A.I.D.

2. Prior to the first disbursement of funds under the Project for operation of the road brigade and construction services for each road constructed under the Project, or the issuance of any commitment documents with respect thereto, the Cooperating Country shall furnish the following to A.I.D., in form and substance satisfactory to A.I.D.:

A. A copy of an executed contract for construction services for drainage structures for such road with a firm acceptable to A.I.D.;

B. Detailed plans and specifications for drainage structures to be constructed for such road.

c. Covenants

The Grant Agreement shall contain covenants providing in substance as follows:

1. Contracts for construction services financed by A.I.D. shall be reviewed and approved by A.I.D. in accordance with country contracting policies and procedures set forth in Handbook 11 and equipment procured by direct A.I.D. contract shall be undertaken in accordance with policies and procedures set forth in Handbook 15 and A.I.D. Regulation 1.

2. The Cooperating Country shall assure the availability to the Project of adequate numbers of unskilled and skilled personnel, including engineers, equipment operators and mechanics, required for the design, operation, maintenance and supervision of the Project.

3. Equipment procured under the Project shall be retained in the Project area and shall be used for the maintenance of roads constructed under the Project.

d. Waivers

1. Based upon the justification set forth in Annex C, I hereby waive the requirement of Section 110(a) of the Act that the Cooperating Country make a contribution to the Project at least in an amount equal to twenty-five percent of the cost of the Project.

2. Notwithstanding paragraph a. above, and based on the justification set forth in Annex A, I hereby:

A. approve a procurement source waiver from Code 000 (U.S. only) and Upper Volta to Code 941 for the construction materials described in Annex A; provided that the amount of such procurement shall not exceed \$250,000; and

B. certify that procurement from the sources described above is necessary for the attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program.

3. Notwithstanding paragraph a. above and based on the justification set forth in Annex B, I hereby:

A. approve a procurement source waiver from A.I.D. Geographic Code 000 (U.S. only) to A.I.D. Geographic Code 935 (Special Free World) for motor vehicles and spare parts; provided

that the total amount of such procurement shall not exceed approximately \$12,000;

3. certify that the exclusion of procurement of the above-described motor vehicles and spare parts from the requested source countries in Code 935 would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program; and

C. find that special circumstances exist to waive, and do hereby waive, the requirements of Section 636(i) of the Act.

*Dittmer*

Acting Deputy Administrator

3/31/77

Date

Clearances:

AA/AFR:WENorth *WEN*  
 AFR/GC:STisa *ST*  
 PPC/DPRE:EHogan *EH*  
 AFR/SFWA:DShear *DS*  
 AFR/DR:JKelly *JK*  
 AFR/DP:WTate *WT*  
 SER/FM:JMcCall *JM*  
 SER/ENGR:RMacDonald *RM*  
 GC:GMorgan *GM*

AFR/GC:STisa:3/14/77

*ST*