

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT PAPER FACESHEET

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

2. DOCUMENT CODE: **3**

3. COUNTRY/ENTITY: **BURUNDI**

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 digits): **695-0108**

6. BUREAU/OFFICE:
A. SYMBOL: **AFR**
B. CODE:

7. PROJECT TITLE (Maximum 40 characters): **ROUTE 84 RURAL ROAD**

8. ESTIMATED FY OF PROJECT COMPLETION: **82**

9. ESTIMATED DATE OF OBLIGATION:
A. INITIAL FY: **80**
B. QUARTER: **1**
C. FINAL FY: **81**
(Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$1 -)

A. FUNDING SOURCE	FIRST FY 79			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	250	100	350	426	500	926
(GRANT)	(250)	(100)	(350)	(426)	(500)	(926)
(LOAN)	()	()	()	()	()	()
OTHER U.S. 1. PL 480 Title	130		130	625		625
2. U.S.		123	123	-	567	567
HOST COUNTRY	-					
OTHER DONOR(S)						
TOTALS	380	223	603	1051	1067	2118

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE	E. 1ST FY 80		H. 2ND FY 81		K. 3RD FY				
			C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN	
(1) ST	130	061			350		576				
(2)											
(3)											
(4)											
TOTALS					350		576				

A. APPROPRIATION	N. 4TH FY		Q. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	R. GRANT	S. LOAN	T. GRANT	U. LOAN	V. GRANT	W. LOAN	
(1) ST	-	-	-	-	926		MM YY 01 81
(2)							
(3)							
(4)					926		
TOTALS	-	-	-	-	926		

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 = NO
 2 = YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: *Terry Lambacher*
TITLE: **AID Affairs Officer**
Burundi

SIGNATURE: *K. R. Love*
TITLE: **Director**
REBSO/EA

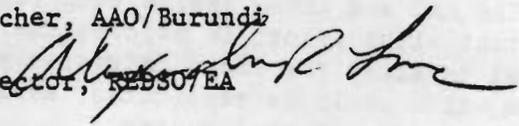
DATE SIGNED: MM DD YY

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

MM DD YY

February 15, 1980

A C T I O N M E M O R A N D U M

TO: Terry L. Lambacher, AAO/Burundi
THRU: A.R. Love, Director, REDSO/EA 
FROM: Project Committee
SUBJECT: Project Authorization

Your approval is required for a grant, of \$926,000 from the Section 106 appropriation to Burundi for Project 695-0108, Route 84 Rural Road. This is in accordance with redelegation of authority granted by AA/AFR to AAO/Burundi to approve and authorize this project, with the concurrence of the Director, REDSO/EA, as per State 039270 of February 13, 1980. The basis for approval is the REDSO Project Committee review of the project and its documentation and subsequent review by the AAO.

Discussion: This project will assist the rural population of 60,000 in the Burambi area south of Bujumbura by providing all-weather access to agricultural marketing facilities within the area, as well as links with routes to outside markets such as Minago, Tora and Bujumbura. The project will finance the reconstruction of Route Provinciale (RP) 84, a 58-km secondary road (5-meter travelway, earth surface with culverts, drainage ditches and 2 small bridges), from RN 3 on Lake Tanganyika to the intersection with RP 82. A special feature of this project is that work will be performed by labor-intensive construction methods, employing up to 800 laborers recruited from the project area. Compensation will take the form of a cash wage plus a monthly food-for-work supplement of bulgar wheat and soya cooking oil. This not only provides a strong incentive to recruitment, but effectively raises the nutritional level of the workers and their families.

This project will enjoy the active support and participation of the GRB Highway Dept, which will furnish all necessary mechanical equipment from its existing pool, as well as design, engineering and management staff to supervise construction. The value of the GRB share is estimated at \$567,000. AID will finance construction labor costs, handtools, building materials (steel, cement, POL, etc) totaling \$926,000 and Food-for-work totaling \$625,000 to be provided under PL 480, Title II.

The AAO and REDSO design team regard this project as an important pilot effort in helping the GRB develop an institutional capacity for labor intensive public works construction which could be replicated, especially for rural roads, in other areas of the country.

At the time of the PID, a request was made of AID/W to delegate approval authority for this project to the field, based on the combined competence of the AAO and REDSO in substantive areas covered by the project. This request was again pursued following completion of the Project Paper, and resulted in AID/W granting the necessary delegation of authority to permit field approval.

Waivers: No waiver requirements have been identified at this time. Since Burundi is on the UN list of least developed countries, code 941 countries are automatically eligible procurement sources. It is expected that commodities needed in relatively small quantities (steel, cement, asphalt, POL) will be purchased in Kenya. Construction handtools will be procured in the U.S. to the extent feasible. If the need for waivers arises after execution of the Project Agreement, the AAO will submit a waiver request to the Director of REDSO.

Justification to Congress: This project was not included in the Congressional Presentation but was reported to Congress by a Congressional Notification whose waiting period expired on February 14, 1980.

Recommendation: That you sign the attached Project Authorization.

Attachments: Project Authorization
Project Paper

Drafted by: MGilbert: bk *EMK*

Clearances of the Prject Committee:

GRublee *GR*
LHausman *LH*
ESpriggs *ES*
DReilly *DR*
EGreeley *EG*

PROJECT AUTHORIZATION

Name of Country: REPUBLIC OF BURUNDI Name of Project: ROUTE 84 RURAL ROAD
Number of Project: 695-0108
Number of Grant:

1. Pursuant to Section 106 of the Foreign Assistance of 1961, as amended, I hereby authorize the Route 84 Rural Road Project for the Republic of Burundi involving planned obligations of not to exceed \$926,000 grant funds over a 2 year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project.

2. The project consists of providing assistance to the Cooperating Country in the reconstruction of Route 84 by financing the cost of construction labor and supplies needed to upgrade the road to all-weather status.

3. The Project Agreement which may be negotiated and executed by the officer(s) to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.
 - a. Source and Origin of Goods and Services. Goods and services, except for ocean shipping, financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in countries included in

A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States of the Cooperating Country.

b. Conditions Precedent. The Project Agreement shall contain conditions precedent providing in substance as follows:

Prior to any disbursement or the issuance of any commitment documents under the Project Agreement, for the financing of construction labor, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.:

1. The name of the government entity or entities responsible for contracting for labor in connection with reconstruction of Route 84 and for administering the food for work element;

2. Evidence of agreement between the Cooperating Country and the Catholic Relief Service on the provision of food for work commodities to the Route 84 construction force.

c. Covenants. The Project Agreement shall contain covenants providing in substance as follows:

1. The Cooperating Country will provide qualified management and technical personnel to supervise construction of Route 84;

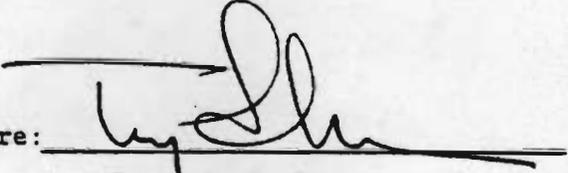
2. The Cooperating country will provide on a timely basis all necessary equipment for reconstruction of Route 84.

3. The Cooperating Country will undertake all necessary contracting in connection with establishment of a construction labor force;

4. The Cooperating Country will provide necessary training, equipment and budget to ensure proper maintenance of Route 84 after its reconstruction;

5. The Cooperating Country will agree to finance any cost overruns in connection with reconstruction of Route 84.

Signature: _____


Terry Lambacher
AID Affairs Officer
BURUNDI

Date: 6 March 1980

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I. PROJECT DESCRIPTION

A. Background and General Description of Road Area

1. Project Relevance and Beneficiaries

This project is relatively straight-forward both in concept and execution. Action will center around the up-grading (reconstruction) of a 58 km. rural road, Route 84, in a mountainous yet fairly populous and potentially agriculturally productive area in the Burambi region of Bururi Province. It has often been noted that Burundi is among the poorest countries in the world and shares with neighboring Rwanda the highest population density in Africa. The goal of increasing agricultural productivity sufficiently to feed Burundi's growing population is the top development priority of the GRB. Lack of ready access between agricultural producer and consumer is identified as a major obstacle to meeting this goal. This project request represents the GRB's effort to address this constraint in one important rural area. Although the GRB receives major assistance from other donors in the transport sector including the World Bank, FED and AFDB, these programs are aimed primarily at the development of a national road network rather than the construction of the secondary roads so vital to the country's agriculture. The GRB was motivated to approach USAID for assistance on this road because of our program emphasis on rural development and activities directly benefitting the rural poor. Although the CDSS for Burundi submitted about a year ago did not contain a transport element as such, the analysis identified problems of transport of farm produce and market access as severe constraints to agricultural growth. The strategy also stressed the need for direct assistance at the lowest levels of the Burundi rural structure, the communes and the "rugo-collines" (the hillside communities).

A USAID-sponsored agricultural sector study for Burundi undertaken in the spring of 1979 by a U.S. consulting team (MASI) stressed the need for institutional and infrastructure development before integrated area development projects could be started. MASI recommended concentration in the Central Plateau and the Zaire Nile Crest (where Route 84 lies) and emphasis on extension, research, soil conservation, storage and marketing, credit, health (including potable water) and transportation.

This project had not yet been proposed at the time of the preparation of the FY 1981 CDSS. Major damage to Route 84 requiring immediate attention occurred as a result of storms in December 1978 and an earthquake in January 1979, although gradual deterioration had been experienced for several years. The GRB is increasingly aware of the importance of rural roads, and with the Highway Dept's recently increased

maintenance capacity, construction of more rural roads is now a realistic objective. The GRB is also very interested in developing a system of labor-intensive construction for rural roads, of which Route 84 will be a pilot effort. Because of the major implication for employment generation in rural areas, the AID Affairs Office in Burundi is now thinking in terms of possible long-term assistance to the GRB in labor-intensive rural road construction. This concept will be incorporated in the major revision of the CDSS which will be submitted in January 1980.

Route 84 is considered by the AAO and the REDSO design team to be an excellent starting point. The project road rises from the shores of Lake Tanganyika at 770 meters along the Zaire-Nile Crest to an elevation of more than 2000 meters. At its eastern extremity it intersects with Route 82, 10 km south of Tora an important center of the region. On its Western side Route 84 leaves a major north-south road along the lake, Route Nationale 3, at Kilometer 57 south of Bujumbura, the capital city. It is located mainly in Burambi commune but also covers portions of two other communes, Rumonge and Mugamba, all three of which are in Bururi Province.* The area of influence of the road has been established as a zone five kilometers wide on either side of the road, or a strip 10 kilometers wide yielding a total land area of 580 square kilometers. However, this is an overall average, and the zone of influence is narrower at the Western end of the road where the population is more oriented to the main R.N. 3, while it broadens out in the center of the project area given the considerable distance from any other road.

The population of the project area has been estimated from several different sources as being on the order of 60,000 persons. The different ecological zones crossed by the road also have different population concentrations. However, analysis of available statistics indicates that the overall person/land ratio is approximately 103 persons per square kilometer, varying from 56 persons per km² in the high altitude portions of the project area to 114 persons per km² in the medium altitude and Central Plateau portions.

The human population in the area is involved principally in subsistence agricultural production which a minor portion of the population combines with livestock raising. The population is divided into approximately 10,500 farm households of 5.7 members, each cultivating a little more than a hectare of land. This population concentration is unusually low for Burundi and there are substantial amounts of cultivable land available in the project area. As a result, the population in the project area is growing at the rate of 5.05 percent

*Reference throughout the paper to the "Burambi area" should be taken to mean the project's general zone of influence.

per annum as persons migrate into the area from other parts of Burundi. This process is expected to continue for the next ten years after which the population growth rate should fall to a level closer to the national average.

The reconstruction of Route 84 will also facilitate the implementation of another new AID project in Burundi. The Basic Food Crops project, scheduled to begin in FY 80 will be the largest AID project in Burundi to date. Much of this project's activity, including the establishment of a seed farm, will take place in areas nearby and will be directly assisted by the road project. For example the tea perimeter in the Tora area lies just north of Route 84 and falls within the road's zone of influence. Our Basic Food Crops project also directly ties in to a major agricultural extension program by the European Development Fund (FED). Access to this area and travel time to Bujumbura will be improved by the upgrading of Route 84.

2. Agricultural Production Along the Road

Route 84 actually traverses all four of Burundi's ecological zones, but the bulk of the project area falls within the Central Plateau (1500-1900 m) zone. The first zone encountered the west (only 1% of the project area) is the Ruzizi plains (up to 1,000 meters). A further five percent falls within the Medium Altitude Western Zone at 1,000 to 1,500 meters elevation. Farmers in this zone plant bananas, beans, cassava, maize and peanuts.

It is difficult to estimate the relative importance of the High Altitude and Central Plateau portions of the project area, as the two are intermixed. A section of the high altitude zone lies in the center of the project area. An estimated 20 percent of the project area is included in this high altitude section which is at elevations of 1,900-2,500 meters. The remaining 75 percent of the project area falls within the Central Plateau region.

Farmers in the Central Plateau region cultivate bananas, beans, maize, sweet potatoes, cassava and arabica coffee, the latter as a cash crop. The farmer/livestock raisers in the high altitude zone cultivate wheat, sorghum/millet, Irish potatoes, maize, peas, and sweet potatoes. There are also minor plantings of tea as a cash crop in the high altitude areas at the upper end of the road. For both of these areas there are two growing seasons; a major season from October to January and a minor season from February to June. Food crops are generally sufficient for the population in the area but there may be a hungry period just prior to the January harvest.

3. Present Condition of the Road

The road is currently in varying and unstable condition, ranging from slow and bumpy but mostly passable during the dry season to almost completely impassable during the rains. Landslides and earth tremors have worsened the state of the road, and the collapse of two small bridges in a January 1979 earthquake have completely blocked off the last 18 km to the east. The consequence has been to severely restrict

economic activity in portions of the three communes served by the road, especially to Burambi commune. Concern at the plight of the areas 60,000 inhabitants has caused the central government in Bujumbura to consider ways of alleviating the situation, with the result that in early 1979 the GRB presented an unusually complete proposal for the reconstruction of this important provincial road on an urgent basis.

4. Special Features of the Project

There are at least 3 aspects of this project which deserve special attention and raise it to a higher level of interest than would be merited by a project involving merely another rural road in Africa.

a. Degree of involvement by the host government - The GRB Ministry of Public Works*, Office of Construction of Roads and Bridges has prepared a detailed technical proposal describing methodology of construction and costs. The REDSO design team engineer considered it of excellent technical quality and concurred in the construction methodology proposed. The only changes by the PP team engineer involved minor increases in certain cost estimates. Members of the PP team could recall no other African host government initial project proposal of similar thoroughness or high professional standards (except perhaps those contracted entirely to expatriate consulting firms). The team considered it worthwhile to attach the GRB document in its entirety as an annex to the PP. However, in a view of its length and the fact that it is in French only, it will not be circulated with the PP but will be held in AFR/DR as a background document for those interested.

GRB participation extends far beyond the planning stage. In fact the DPW will assume full responsibility for implementation and will cover almost 40% of construction costs (excluding Food-for-Work). No U.S. technician will be provided under the project as none is necessary in view of full planned supervision by the Highway Dept., and the limited amount of capital equipment required will all be provided by the GRB from its existing equipment pool. A.I.D. actions during implementation will be limited mainly to routine monitoring by AAO and REDSO and project evaluations.

b. Labor-intensive Construction

This method of construction is always of interest and theoretically attractive in developing countries because of the employment generated and the high degree of local participation, engendering an "our road" not "their road" attitude on the part of the

*Ministere des Travaux Publics, de l'Equipment et du Logement (TPEL).
For convenience, the GRB implementing agency will be referred to throughout the paper as the Highway Dept.

local population. Unfortunately, labor intensive techniques can seldom compete with capital equipment, when constraints of time, cost and operational efficiency are considered. This road, however, combines several features which make it one of those rare cases where labor intensive construction is feasible. These factors include: 1) presence of an existing roadway which minimizes earthwork; 2) steep side slopes for easy disposal of surplus earth; 3) emphasis on drainage ditches and structures (culverts and small bridges) for which hand labor is efficient; 4) ready availability of labor due to underemployment in the area; 5) low cost of local manual labor (U.S. \$.55 per day). The REDSO engineer on the PP team observed that of all the road projects he had seen during several years in Africa, this road was the best suited to labor-intensive construction techniques. It is expected that the construction of Route 84 will serve as a model for other prospective labor intensive projects in Burundi, drawing on the experience and procedures developed under this project.

c. Food-for-Work Component

Because of its labor intensive nature, the project lends itself to the Food-for-Work concept, a program under PL 480 Title II designed to supplement cash wages on a given project by a regular distribution of food or commodities to the labor force. The food supplement for this project will be 100 lbs of bulgar wheat and 5 liters of soya cooking oil per worker per month. The food program has the advantage of raising nutritional levels in the project area and also permits a saving in a portion of workers' incomes normally devoted to food purchases of this type. Food-for-Work experience in Burundi has so far been favorable. Progress Reports in the AID Peat Project indicate that workers are more energetic and enthusiastic and that absenteeism is down as a result of food supplements received in that project. As is the case with a number of other projects which include food for work, this element will be administered by the Catholic Relief Service (CRS) in Bujumbura. Details of the operation are described in the Administrative Analysis section of this paper.

B. Project Goal and Purpose

The project goal is synonymous with the GRB objectives and motivations for proposing the project and requesting AID financial assistance: to upgrade the economic and social welfare of the rural poor of the Burambi area in a tangible way.

The purpose of the project is to provide tangible assistance to the Burambi area in the form of all-weather access to agricultural

marketing facilities within the area as well as a link with routes to outside markets, such as Minago, Tora and even Bujumbura. The availability of reliable market access is expected to provide a significant boost to economic activity in the project area. Subsistence farming is predominantly the current practice, mainly in bananas, beans, maize, sweet potatoes, and cassava. Coffee is a limited cash crop, constrained by heavy labor demands at harvest time and marketing difficulties. Lack of current data on agricultural production makes projections somewhat chancy, but in the economic analysis, a strong case is made for turning bananas into a profitable cash crop, capitalizing on large price differences between local and town markets, especially Bujumbura.

A second project purpose is more general and extends beyond the project area to Burundi as a whole. This relates to the use of labor-intensive construction methods on the road and the desire to utilize this experience to establish a generalized operations and management system which could be applied to other appropriate development activities in Burundi. Examples of such activities might include other rural roads of a type similar to Route 84, conservation works (afforestation, drainage structures, ditches, terracing, etc.), integrated rural development projects, etc. Currently only one other major labor intensive activity can be identified in Burundi, a UNDP-financed agriculture/rural development project in the northwest part of the country.

Labor-intensive methodology to be developed under the project would include such factors as hiring standards and procedures, training of unskilled or semi-skilled laborers, feeding and housing of workers, supervision, methods of payment (cash, food-for-work, etc.), administration and record-keeping, transportation of personnel and material to and from worksites, provisions for post-construction maintenance, and other planning and operational aspects where the presence of large numbers of workers requires different practices than for projects undertaken mostly by heavy equipment. Periodic progress reports by the DFW will cover methodology and procedures in some details, also highlighting obstacles and bottle necks. These reports combined with project evaluations will serve to document the model for labor-intensive construction established under the project.

C. Specific Elements of the Project

Project outputs and inputs described in this section will parallel those presented in the project's logical framework matrix which is attached as Annex A to this paper.

Outputs - The project's principal output is quite obviously the rehabilitation of the road itself. However, the upgrading of the road will engender other actions of sufficient importance to be treated as separate outputs. Following are the three perceived project outputs and the magnitudes anticipated.

1. Reconstruction of Route 84 to all-weather status. This will cover 58 km of improved earth road of 5 meter roadway plus a 1½ meter shoulder on each side and will include all necessary drainage structures (ditches, pipe and box culverts, 2 small bridges). Details and a description of methodology are contained in the Technical Analysis section below.

2. A trained cadre of road construction workers organized into work units of 10 plus one supervisor will be available in the Burambi area for further rural road construction and for continuing maintenance work on Route 84. An average of 500 workers will be employed over the 3 year construction period and the total trained by the third year should exceed 800. In addition 80 construction supervisors will be trained by the DFW at the in-country ORT facility and will have had further on-the-job supervisory experiences. The Catholic Mission at Murago in the middle of the project area could be one significant employer of this labor pool. Others could be employed on nearby DFW or foreign-assisted road projects such as the Chinese-financed highway extending down to Rutovu east of the project area.

3. A final output is the measurable increase in incomes and nutritional levels of the road workers and their families resulting directly from the project's labor-intensive approach. Minimum cash wages for unskilled workers will be 50 BuF (\$0.55) and may go up to 70 BuF (\$0.78) daily as compared with about 30 BuF (\$0.33) per day for on-farm employment. Of even greater value is the food for work supplement, which will provide over the life of project an estimated total of 818 MT of bulgar wheat and 90 MT of soya cooking oil. This will not only provide workers and their families with a better balanced and more nutritious diet, but will increase disposable income by reducing necessary food purchases.

Inputs - Direct project costs, including all construction related-expenses plus a initial socio-economic baseline study and two subsequent evaluations total \$1,493,000, of which 567,000 or 38% will be borne by the GRB. In addition the Food for Work component will be funded separately under a PL 480 Title II Grant. The cost of the Food for Work element, including ocean and inland transport to Bujumbura is estimated at \$625,000. This amounts to about \$1.75 per worker per day

actually worked. With this element included, the GRB share of the total project is 27%. USAID and GRB inputs are summarized below.

USAID - Unlike most USAID-financed road projects, the U.S. will furnish no technical assistance and no capital equipment. The U.S. contribution covering mainly labor and supplies will take the following form:

	Estimated Cost (rounded to \$000)	
	\$	L/C
Support of construction labor		\$ 393,000
Handtools (See itemized list in Financial Plan)	\$ 120,000	
Reinforcing steel	54,000	
Asphalt surfacing (bitumen)	16,000	
Cement	60,000	
POL	74,000	
Misc Shelf Items		\$ 15,000
Socio-economic study		15,000
Evaluations	25,000	
Contingencies (20% est. $\frac{1}{2}$ U.S.\$ & $\frac{1}{2}$ L/C)	77,000	77,000
	<hr/>	<hr/>
Total Costs (Construction and Studies)	\$ 426,000	\$ 500,000
		\$+L/C \$ 926,000
Food for Work (Funded separately by PL 480 Title II)		\$ 625,000

GRB - The Highway Dept. will undertake all aspects of administration, engineering and supervision of construction, under a modified force account described in the Administrative Analysis immediately following. Use of road equipment such as dump trucks, roller and air compressor from the DPW pool will be charged as part of the GRB's project costs at going rental rates. In addition the GRB will construct two small bridges as complete works. These are the two bridges over the Dana and Ruhora Rivers which collapsed early this year as a result of an earthquake and which now render the road as a whole impassable. The GRB contribution is summarized as follows (and detailed in the project's Financial Plan):

GRB Costs Expressed in U.S. Dollar Equivalents (rounded to nearest \$000)

Personnel		\$222,000
Administration overhead	\$ 25,000	
Engineering	50,000	
Job supervision	92,000	
Labor	55,000	
Equipment usage from GRB pool		\$235,000
Material (aggregate)		36,000
Contingency (15%)		74,000
		<hr/>
		\$567,000

2. PROJECT ANALYSES

A. ADMINISTRATIVE ANALYSIS

1. Role of GRB - This project is characterized by very active participation by the host government. The implementing agency will be the Highway Department (Direction Generale des Routes) of the Ministry of Public Works (TPEL). Specifically most of the engineering, supervisory and administrative work will be performed by the Bridges and Roads Branch of this office (Ponts et Chaussées). This branch is fortunate to have as a technical advisor a very competent and experienced Belgian construction engineer, Mr. Pierre Rucquoy, provided by UNDP under IDA financing. He has been in Burundi for 5 years and is expected to remain for another 3 years. Mr. Rucquoy was largely responsible for preparing the GRB's project proposal on which this project is based. He is intensely interested in the project and was extremely helpful to the design team in the preparation of this PP. The design officer met with the Director-General of the Highway Department and with the chief of Mr. Rucquoy's branch, as well as with the UNDP Resident Representative. All provided assurances that Mr. Rucquoy would be available to work on the implementation of this project both from the Bujumbura headquarters and at the construction site, on at least a half-time basis (3 days a week) for the full life of construction. In addition the AAO and Highway Dept. are attempting to negotiate with the UNDP for the services of a full time UN volunteer (engineer) or Associate Expert who would reside at the worksite (the Murago Mission) and would assist Mr. Rucquoy. The addition of such a

person, though not yet assured is acceptable in principle to the UNDP. While not critical, this position would enhance the GRB's capacity to supervise construction.

2. Work Force Contracting Procedures

Construction labor will be provided through a modified form of force account, not using the regular work force of the Highway Dept., but a series of mini-contracts with local labor contractors who will be responsible for all work done by the laborers whom they recruit. Recruiting local laborers should present no problems according to the Highway Dept and the Murango Mission priests. Publicity can be by word of mouth, the parish pulpit and the local radio station. Workers will be paid at or above the minimum wage of 50 BuF, daily (rates will be 50-70 BuFs) and this amount will be supplemented by a standard ration of bulgar wheat and cooking oil under the Food for Work Program already described. Mini contracts will be for specific and finite tasks or operations within a special time period. Payment will be subject to inspection for compliance by Highway Dept. staff. This will provide an incentive to the contractor and his men to perform each task properly and on time. Contractor/supervisors will be responsible for training their laborers for keeping track of their time and for paying them. These supervisors will receive training as needed in road construction on the job by the Highway Dept. construction staff.

3. Administration of Food for Work

Essentially the Food for Work element will be managed by the local Catholic Relief Service (CRS) office as part of its overall Food for Work program already involving 40 activities in Burundi. As part of its tasks of managing the U.S. PL 480 Title II humanitarian assistance in Burundi, the CRS will import, clear and store in Bujumbura all food for work commodities until they are ready to be shipped to the project site. The CRS is not responsible for further transport and distribution, and since the project site begins 57 kms south of Bujumbura, other means of transport must be arranged. Fortunately a Catholic Mission at Minago on Lake Tanganyika just north of the beginning of the project road is willing and able to serve as a way station for the temporary storage of food shipments. The DPW will contract with commercial truckers in Bujumbura to transport the food to the Minago Mission. From there both the DPW and the priests at the Murago Mission are confident that it can be carried up the mountain along the project road to the Murago Mission by DPW project trucks or by Murago Mission vehicles. After the reconstruction of the

road reaches the Murago Mission two-fifths of the way along the alignment, transport up the mountain will be greatly facilitated. The Murago Mission has ample storage facilities and has agreed to store the bulgar wheat and oil until distribution every month.

Actual distribution of food will be from a central collection point at the Minago Mission. Individual contract supervisors will be responsible for ensuring that rations are correctly disbursed to their workers under the supervision of the Murago priests. A worker's ration will be forfeited as a result of absenteeism over the maximum allowable in the contract (probably 2 or 3 days a month.) This principle has worked well in the peat project and promotes a steady and dependable work force.

Transportation of the food including ocean and inland freight represents 60% of the total Food for Work element of \$625,000. Although the last leg of the journey from Bujumbura to Minago is not funded from the Food for Work component, it too is relatively expensive, if private truckers must be used. The Highway Dept. believes that its service trucks working at or near the project site can transport most of the food to Minago or even all the way to the Murago Mission. If this proves accurate, commercial vehicles may be needed only on an exceptional basis. It is proposed that the recipient workers cover any residual transport costs collectively by means of a "bag charge" a standard practice in PL 480 programs. The amount of this charge is estimated at \$1.00 to \$2.00 per worker per month, a small fraction of the value of the food received. Individual labor contract supervisors would be responsible for collecting the bag charge from each worker in their employ and delivering it to the Highway Dept. accounts office for subsequent payment to the truckers.

4. Summary of Administrative Feasibility

In a labor intensive project such as this involving up to 800 workers and a food for work component, close supervision, effective administration and attention to details are especially important. However, the project design team has every confidence in Mr. Rucquoy and his colleagues at the Highway Dept, and in the Bujumbura CRS office headed by Father Larry Olszewski, an American priest who cooperated generously with the design team. The Highway Dept., the CRS, as well as the Murago Catholic Mission have all had relevant prior experience, and although this project is something of a pilot activity, all parties, especially the Highway Dept. have given details of implementation a great deal of advance thought. On the USAID side, construction progress will be monitored closely by the AAO in Bujumbura

and site inspections by a REDSO engineer have been scheduled every 4 months. In sum, the design team foresees no inherent obstacles to satisfactory project administration.

B. TECHNICAL ANALYSIS

1. Overview of the Road Situation in Burundi

Internal transport in Burundi depends almost exclusively on roadways. Although the existing network 5,500 km of road reaches most parts of the country, its condition is not totally suited to Burundi's needs and much of it is in unsatisfactory condition owing mainly to poor construction standards and inadequate maintenance. This situation is aggravated by the mountainous terrain which increases both construction and maintenance costs.

The GRB is keenly aware of this problem and within the limits of the resources, is making serious efforts to correct it. In 1977 a Road Investment Survey was conducted by Louis Berger International Inc. and the Bureau Central d'Etudes d'Outre Mer (Berger-BCEOM Report). The GRB is attempting to follow a program of road improvement, rehabilitation and upgrading as generally outlined in the Berger-BCEOM report, which proposes a road improvement scheme for a period of 10 years utilizing increased government revenues from various sources. Burundi is receiving capital and technical assistance in road construction from the World Bank (IDA), the African Development Bank (AFDB), the European Development Fund (FED), UNDP the Government of Kuwait, and the Peoples Republic of China.

2. Physical Description of the Road

Route Provinciale (RP) 84 intersects Route Nationale (RN) 3 at kilometer 57, and Route Provincial (RP) 82 at a point approximately 10 kilometers south of Tora (see map). The entire road (RP 84) follows an existing alignment.

Currently the traffic count alone would not warrant a travelway width greater than 3.5 meters, but due to the frequency of earth tremors, heavy slide-producing rains and the need to encourage 6-8 ton trucks to utilize the road to assist the farmers in transporting their produce to principle market areas, it is deemed justified to adhere to the GRB recommended standard for this road of 5.0 meter travelway, with 1.0 to 1.5 meter should width each side of travelway. The lesser shoulder measurement will be in the areas of rock cut. This

width will not only provide space to clear slides more quickly, thus keeping the road open at all times, but will also provide a safety factor, so necessary in mountainous terrain.

3. Capital Labor Intensive Inputs

There is required on any road an economical mix of capital (equipment) and labor. It has been proven many times that highly labor intensive operations to the total exclusion of equipment is always slower, more costly and does not provide a satisfactory end product. This project will utilize an appropriate mix of capital equipment and labor but will stress the use of labor wherever technically feasible, even though some tasks could be executed somewhat more quickly and more economically with the use of certain pieces of earthmoving and compaction equipment. Since the excavation is less than 4000 cubic meters per kilometer, the additional cost of using hand labor will not be prohibitive. This method becomes even more attractive when one considers the economic benefits to the area that will be created by the increase of cash that the workers will receive. Among inputs to be supplied by GRB will be pumps, trucks, rollers and air compressors to supplement the activities of the labor to ensure proper compaction and the utilization of proper road construction techniques that labor can not accomplish within a reasonable time frame without equipment support. A beneficial side effect of this construction method will be greater local involvement and hence a greater interest by the area inhabitants in ensuring that the road will later be properly maintained by crews comprising many of the same workers, rather than outside DPW personnel brought in from another area. It should be noted that regional assistance will be employed when necessary, where equipment is needed for rapid slide removal and periodic "blading" of the travelway.

4. Construction Characteristics

a) Materials - Throughout the length of the road, good construction materials are available. These consist of gravel for road surfacing and concrete work (many streams contain clean gravel), sand for concrete, mortar and bedding materials for culverts, stone for construction and repair of slab top masonry walled box culverts and headwalls for pipe culverts. The Ph (acidity) factor of soil will not cause premature deteriorations of structures. There is adequate water principally in the form of rain water for compacting, and there are many small streams that can supply water for various functions. These streams will aid in roadway compaction but may also cause maintenance problems related to slides and roadway erosion. The latter problem has prompted the PP design team to recommend that a double

bituminous surface treatment (DBST) wearing course be considered in areas exceeding an 8 percent gradient in the longitudinal profile. This would amount to slightly less than 2.5 km of the road. If an asphalt surface is not added to these portions of the road, the rainfall of 1400 mm (55 inches) will seriously erode the surface and a great portion of the roadway foundations in areas of high gradient.

Under these conditions, maintenance would require complete reworking and regravelling of affected sections several times each year. It should be noted that it rains every month of the year in this area and that this monthly rainfall exceed 110 mm (4.3 in) in all but 4 months, and of the remaining four months there is an average rainfall in excess of 60 mm (2.4 in).

The cost of the 2.5 kms of paving would have to be considered against the cost of extra maintenance if paving is not undertaken. The PP team engineer has estimated that a bituminous surface for road sections totaling 2.5 km could be included at an added cost of about 2% to the construction budget. This includes \$16,000 for imported bitumin, a U.S. cost, and about the same amount by the GRB for labor, equipment and aggregate. This proposal has been made to the GRB and informally accepted by the Highway Dept. Accordingly it has been provided for in both the USAID and GRB portions of the project budget.

b) Alignment - since the current trace averages over 7.0 meters in width, the alignment will coincide with the current roadway. This is within the limits set forth in the Berger-BCEOM report.

c) Typical Cross Section - when completed the road will have a 5.0 meter wide graveled travelway 5 centimeter thick with approximately 1 to 1.5 meter wide shoulders as shown in the attached GRB Report.

d) Drainage

i) Ditches - ditches will be excavated to depths and configuration shown on the typical cross section, unless subsequent run-off experiences indicate a larger cross section ; at that point a larger waterway section will be excavated.

ii) Culverts

Pipe Culverts - it is planned to place and/or repair (including lengthening) 60 centimeter and 80 centimeter diameter concrete pipe culverts at locations determined by the Public Works Engineering Department. These sizes will enable the maintenance crews to more easily clean them.

iii) Box Culverts - in addition to the pipe culverts, there will be approximately 40 box culverts constructed or rehabilitated in this project. Generally these culverts will have masonry wall with slab top.

iv) Bridges - as part of the contribution to the project, the GRB will construct two small bridges. One over the Dama River (Span 5.5 m) and one over the Ruhona River (Span 6.00 m). The cost will exceed \$80,000.

e) Compliance with FAA Sec. 611 (a)

The design team has carefully reviewed the Highway Dept's financial and technical plans for construction and is satisfied that they fully satisfy the requirements of Section 611(a) of the FAA.

f) Work Force

It is proposed that a force varying from 300 to 800 laborers will be employed/work on this road. The average size of the force will be 500 laborers per year with proper supervision (1 per 10). Organization of the work force is further described in the Administrative Analysis. The labor force, will be supplemented by rollers, dump trucks and other equipment to ensure proper compaction, and the over-coming of obstacles that normally deter reasonable efficiency in a labor intensified construction program (e.g. rock excavation).

This road lends itself to a labor-intensified technique, because it is to be primarily a side-hill cutting operation with the excess material being wasted directly over the bank at the point of cut. Another factor that will aid the operation and reduce cost, is that along the entire road within the construction limits, there is suitable material for concrete aggregates, for graveling the road, and for providing bedding material for culverts.

g) Maintenance

Until recently the maintenance of roads in Burundi was based on a work force that was insufficient to perform the minimal functions on road and drainage upkeep. (40 laborers poorly supervised for over 100 km of road). This factor coupled with the slide problem in the mountainous country simply overwhelmed the maintenance force. Recently the GRB has set up forces of approximately 1 man per kilometer working in 10 man units with a foreman, and this is slowly overcoming the maintenance deficiency. In addition, the DPW is using loaders and dump trucks to clean the bad slide areas before additional damage can be done to the road. The current organization and work ethic of the Public Works Department in Burundi indicates that they are coming to grips with the maintenance problem, and that their main concern at present is the rehabilitation of the road system.

A maintenance budget of approximately U.S. \$400 per kilometer per year has been established by the GRB for Route 84. The PP Team review indicated that this level of funding is currently adequate for this road.

C. ECONOMIC ANALYSIS¹

1. Introduction

The principal objective of the economic analysis is to establish whether the reconstruction of Route 84 represents an effective means of improving the standard of living of the rural poor who are the intended beneficiaries of the project. Accordingly, this analysis makes use of a producer surplus approach similar to that proposed by the World Bank for rural projects.² In addition, as the road is to be a labor-intensive construction activity, employing local labor, an estimate has been prepared of the benefits to workers which will result from the increased productivity and income flow generated by the construction activity itself.

The analysis is based on, existing information on marketing and production activity in the project area. This information is supplemented by a field inspection of the road area which confirmed major types and poles of activity and established the zone of influence of the road. In the time available for project analysis, it was not possible to collect the hard, area-specific information required to prepare a full analysis of producer surplus on a crop-by-crop basis, and no previous surveys of the agricultural production system had been carried out in the project area.

Several crops whose production might be expected to increase are touched on, including cassava and coffee, but conclusive data on which to base an analysis are not currently available. There is however, one crop, bananas, on which production information is relatively complete and which represents an excellent potential for increased production and marketing. This analysis is based on the continuing heavy demand for bananas in Burundi and on the sharp differences in market prices between the project area (\$67.38 per metric ton) and Bujumbura (\$194.27 per mt.), only about one-third of which can be accounted for by extra transport costs. The balance is attributable to lack of market access, the central problem which this road construction project addresses. Thus the economic justification of the project is based primarily on banana production, and the project's satisfactory internal rate of return (IRR) is calculated on the basis of anticipated revenues from an increased banana crop. Other benefits are mentioned, but are not quantified owing to the dearth data. The results of the IRR are summarized at the end of this section.

¹ This section is an abridgement of the full Economic Analysis which is attached as Annex B. The reader is referred to the annex for a more complete economic background and explanation of methodology.

² Carnemark, Biderman, and Bovet. The Economic Analysis of Rural Roads, World Bank Staff Working Paper, No. 241, August, 1976

2. Identification of Project Benefits

Two categories of quantifiable benefits flow from the project: 1) those accruing as a result of labor-intensive construction and 2) the producer surplus. In addition, road-user savings have been considered but have not been calculated in the benefit stream.

a. Labor-intensive Construction

Approximately 40 percent of the salary costs for construction workers represent an increased income flow into the project area. This calculation is based on the difference between the average productivity per worker in the agricultural sector (the "without" project situation) and the wage paid to unskilled labor ("with project"). Several categories of workers will be employed on the job, including supervisors and skilled craftsmen who will be compensated at a higher rate than the unskilled labor which will make up the bulk of the labor force. Although the income gain will most likely be greater among the more skilled personnel involved (i.e. without the road project they would be working in the agricultural sector and not using their already acquired skills), the difficulty in calculating the gain and the small numbers involved suggests that a forty percent gain represents a fair measure to apply for all ranges of personnel.

A second element is the income gain represented by the PL 480 Food-for-Work commodities. The workers will be provided with sufficient wheat and oil for themselves and for four dependents. It is expected that the construction workers will be men, while women provide most of the labor for food crop production in the area. Thus the construction program is not expected to result in a decline in food supply to the family.¹ Accordingly, the local market value of the PL 480 commodities has been calculated as a net gain to the worker's families.

b. Producer Surplus

The producer surplus approach to the evaluation of rural roads is based on the likely impact on farmers' incomes of a decrease in transport costs. As such, it provides the best means of determining whether the road project will be successful in improving the standard of living of the farm families who make up most of the population living in the area.

Since the data base available on the area was not sufficient to support a detailed crop-by-crop analysis, the analysis focuses on a single crop, bananas, for which there was both the most potential for increased marketings and the best information. These projections serve as a means of illustrating potential returns from the producer surplus, but overall returns should be considerably larger than those shown here.

¹ Turnover among construction workers, adjustments in working schedules, and possibly the use of casual wage labor at harvest time should permit men to make their normal contribution to food production (see Social Analysis for additional information).

1. Banana Crop Production

Green bananas are produced in the Medium Altitude and Central Plateau portions of the project area which account for 80% of the area of influence of the road. Total current production is on the order of 15,800 MT. Bananas are an easy crop to cultivate, requiring only 90 person days per crop per hectare and yield the highest volume of product per land area used in cultivation (6,500-7,000 kg per hectare) of any crop grown in Burundi. Thus bananas represent a crop for which increased production could be achieved with relative ease.

There is a ready market for bananas in Bujumbura and in regional markets. Bananas are also sold in all the periodic markets visited by the field team. Furthermore, there is a substantial difference between current market prices for bananas in the project area (\$67.38 per MT) and in Bujumbura (\$194.27 per MT).

Only 37 percent of the price difference is accounted for by the current high cost of transporting bananas from the project area to Minago market by headload (approximately \$28 per MT), plus the cost of transportation from Minago to Bujumbura (\$19.38 for transport over a paved road^{1/}).

It can be safely assumed that the balance of the price difference is due in large part to lack of market access. Prices in the project area are low because producers are selling to each other, to the limited number of persons who care to headload out bananas, as well as to the limited incidence of transporters who collect bananas at the Burambi market. Both the price and quantity of bananas marketed could be expected to expand substantially as the market becomes more integrated as a result of the road rehabilitation.

Current marketings of bananas are somewhat difficult to estimate as there are no figures available on the volume marketed in the area. The estimated figure used for current marketings of between six and seven percent of the crop as 106 MT, has been established on the basis of information contained in the MASI Agricultural Sector Survey. This report indicates that the level of marketings of food crops is very low; between five to seven percent¹ is mentioned in one annex to the report and "probably only ten percent by volume" in another annex.² Bananas apparently make up the bulk of food crop marketings. Therefore the analysis is based on the current marketing level between the minimum and maximum levels mentioned, although bananas probably have a higher marketing rate than other food crop.

^{1/} All ton kilometer estimates are based on the analysis of Louis Berger International prepared for the GRB and presented in Table 14.6 of the Annexes to the Road Investment Program 1978-1987 -- Summary Report dated February 1977. Prices have been revised upwards to 1979 levels.

If the current level of marketings is higher than that estimated, it will have the effect of improving the internal rate of return of the project. The current amount of estimated marketings represents only a small amount per producer family, between 100-150 kilos.

In order to determine the decrease in transportation costs generated by the road, a calculation was made of the costs of headloading bananas from the middle of the project area to Minago. The distance is approximately 14 kilometers, and the cost of transportation is \$2.04 per ton/kilometer^{3/}, yielding an average cost of \$28.58 per MT. By contrast, the average price of transporting foods from the project area to Minago after the road is completed will be on the order of \$18.38, calculated on the basis of \$.58 per ton/kilometer over 28 kilometers of the project road, plus \$.34 per ton/kilometer for the 6.3 miles up the main road to Minago. This is the cost for transportation in a 1.5 ton Toyota Camionette. Accordingly the savings in transportation charges has been estimated at \$10.20 per MT.

It has been assumed that the full amount of transportation savings will be reflected in an increase in prices paid to the producer. The assumption is based on the large remaining margin in price difference between the market price in the project area and in Bujumbura which provides sufficient profit for transporters and traders. In addition, transporters will probably use larger vehicles than the 1.5 T Camionette used in preparing the cost calculation, with a resulting decrease in per ton kilometer costs. The cooperative at the Murago Mission intends to purchase a 3.5 ton truck once the road is complete and to use it to transport produce from the area to Bujumbura as well as to collect supplies for its shops. The cooperative will provide an outlet for producers at a price more favorable than that likely to be offered by transporters and traders and should help to improve the competition between purchasers in the area.

Accordingly, the projected price per ton of bananas in the project area will be revised upwards from \$67.38 to \$77.58 per MT in constant 1979 prices after the road is complete. In determining producer response to prices, it has been assumed that a 1% increase in price will result in a 1% increase in total production, and the total amount of the increased production plus the amount normally marketed will be sold. A 15% increase in production can be achieved with ease as it represents only on the order

1. MASI, Annex 5, "Agricultural Production and Research," p. 15.

2. MASI, Annex 1, "Economic Analysis," p. 6.

3/ The price per ton kilometer was derived somewhat crudely by asking how long it took to carry a normal headload (25 kilos or 55 lbs.) overland from Murago to Minago. The analyst was informed that it took one day to carry the load to Minago and return unladen (if the headloader returned with a load, he normally made an overnight stop to rest before returning). Accordingly, the cost of carrying 25 kilos 11 kilometers was valued at 50 BuF, the minimum wage for unskilled labor in Burundi, and used to calculate

of four extra person days of labor a year on .04 additional hectares per family.¹ This increased production will be in addition to that resulting from increased population size in the project area. Prices and quantities sold have been multiplied to give a revenue figure, and production costs times quantity calculated and subtracted from revenues to determine the revised income figure. The only production cost calculated was the opportunity cost for labor^{2/} in the agriculture sector. The opportunity cost for land has been taken as zero, due to the negligible amount involved in the increased production and the availability of unused land in the project area.

In the "without project" case, production and marketing (at the lower prices) have been projected to grow at the rate of population growth in the area^{3/}. Costs were subtracted from revenues to determine the income figure. In determining the incremental benefit derived from the project, the income figure "without project" was subtracted from the income "with project".

A phased increase in producer income has been shown beginning in the second year of the project when the first ten kilometers of the road will be complete. A further increase can be expected in the third year as 60% of the road is to be complete by the end of the second year. The full effect of the price incentive has been projected to appear in Year 4.

2. Other Crops

Food Crops. The decrease in transportation charges plus improved market access can be expected to raise prices and marketings of other crops, and particularly cassava. Cassava flour shows a marked difference in prices between the project area (\$225 per MT) and Bujumbura (\$364 per MT). In addition, dried cassava and cassava flour are sold in large quantities at the Musave market but to a much more limited extent in the other markets along the road. It is likely that this difference is

(Cont from previous page) the estimated cost of \$2.04 per ton/kilometer. By coincidence, the figure is almost exactly the same as that determined in a World Bank Study in Kenya (\$2.02 per ton kilometer) see J.D.G.F. Howe. "Some Thoughts on Intermediate Technology and Rural Transport", ODI Review 1 - 1977, p. 37.

¹ The same effect could be achieved without any increase in production if the family simply marketed a larger percentage of current production.

² This was calculated as the number of man days required to produce a metric ton of bananas x 30 BuF which is the value added per man day in the agricultural sector.

³ In Burundi as a whole production has been growing at a rate less than that of population increase. This is not expected to occur in the project area due to its currently relatively low population levels.

is due to the fact that cassava is rarely grown in altitudes over 1,500 meter because it requires a warm climate to produce satisfactory yields.

Coffee Production. There were suggestions from several observers that the level of coffee production in the project area had been effected by marketing difficulties. Coffee represents a heavy demand on family labor time at the time it is harvested, and the person days required to headload the crop to the nearest market are an additional burden. However, the project area has an output of coffee which is about average for Burundi. There was no reasonable basis for projecting increased coffee plantings in the absence of a concerted government effort in the area. Such an effort could easily follow reliable access to the project area.

3. Road User Savings

Road-user savings can be divided into two kinds of activities:
1) vehicles collecting agricultural commodities in the area and
2) deliveries of basic consumer goods and other food items. It is possible that at least a portion of these savings would be passed onto consumers in the form of lower prices, especially to the extent that the cooperative, which operates on a low profit margin, becomes involved in marketing and the delivery of consumer goods. Road-user savings is especially applicable to fish which doubles in price in the markets between one end of the road and the other due to the greater headloading distances involved.

Road user savings will also accrue for three other type of traffic: private vehicles; commercial transport sent in to collect the coffee crop; and diverted traffic which can be expected to use the road as it represents an easy route to the Lake to collect fish and as access to Route 3.

These benefits from road improvement will represent real savings for the transport owners and the Burundi economy as a whole. However, they have not been calculated owing to their secondary nature and to the paucity of data.

4. Discussion of Project Costs

The project cost figures were developed by the engineering member of the design team. The wages for road construction labor (an average of \$2.45 per day in local currency, when the value of PL 480 foods are included) are within the range established by the IBRD as compatible with highly labor-intensive techniques or for those which employ a mix of labor and capital.¹

¹ See Judith Tender, New Directions Rural Roads. AID Program Evaluation Discussion Paper No. 2, March 1979, p. 2)

It should be noted that \$625,000 of project costs derive from the PL 480 food to be used in the Food-for-Work component of the project, as compared with AID's development grant input of \$926,000. The high cost of the food is due to the heavy cost of ocean freight and even greater inland transportation charges, which together cost \$411 per MT. These high costs have an impact on the IRR of the project which is reduced from 19.7 to 17.06 as a result of inclusion of the PL 480 element. However, the food represents about 50% to 75% of the income benefits to the local construction workers. A labor-intensive road project would thus appear to be a useful method for utilizing PL 480 foods and insuring that the foods reach their intended beneficiaries.

5. Benefit/Cost Analysis

The benefits of the project are calculated in accordance with the discussion in the preceding section. Project costs include contributions by AID, the PL 480 food program and the GRB. These costs are based on actual disbursements. Inflation has been assumed to affect both costs and benefits equally.

The benefit/cost ratio for the project is 1.08, based on a discount factor of 15%. (See Table 1) The internal rate of return for the project is 17.06 percent, which would be increased to 19.7% if the PL 480 food element were removed from the project.

A series of sensitivity tests have been run to measure the accuracy of the estimated rates of return implied by this analysis. These tests are summarized below:

Sensitivity Tests

Costs increased by 10%	14.49
Benefits decreased by 10%	14.24
Costs increased by 10% and benefits decreased by 10%	12.11

Moreover, it should be emphasized that the analysis is based on conservative estimates of benefits using bananas as the sole cash crop affected. In addition, production and sales of cassava, coffee and other food crops are also likely to increase. Similarly road user savings are also expected to accrue to private and commercial vehicle owners who will benefit from the rehabilitated road.

TABLE 1

**Benefit-Cost Analysis at 15% Discount Rate and Internal Rate of Return
(in constant 1979 prices and \$000)**

Year	Benefits:			Costs: ¹						
	Increased Rural Incomes (Const. Workers)	Producer Surplus	TOTAL	Discounted TOTAL	AID	PL 480	GRB (Const)	GRB (Maint)	TOTAL	Discounted TOTAL
1	146	--	146	127	251	131	123	--	505	429
2	417	12	429	324	429	369	297	2	1,095	791
3	141	81	222	146	246	125	146	9	517	317
4	--	222	222	127	--	--	--	22	22	13
5	--	234	234	116	--	--	--	22	22	11
6	--	245	245	106	--	--	--	22	22	10
7	--	258	258	97	--	--	--	22	22	8
8	--	271	271	89	--	--	--	22	22	7
9	--	284	284	81	--	--	--	22	22	6
10	--	299	299	74	--	--	--	22	22	6
11-20	--	3,526	3,526	423	--	--	--	224	224	28
				1,710						1,616

Benefit cost ratio = 1,710 divided by 1,587 = 1.06 Internal Rate of Return = 17.06

1. All cost inputs are based on year of disbursement, not the year of obligation or commitment. Inflation has not been included as it is assumed that both costs and benefits inflate at the same rate.

D. SOCIAL ANALYSIS¹

Introduction

As one of the poorest countries of the world, Burundi faces exceptional development problems. The Burambi area, where the project is situated, is a microcosm of the country and its problems. Per capita income is estimated to be less than the national average of \$130 a year, literacy is 15%, health services almost non-existent. The area spans the three main ecological zones which characterize the country. With a population of 60,000 (average family size an estimated 5.7), it includes peoples of traditional farming (80%) and traditional pastoral (20%) background in roughly the national ratio. It also contains an active Catholic Church Mission which is the leading institution for development change in the zone of influence of the road.

Benefits and Burdens

This labor-intensive roads rehabilitation project is well tailored to the development needs of the Burundi rural poor in general and to those in the Burambi area in particular. The direct beneficiaries are the average of 500 or more laborers who will be working on the rehabilitation of the road at any one time. If the current local small-scale labor-intensive road building activities are any guide, laborers will be selected from a pool of candidates recruited area wide, but will predominately be the farmers well-accustomed to strenuous physical labor. Wives and children of these laborers will directly benefit from the project to the extent that the wages and Food for Work rations issued for each laborer and four members of his family are brought home and used to meet family needs.

The more than 10,000 families living in the zone of influence will benefit through increased access to social services and increased opportunities for sale and purchase of agricultural and other goods under market conditions more favorable to local buyers and sellers than is now the case. As women are heavily involved in food and beverage production, marketing, processing, and preparation they should realize tangible benefits from improved access to the "outside world."

There may be some possible burdens for women associated with the improvement of the road, but their extent is difficult to determine at this time, and hence should be monitored. It is possible, for example, that wage labor opportunities for men will pull them "off the farm" to the detriment of the wife. If additional labor is not hired as a

¹ See Annex C, Social Analysis, for further treatment of social issues.

substitute, the wife may be faced with an added burden, e.g. in coffee cultivation, ground clearing, etc. particularly if her husband fails to bring home at least a fair share of the food and money he earns.

At present, the system of payment on a piece-work basis utilized by the Mission at Murago provides for an easy departure of a laborer several days or more a month so that he can help out on the farm or whatever and still retain his job. As this system will be continued, the possibilities of adding to the wife's farm workload due to prolonged absence of the laborer husband should be minimized. Some flexibility may need to be built into construction contracts to permit workers to return to their farms at harvest time.

A second possible burden on women in the area may emerge over time as the road helps to accelerate the trend towards commercialization of food crops. In other parts of Africa such an acceleration of commercialization has been associated with an increasing involvement of male-oriented extension programs and a subsequent male domination of the women's access to the proceeds from sale of farm produce. At present, the equitable involvement of women students in the agricultural instructional activities in the parish schools makes this problem unlikely in the near and midterm future.

Land Use

On a more general level, another potential "burden" associated with this project relate to the possible loss or destruction of land caused by the construction team in the course of their work. At this point, such loss and destruction is expected to be minimal. Cut and fill activities will be carried out in such a way as to protect areas under cultivation. As the road alignment is already established, very little land will be taken under the national policy of "eminent domain". At present, the only portion of the road to be altered which will require the usual GRB indemnification procedures will be one area near where a bridge requires rebuilding.

It is possible though unlikely that as traffic increases on the road an inequitable trend may emerge whereby poorer families near Route 84 are pressured to sell out to richer families wanting prime access to the road. Such a pattern has been identified for example, in a heavily-populated farm area in Western Kenya. Such a trend in Burundi is unlikely to emerge in the near future, however, given the traditional land tenure and use patterns of the area (based on usufruct and still at least partially under the control of local patrilineages), the long term existence of the road, and the relatively limited local involvement in the monetized economy.

Participation

Local participation is built in the project in the form of labor intensive road work. Local institutions will also provide important support during project implementation and beyond life of project. A profile of the local development-related institutions which will gain the most the improved all-weather access provided by rehabilitation of Route 84 is included in both the Social and Economic Analyses annexed to the paper. Each of these institutions provide opportunities for local development through participation by area inhabitants. In brief, those include: a periodic market system (5 of which are located along Route 84); 5 Catholic Mission-sponsored cooperatives (the largest being a marketing cooperative with 260 members, the other production oriented i.e. iron working, brick making, wood working, livestock raising); 5 government-run primary schools- 19 Catholic Mission-run parochial schools (8 of which offer extensive training for local rural life, e.g. in agriculture, and health in grades 4-5 and in the "Foyers Sociales" grades 7-8). At present, government involvement in agriculture in the area is limited to 3 agriculture extension workers supervising coffee production and a small seed multiplication project in its initial stage of implementation located adjacent to the main Catholic parish center.

Socio-Cultural Feasibility

There is relatively little doubt of socio-cultural feasibility. The prime purpose of the project is simply rehabilitation of the existing road. The labor-intensive method for its rehabilitation is not new to the area; crews sponsored by the local Catholic Mission have been previously constructing roads for a mixed payment of cash and Food for Work - albeit on a very limited basis. Any problems which may emerge - e.g. due to the much larger scope of the proposed program, involving the entire main east-west road in the area and a relatively large labor force, should be able to be adequately addressed by the implementation team. This team includes Ministry of Works (Travaux Publics) personnel having long experience with this type of road construction as well as the local church mission which will assist in the selection and payment of the laborers, will provide logistical support, etc.

Spread Effect

Successful initiation of this roads project should result in a spread effect both within the project area, and beyond.

Within the project area, the development of a trained local labor force of over 500 men should increase the likelihood that Route 84 and additional feeder roads are well maintained over the long run. It is

possible that a number of these laborers will be able to utilize the skills developed while working on the construction teams to find jobs or assist in self-help projects elsewhere after their involvement in the road rehabilitation is completed.

As a pilot project in labor intense rural road rehabilitation, the project also has considerable potential for generating a country-wide "spread effect" as the GRB Travaux Publics or private, non-governmental organizations adopt the purposes and procedures developed under the Route 84 construction program. In order that this pilot project achieve such a spread effect, several conditions must be met. First, it must be recognized as a successful pilot activity. The procedures developed during life of project must be documented and evaluated. There must be some evaluation of impact as soon as possible after road improvement, i.e. to what extent has easing of key transport constraints contributed to an acceleration of development in the area? These evaluations must be undertaken in such a way as to be credible, their results must be effectively communicated to relevant decision-makers and practitioners activities throughout the country. The project evaluation plan is described in Section 5, careful implementation of this plan will play a critical role in whether or not the project does achieve maximum spread effect.

Given an overall favorable evaluation, it is also possible that USAID itself will attempt to extend the benefits of this type of project on a larger scale. A follow-on project in the same area (e.g. construction of a connecting road from Route 84 to Rumonge) or another area is a possibility, another is support for the development of a labor-intensive road rehabilitation and construction unit within the GRB Travaux Publics.

Government and Local Commitment

There seems to be no question that the GRB is seriously interested in rehabilitation of the road and there is also ample evidence that the GRB Highway Dept. is committed to the concept of trial utilization of labor-intensive road rehabilitation for Route 84. The design team leader had an audience with the Governor of Bururi Province, in whose jurisdiction the road is located. The Governor was knowledgeable about the road and pledged his full support to the project. Knowledge of and commitment to the project by GRB at the local commune level could not be confirmed by the PP team as the appropriate officials were not available for interviews. It is understood, however, that the Highway Dept personnel working on preliminary feasibility studies have found local government officials to be very cooperative. As mentioned earlier the Murago Catholic Mission will also play an important role in project implementation especially in the food for work program.

In sum, this project is an excellent pilot activity for such a country as Burundi: it addresses a key constraint in a rural area; its direct beneficiaries are the local rural poor; these poor are directly involved in achieving the purposes of the project; and a well-established locally-based institution has been enlisted to help in this process. As a pilot activity the project will be closely monitored and its potential for replication elsewhere in the country carefully evaluated.

Environmental Concerns

An Initial Environmental Examination prepared by the AID Affairs Office in Bujumbura is attached as Annex I. Since this project involves the rehabilitation of an existing road with no alignment changes, and since the improvement of the road will have an economically and socially beneficial effect on the local population, the IEE recommends a negative determination.

3. FINANCIAL PLAN

Summary - The total cost of this project is \$2,118,000. Sources of funding are as follows:

USAID Development Assistance Grant	\$ 926,000
GRB contribution in goods and services	\$ 567,000
US PL 480 Title II Food for Work	<u>\$ 625,000</u>
	\$2,118,000

The GRB share of the total project is 27%. If, however, the separately funded PL 480 food for work element is excluded, the GRB contribution rises to 38% of direct costs of constructing the project road.

USAID Financial Contribution

As noted above the U.S. contribution will come from two separate sources. The first is a development grant of \$926,000 which will finance a large share of local labor costs (\$393,000); construction materials such as steel, cement and asphalt (\$130,000); handtools (\$120,000) PGL and miscellaneous supplies (\$89,000); studies (a socio-economic survey and two evaluations totaling \$40,000) and a contingency factor of 20% (154,000). The contingency allowance is intended to cover cost increases in commodities and ocean freight beyond the 1980 prices budgeted and a range of local wage rates in Burundi. It should be noted that the Project budget contains no USAID-financed technical assistance, either long or short-term and no capital equipment, standard features of most

USAID projects. These inputs will come from the GRB's implementing agency, the Highway Dept, and will in part be the products of other donor general support programs (World Bank/IDA, FED and UNDP).

The second U.S. funding source comes under the PL 480 Title II Food-for-Work program for Burundi, which is administered by the Catholic Relief Service (CRS). CRS estimates that at least the first year's requirements of the total food-for-work component, calculated at \$625,000 over 3 years including ocean and inland freight, can be accommodated within the existing Annual Estimated Requirements (AER) for PL 480 Title II. In subsequent years the AER can be increased as needed. Accordingly, no contingency allowance is included for the PL 480 element in this paper. This project element will be one of some 40 food-for-work activities being carried out by CRS in Burundi. The following table breaks down PL 480 costs by year, commodity and transport charges.

Costs of PL 480 Food-for-Work Commodities

	Bulgar (MT)	Cost per (MT)	Total Cost Bulgar	Oil MT	Cost Per MT	Total Cost Oil	Inland and Ocean Trans portation Bulgar & Oil	Total Cost
Year 1	170	207	35,960	18.7	904	16,904	77,556	130,420
Year 2	484	"	100,188	53.2	"	48,093	220,789	369,070
Year 3	164	"	33,948	18.1	"	16,362	74,843	125,153
			<u>170,096</u>			<u>81,359</u>	<u>373,188</u>	<u>\$624,643</u>

Rounded to - \$625,000

Cost of Ocean Transportation

USA to Mombasa	\$100-150 Average	\$125 per MT
Overland Mombasa to Bujumbura		<u>286 per MT</u>
Total		<u>\$411 per MT</u>

The GRB Contribution

A) Project Administration

The host government contribution to this project is very substantial, not only in financial terms but also with respect to human resources and material. Virtually all of the planning and engineering for the road's reconstruction was performed by the Highway Dept staff who will also be responsible for supervising construction. All necessary capital equipment will be provided by the Highway Dept from its existing pool which is very well stocked and efficiently run by the standards of any least developed country.

The GRB is currently placing major emphasis on national highway development with the assistance of several international donors. These foreign-assisted programs have also greatly expanded the Highway Dept's maintenance capacity, but so far relatively little attention has been given to the construction and up-grading of rural roads. Very recently, however, the GRB has shown signs of devoting a higher priority to rural roads and has expressed interest in the development of a labor-intensive road construction system. Route 84 is of special importance as a pilot effort in this connection. Given the thinness of the GRB's financial resources (see table below), the U.S. was approached for financial assistance in this project.

Following is a detailed breakdown of GRB inputs to the project and their costs. Note that complete works to be built by the Highway Dept, two small bridges, are listed separately here. In other summaries of GRB inputs in this paper, they do not appear but are subsumed under other categories of equipment, materials and labor.

Budget for GRB Inputs (in \$U.S.)

Personnel

Central Officer Overhead (2% of 1,258,212)	=	\$25,265
Job Supervision & Administrative Overhead (10%)	=	\$91,600
Engineering (4%)	=	\$50,328
Labor (paving of 2.5 km)	=	\$ 500

\$167,693

Equipment (Includes Maint. & POL but not Operators)

Rollers (12 ton SP) (1) - 485 days x \$194/day	=	94,090
Asphalt Distributor (1) - 5 days @ \$186,60/day	=	933
Dump Truck 4.3 m ³ CAP (2) - 50700 km @ 1.00/km	=	101,400
Air Compressor 250 CFM - 700 days @ \$ 55/day	=	38,500

\$234,923

Material for paving of 2.5 km (Aggregate)¹

132 cubic meter	\$	4,100
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Completed Works Bridges

Bridge - Dana River - 5.5 m Span (Repair and/on reconst)	=	\$ 21,500
Bridge - Ruhora River - 6.0 m Span (New Const)	=	\$ 65,000
Note - Aggregates - (\$31,750)		\$ 86,500
Labor (\$54,750)		

\$493,216

Cont. 15% 73,982

\$567,198

Rounded to - \$567,000

1. Labor and materials for paving of 2.5 km of the road where gradient is more than 8° is indicated separately, because proposal to pave these sections was made
Footnote continued next page.

B) GRB Budget Analysis and Recurrent Costs

With the \$625,000 food-for-work element included, the GRB share of the total project is 27%, in full compliance with Section 110 (a) of the FAA. If project costs are considered without the separately funded PL 480 contribution, the GRB share rises to 38%, a rare achievement for a recipient on the UN list of least developed countries.

The GRB's actual contribution of \$567,000 over 3 years should be considered in light of the fact that its total national budget in 1979 is only \$127 million. Yet this contribution is considered quite solid, as it represents for the most part the services of staff already employed by the Highway Dept and use of equipment already in its possession.

The relative budgetary position of road construction, road maintenance and the totality of public works, with respect to the Burundi national budget can best be illustrated by the following chart, which shows a year by year trend from 1974 to 1980. It should be noted that while the national budget has quadrupled in this 7 year period, funds available for road construction have increased 6 fold, and funds for road maintenance have increased 9 fold! Thus the road maintenance budget, as of percent of the national budget, has grown from 1.3% in 1974 to 3.0% in the approved 1980 national budget.

NATIONAL BUDGETS OF BURUNDI 1974 - 1980 (in \$000)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
National Budget	33,606	37,883	75,047	89,168	133,204	126,699	134,078
Budget for Public Works	3,265	4,091	12,600	12,100	21,074	16,334	17,654
Budget for Roads & Bridges Division	1,756	1,332	3,736	3,828	3,063	4,344	4,681
Part reserved for road maintenance	450	570	959	1,611	2,299	3,372	4,022
Percentage of National Budget reserved for road maintenance	1.3%	1.5%	1.3%	1.4%	1.7%	2.7%	3.0%

Despite these impressive strides in road maintenance operations and budget, the Highway Department estimates that complete maintenance of the total road system (the ideal situation very seldom realized in any developing country) would cost somewhat more than the existing maintenance budget. Average maintenance costs are summarized on the following page.

1 (continued from previous page) by design team after GRB had prepared its budget. See Technical Analysis.

	<u>Kms. now in use</u>	<u>Average annual maintenance cost p/km</u>	<u>Total Cost p/a</u>
National Paved roads	545	\$4,450	\$2,425,000
Interconnecting Secondary roads	1165	\$2,600	\$1,748,000
Provincial earth roads	<u>1274</u>	<u>\$ 400</u>	<u>\$ 510,000</u>
	2984*		\$4,683,000

*Excludes simple trails and tracks maintained locally by communes or church missions.

The above amount of \$4.68 million is a hypothetical figure extrapolated from GRB data. It exceeds by only a moderate sum current availability of \$3.72 million in 1979 and \$4.02 million in 1980. Road maintenance, however, is very labor-intensive and the largest single cost component is workers' salaries. The \$4.68 million figure is based on maintenance contracts wherein all workers are paid at the legal minimum wage or better, depending on the area. The GRB's principal solution to reduce the shortfall is the use of unpaid labor through local community participation. This system of one day or half day per week of donated labor has been used successfully in Burundi and other neighboring countries for road maintenance and the upkeep of other community services.

In the next decade the GRB plans through new construction to expand its road network from the present 2984 km to 4048 km, an increase of 36% in ten years. On the other hand, the road maintenance budget, which has increased an average of 40% per year since 1974 would have to increase only about 3% per year from 1980 to 1989 to maintain the same cost/km ratio it now has with the present road network. An annual increase of a relatively modest 15% would produce a maintenance budget of \$16 million by the end of the next decade, quadruple the present level. Thus even with the expansion of the road network and anticipated inflation, the road maintenance program and budget can reasonably be expected to greatly exceed present standards in the next decade, given the GRB's determination in this area demonstrated over the last few years.

Returning to Route 84 specifically, the design team and the AAO have no doubt that the GRB has both the will and the technical and financial resources, not only to fulfill its support commitment to this project, but also to maintain the road properly following its reconstruction. Maintenance coverage by the Highway Dept has recently doubled and now averages one man full-time for each km of road, or 60 men

on the 58 kms of Route 84. Maintenance costs on this road currently run \$400 per km per year or \$23,200 annually for Route 84 as a whole. As a low cost provincial road this will represent only 0.006% of the total road maintenance budget in 1980, even though it constitutes 2.3% of the country's total road network.

EXPENDITURES BY YEAR - GRB AND U.S

	1st Year		2nd Year		3rd Year		T O T A L	
	GRB	U.S.	GRB	U.S.	GRB	U.S.	GRB	U.S.
Administrative Overhead	5,053	-	10,106	-	10,106	-	25,265	-
Engineering	18,873	-	18,873	-	12,582	-	50,328	
Job Supervision & Administration	22,900	-	45,800	-	22,900	-	91,600	
Labor	10,950	78,000	27,375	220,000	16,925	95,000	55,250	393,000
Equipment	46,100	-	138,300	-	50,523	-	234,923	-
POL	-	14,070	-	37,000	-	23,000	23,000	74,000
Bitumen	-	-	-	-	-	16,000	-	16,000
Cement	-	6,000	-	36,000	-	18,000	-	60,000
Reinforcing Steel	-	6,000	-	34,000	-	14,000	-	54,000
Aggregates	3,175	-	19,050	-	13,625	-	35,850	-
Hand Tools	-	80,000	-	30,000	-	10,000	-	120,000
Miscellaneous Shelf Items	-	2,000	-	9,000	-	4,000	-	15,000
Socio-economic study Evaluations	-	15,000	-	-	-	-	-	15,000
	-	15,000	-	12,000	-	13,000	-	25,000
Contingency	16,057	50,000	38,925	51,000	19,000	53,000	73,982	154,000
TOTAL	123,108	251,000	298,429	429,000	145,661	246,000	567,198	926,000

COSTING OF INPUTS / OUTPUTS
(\$000)

<u>INPUTS</u>	<u>OUTPUTS</u> ¹				Total
	No. 1	No. 2	No. 3	Contg. ²	
<u>USAID</u>					
Support of construction labor	157	79	157		393
Building materials	255	84	-		339
Studies	<u>20</u>	<u>20</u>	-		40
USAID Total	432	183	157	154	<u>926</u>
<u>PL 480</u>					
Food for Work	125	-	500		<u>625</u> ³
<u>GRB</u>					
Personnel	111	111	-		222
Equipment	157	78	-		235
Material	<u>24</u>	<u>12</u>	-		36
GRB Total	292	201	-	74	<u>567</u>
Totals	<u>849</u>	<u>384</u>	<u>657</u>	<u>228</u>	2118
Percent of inputs received by each output	40%	18%	31%	11%	100%

1. Outputs

1. Reconstruction of Route 84
2. Trained cadre of road construction workers
3. Increased levels of income and nutrition among workers' families

² The contingency allowance is not attributed to outputs

³ No contingency is indicated for the PL 480 component, as cost increases can be accommodated in AER submissions.

HANDTOOLS - FIRST YEAR'S ORDER
ILLUSTRATIVE LIST

<u>Item No.</u>	<u>DESCRIPTION</u>	<u>Unit Price</u>	<u>Amount Required</u>	<u>Extension</u>
1	Machetes - 24" w/sheath	6.82 9.91 <u>16.73</u>	300	\$ 5019.00
2	Shovel, No. 2, Long handle Round Point	9.23	900	8307.00
2A	Shovel, No. 2, Square point, D-handle	11.00	200	2200.00
3	Pick-Mattock	8.80	500	4400.00
3A	Handles for Mattock	4.25	700	2975.00
4	Hoe w/Handles	11.40	150	1710.00
2	Handles, Replacement long	4.11	400	1644.00
2A	Handles, "short, D-handle	4.45	100	445.00
5	Crow bar, 5", 4 kg.	17.28	150	2592.00
6	Sledge Hammer 5 kg.	16.88	150	2532.00
6A	Replacement Handles	4.64	100	464.00
7	Axes, 1.5 kg, single bit	12.33	100	1233.00
7A	Replacement Handles	4.78	50	239.00
8	Rake, Asphalt	14.77	50	738.50
8A	Replacement Handles	7.69	30	230.70
9	Chalkline 50'	7.69	4	30.76
10	Spade	13.85	80	1108.00
10A	Replacement Handles	3.70	50	185.00
11	Trowel, Brick 10"	7.73	60	463.80
12	Trowel, Pointing 5"	3.64	60	218.40
13	Trowels, Finish	8.56	10	85.60
14	Level, Masons Wood, 24"	6.50	40	260.00
15	Hammer, Masons 24 oz	12.92	50	646.00
16	Square, 600 x 400 M, steel, metric	3.86	30	115.80
17	Rule, Wood folding, 2M	2.86	60	171.60
18	Rule, Aluminium Folding, 2M	4.19	12	50.28
19	Tape, In case, 30 m., metric	44.46	4	177.84
20	Tape, steel 50m	79.45	2	158.90
21	Bucket, 10 litres	2.52	50	126.00
22	Wheel Barrow, 50 liters	21.45	70	1501.50
23	Brush, 2"	2.03	12	24.36
24	Brush, 1"	1.22	12	14.64
25	Brush, HD steel	1.92	24	46.08
26	Tamp, Double & Steel Handle	39.38	50	1969.00
27	Replacement Tape 20 m	30.56	6	183.36

TOTAL	\$42266.12
Transportation 40%	\$16906.45
Sub-Total	\$59172.57
1.5 yrs. inflation	\$13313.83
@ 15% Total	\$72486.83

- 1/ FAS - No shipping cost shown-40% Used
2/ Source-MC=MC Master-Carr Catalogue, 1978.

4. IMPLEMENTATION PLAN

Many of the arrangements for project implementation have already been described in the Technical Analysis and Administrative Feasibility Sections of the PP. The responsibilities of the GRB are clearly defined and agreement has been reached with principal officials (and their technical advisors) of the host government's implementing agency, the Highway Department of the Ministry of Public Works, on implementation procedures.

A few relatively minor unsettled questions remain, which are treated below. Also in this section is a project implementation tracking chart prepared by the GRB Highway Department and concurred in by the PP team engineer. This shows the planned progress of construction over the 3 years of the project. English captions have been provided underneath the original French.

Implementation Issues

a. Socio-Economic Baseline Study - Because of very limited existing data on the Burambi area, a socio-economic baseline study is planned early in the project as an aid to future measurement when the project is evaluated. The PP design officer met with the Director of SOMEBU, a Burundian consulting firm (Societe Mixte d'Etudes du Burundi) and recommends that this firm, which has done similar studies in other parts of Burundi, be contracted to undertake the activity. A scope of work will be drawn up by REDSO in the near future.

b. UNDP Volunteer - An assistant to the Highway Department construction engineer, Mr. P. Rucquoy, who will oversee construction is recommended by the PP team. Since there is no U.S. Peace Corps in Burundi, a UN Volunteer is being sought. The UNDP Resident Representative has approved the idea in principle, subject to fund availability and agreement with the GRB on scope of work.

c. Paving of 2.5 kms of the road - An asphalt surface is strongly recommended for several short sections totaling 2.5 km where the gradient exceeds 8°. This was not in the original GRB plans but is considered a cost effective way to reduce maintenance on these sections which are highly vulnerable to erosion. The GRB Highway Department informally favors the proposal, and an appropriate sum (about \$30,000) has been added to the budget to provide for this extra work.

d. Procurement - Aside from PL 480, procurement is not a major aspect of this project. It is planned that most A.I.D.-financed commodities

will be purchased from code 941 countries which are automatically eligible sources, since Burundi is a least developed country. Handtools will be purchased in the U.S. to the extent feasible. Since other commodities including steel, cement and asphalt are all in small quantities, shipping costs and the time factor favor purchase in nearby African countries, probably Kenya. POL valued at \$74,000 for life of project will also be purchased in Kenya where imported crude oil is refined and is thus considered a product of Kenya. No waivers are deemed necessary and no AID-financed vehicles are involved. The budget also includes \$15,000 for miscellaneous shelf items to be purchased in either Burundi or Kenya.

Implementation Schedule

The proposed construction schedule set forth in the chart on page 41 was prepared by the DFW and has been thoroughly reviewed by the design team engineer. Each category of work (embankment, roadway, ditches, culverts etc.) is indicated by time frame and distance indicated by kilometer markers. The time frame is measured by month and year but without specific dates. It is the hope of the GRB to mobilize early in CY 1980 as soon as possible after signing of the project agreement. Site inspections by a REDSO engineer are scheduled at regular intervals and 2 project evaluations are planned.

5. EVALUATION ARRANGEMENTS

As a pilot activity in a relatively unstudied rural area and in a highly promising sector new to USAID Burundi experience, this project demands careful monitoring and evaluation. To meet this demand, the following evaluation arrangements have been planned and provided for in the project budget.

A. Baseline Study (\$15,000)

Just prior to initiation of the project, a local firm or unit of the University will begin a contract to carry out a baseline study of the Burambi area with special attention paid to collecting data useful to the eventual evaluation of project impact. The study will collect household-level socio-economic data on farm production, division of labor, local marketing and consumption patterns, use of local services etc.; the study will also identify a subsample of the families of laborers working on road construction to monitor uses of wages and food provided by the project, along with other household income and expenditures. Monitoring of this subsample will continue up to the first formative evaluation of the project. SOMEBU - a local firm - is a possible candidate for this study. In the event that selection of a firm having at least 50% European participation proves necessary, a code 935 waiver for technical services will be submitted to REDSO.

B) Monitoring and Inspections

There will be regular involvement of the Highway Department staff during project implementation, principally the Belgium Road Construction Engineer P. Rucquoy who will be assigned to the project on a half-time basis. Monitoring of project progress will be the responsibility of the USAID office (AAO), with regular site inspections by a REDSO/EA engineer.

C) Formative Evaluation

A mid-term formative evaluation with REDSO/EA assistance is planned 18 months after construction begins. The evaluation team will include an engineer with labor-intensive road construction experience, a social scientist to focus on socio-economic aspects of the project, and relevant Highway Department personnel. The regular progress reports will constitute a basic unit of analysis for the evaluation team.

D) Summative Evaluation

A final evaluation is planned for 1983, a few months before the project terminates. This evaluation will focus on issues raised in the formative evaluation as well as, more broadly, on achievement of the two project purposes i.e. provision of all weather access in the road area and the establishment of a tested prototype system for labor-intensive road construction for application in other parts of Burundi. The team members will have the same skills as those conducting the formative evaluation.

The project has budgeted a total of \$25,000 for the 2 evaluations, on the assumption that at least half of the team members will be provided by REDSO from its regular operating budget.

6. CONDITIONS, COVENANTS AND NEGOTIATING STATUS

Conditions Precedent

No special conditions precedent, other than the standard requirement for host government authorized signatures, are deemed necessary for the successful implementation of the project.

Covenants

The Project Agreement will include the following covenants:

- 1) the GRB will provide qualified management and technical

personnel to supervise construction of Route 84; 2) the GRB will provide on a timely basis all necessary equipment for road construction as described in the Technical Analysis and Financial Plan of this paper; 3) the GRB will undertake all necessary contracting in connection with establishment of a construction labor force; 4) the GRB will provide necessary training, equipment and budget to ensure proper maintenance of Route 84 after its reconstruction; 5) the GRB will agree to finance all additional costs beyond those budgeted in this Project Paper, in connection with reconstruction of Route 84, including unforeseen price increases.

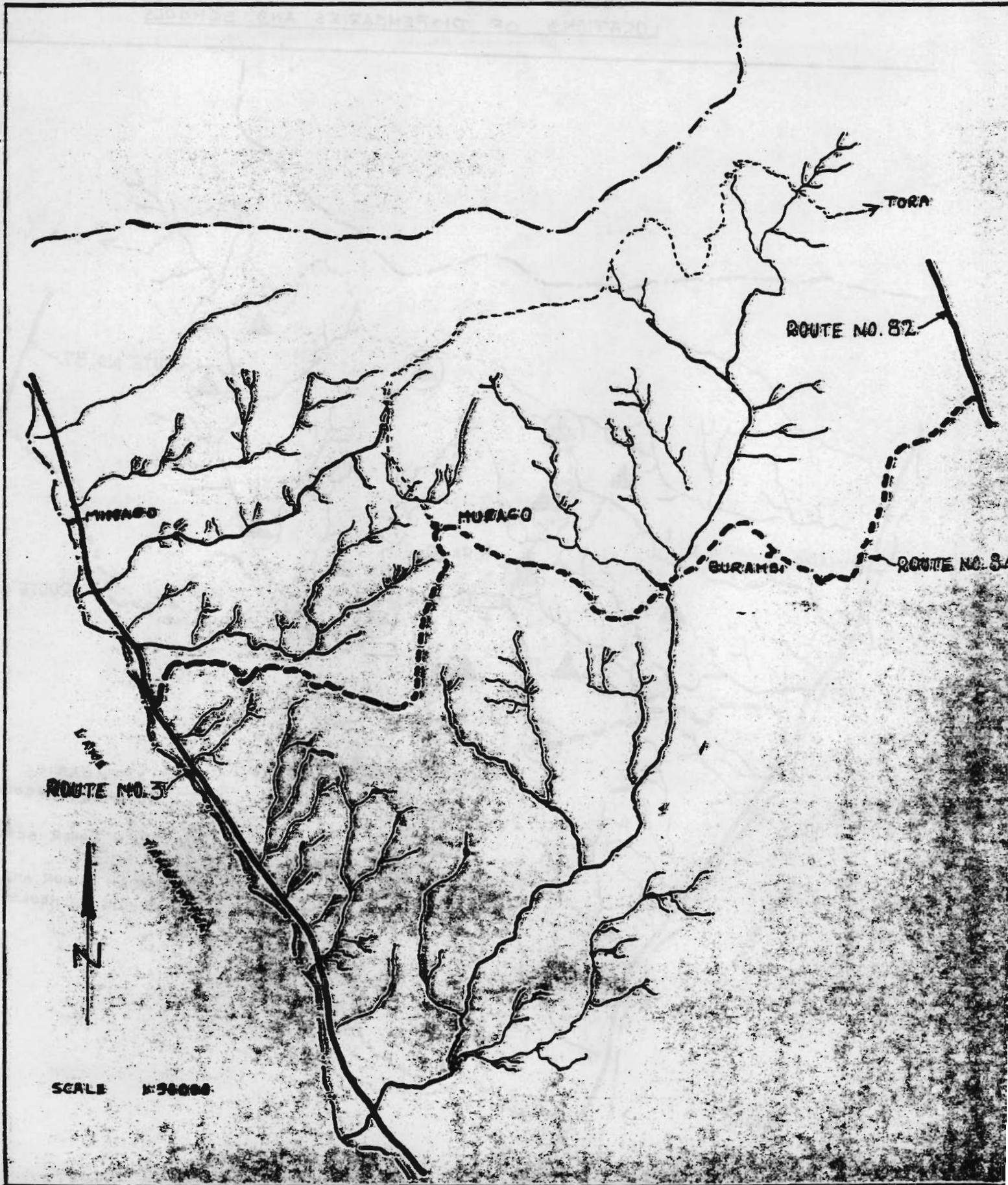
Negotiating Status

Very little negotiating in the usual sense was necessary during the design of this paper, as most of the technical and administrative planning was done by the GRB. Only relatively minor issues, as have been described in the Implementation Section above, remain to be negotiated in a final way with the GRB, (the paving of 2.5 kms, the UN volunteer, etc.). It is worth noting again that the Government's implementing agency, the Highway Department and key personnel who will be charged with the operation of the project, have been exceptionally cooperative with the design team in the preparation of this PP. The GRB repeatedly expressed its readiness to move forward with this project, and at each government level it encountered, the team was asked how soon the AID contribution could be approved, so that action could begin as soon as possible. Unlike most AID-financed road projects no time lags are necessary in this case, such as the recruiting of an American Project manager or the procurement of capital equipment from the U.S. The GRB and AAO are therefore hopeful to start work early in CY 1980.

MAP OF PROJECT AREA

MAP NO. 2

(BURAMBI REGION)

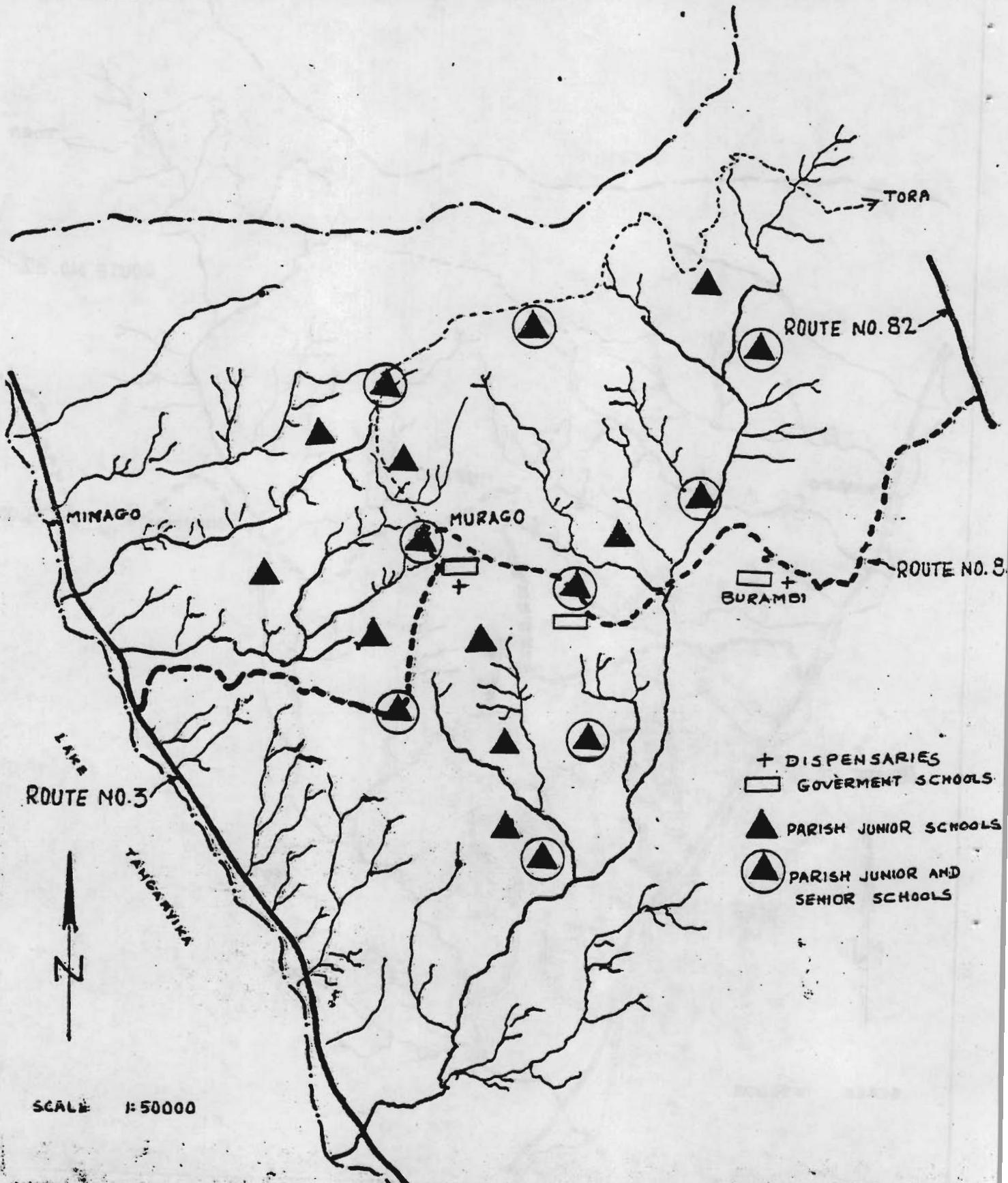


MAP OF PROJECT AREA

MAP NO. 3

(BURAMBI REGION)

LOCATIONS OF DISPENSARIES AND SCHOOLS



LOGICAL FRAMEWORK

ANNEX A

B U R U N D I R O U T E 8 4 R U R A L R O A D

Narrative Summary

GOAL

To increase incomes and social welfare of the rural poor in project area.

Indicators

Increased farmer income in region
 Increase agricultural production in region
 Improved access to social services

Verification

Socio-Economic baseline study
 Project Evaluations

Assumptions

Continued GRB interest in development of Burundi area (This project is a direct result of a specific GRB request).

PURPOSE

1. To provide all weather access to agricultural marketing facilities in Burambi area.
 2. To establish a tested prototype system for labor-intensive road construction

EOPS

Construction of road completed
 Availability of pool of experienced road construction crews and supervisors in project area
 Methodology for organizing and administering labor-intensive construction programs established for ready adaptation and use elsewhere in Burundi

Min PW technical reports
 REDSO engineering visits
 Project evaluations

Lack of all-weather transport is major inhibiting factor to economic growth of project region
 This road is very well suited to labor intensive construction techniques because of limited earthwork and emphasis on ditches and structures

OUTPUTS

1. Reconstruction of Rte 84 to all-weather status
 2. Trained cadre of road construction workers available in project area for maintenance and further rural road construction
 3. Increased incomes and nutritional levels among families of construction workers.

58 km of improved earth road and drainage structures
 800 construction workers trained by 3rd year of project
 80 construction supervisors (unit chiefs) trained
 818 MT of bulgar wheat and 90 MT of soya cooking oil distributed to construction workers and families over 3 years under Food for Work Program

Commune statistics
 Mission Cooperative sales records
 Health dispensary records
 CRS records and reports on Food for Work disbursements

GRB Dept PW will provide an expatriate construction engineer (UNDP financed) on at least a half-time basis.
 GRB will continue to train construction supervisors at 11 week ORT or similar program
 Labor can readily be recruited from the project region
 CRS can effectively administer the Food-for-work component with the aid of the Murago Catholic Mission's storage facilities.

LOGICAL FRAMEWORK

ANNEX A

B U R U N D I R O U T E 8 4 R U R A L R O A D

<u>Narrative Summary</u>	<u>Indicators</u>	<u>Verification</u>	<u>Assumptions</u>
<p><u>GOAL</u> To increase incomes and social welfare of the rural poor in project area.</p>	<p>Increased farmer income in region Increase agricultural production in region Improved access to social services</p>	<p>Socio-Economic baseline study Project Evaluations</p>	<p>Continued GRB interest in development of Burundi area (This project is a direct result of a specific GRB request).</p>
<p><u>PURPOSE</u> 1. To provide all weather access to agricultural marketing facilities in Burambi area. 2. To establish a tested prototype system for labor-intensive road construction</p>	<p><u>EOPS</u> Construction of road completed Availability of pool of experienced road construction crews and supervisors in project area Methodology for organizing and administering labor-intensive construction programs established for ready adaptation and use elsewhere in Burundi</p>	<p>Min PW technical reports REDSO engineering visits Project evaluations</p>	<p>Lack of all-weather transport is major inhibiting factor to economic growth of project region This road is very well suited to labor intensive construction techniques because of limited earthwork and emphasis on ditches and structures</p>
<p><u>OUTPUTS</u> 1. Reconstruction of Rte 84 to all-weather status 2. Trained cadre of road construction workers available in project area for maintenance and further rural road construction 3. Increased incomes and nutritional levels among families of construction workers.</p>	<p>58 km of improved earth road and drainage structures 800 construction workers trained by 3rd year of project 80 construction supervisors (unit chiefs) trained 818 MT of bulgar wheat and 90 MT of soya cooking oil distributed to construction workers and families over 3 years under Food for Work Program</p>	<p>Commune statistics Mission Cooperative sales records Health dispensary records CRS records and reports on Food for Work disbursements</p>	<p>GRB Dept PW will provide an expatriate construction engineer (UNDP financed) on at least a half-time basis. GRB will continue to train construction supervisors at 11 week ORT or similar program Labor can readily be recruited from the project region CRS can effectively administer the Food-for-work component with the aid of the Murago Catholic Mission's storage facilities.</p>

Narrative Summary
OUTPUTS cont'd

Indicators

Verification

Assumptions

Storage can also be arranged on temporary basis at Minago mission on Lake Tanganyika.
Wheat and oil distributed under project will be largely consumed by workers and their immediate families.

INPUTS

USAID

Support of Construction

Labor	\$393,000
Handtools	120,000
Steel, Cement, asphalt	130,000
Misc supplies & POL	89,000
Socio-economic study	15,000
Evaluations	25,000
PL 480 Title II	
Food for Work	\$625,000
Contingency	154,000

TOTAL

\$926,000

PL 480 Title and CRS records
Project documents PIO/Cs

The present dearth of agricultural and statistical data on the Burundi commune and its immediate environs can be redressed by a socio-economic baseline study of the area early in the project possibly by a local firm.

GRB

Personnel	\$222,000
Equipment	235,000
Material	36,000
Contingency	74,000

TOTAL

\$567,000

GRB Dept PW's records and technical reports

Necessary equipment (dump trucks, roller, compressor, etc.) already in country will be made available by GRB Dept PW on a timely basis as planned.

ECONOMIC ANALYSIS ANNEX1. Overview of Economic Activities in the Road AreaA. Zone of Influence of the Road

Route 84 leaves a major north-south road, Route Nationale 3 at kilometer 57 south of Bujumbura, the capital city. It spans 58 kilometers from west to east and consists mainly of Burambi commune with portions of Rumonge and Mugamba communes, all of which are in Bururi Province. The area of influence of the road has been established as a zone five kilometers wide on either side of the road, or a strip 10 kilometers wide indicating a total land area of 580 square kilometers. However, this is an overall average, and the zone of influence is narrower at the western end of the road where the population is more oriented to the main R.N. 3, while it broadens out in the center of the project area which is a considerable distance from any other road.

The population of the project area has been estimated from several different sources as being on the order of 60,000 persons. It is somewhat difficult to be precise as the project covers portions of three communes and thus is not contiguous with any unit on which statistics are collected. The different ecological zones crossed by the road also have different population concentrations. However, analysis of available statistics indicates that the overall person/land ratio is approximately 103 persons per square kilometer, varying from 56 persons per km² in the High Altitude portions of the project area to 114 persons per km² in the Medium Altitude and Central Plateau portions.

The human population in the area is overwhelmingly involved in subsistence agricultural production which a minor portion of the population combines with livestock raising. They are divided into approximately 10,526 farm households of 5.7 members, each cultivating a little more than a hectare of land. This population concentration is unusually low for Burundi and there are substantial amounts of cultivable land available in the project area. As a result, the population in the project area is growing at the rate of 5.05 percent per annum as persons migrate into the area from other parts of Burundi. This process is expected to continue for the next ten years after which the population growth rate will fall to a level closer to the national average.

B. Agricultural Production Systems

The road actually traverses all four of Burundi's ecological zones, but the bulk of the project area falls within the Central Plateau (1,500-1,900 m) zone. It leaves Lake Tanganyika at an elevation of 700 meters and quickly traverses the area which falls within the Ruzizi plains zone (altitude up to 1000 meters). This zone represents a very minor part of the road's zone of influence, particularly as it is in the area most influenced by R.N. 3. It comprises less than 1 percent of the project area, and will be ignored in the subsequent discussion. A further

five percent falls within the Medium altitude Western Zone at 1,000 to 1,500 meters elevation. Farmers in this zone plant bananas, beans, cassava, maize and peanuts.

It is more difficult to estimate the relative importance of the High Altitude and Central Plateau portions of the project area, as the two are intermixed. A section of the high altitude zone sits in the center of the project area, and covers additional portions of the zone of influence in the northern and western sections. An estimated 20 percent of the project area is included in this High Altitude section which is at elevations of 1,900-2,500 meters. The remaining 75 percent of the project area falls within the Central Plateau region.

Farmers in the Central Plateau region cultivate bananas, beans, maize, sweet potatoes, cassava and arabica coffee as a cash crop. The farmer/livestock raisers in the high altitude zone cultivate wheat, sorghum/millet, Irish potatoes, maize, peas and sweet potatoes. There are also minor plantings of tea as a cash crop in the High Altitude areas at the upper end of the road. For both of these areas there are two growing seasons; a major season from October to January and a minor season from February to June. Food crops are generally sufficient for the population in the area but there may be a hungry period just prior to the January harvest.

C. Poles of Activity

Traveling from West and East, the first major pole of activity is Musave at kilometer 8.9 on the road. It has a periodic market two days per week which is frequented by traveling merchants. It was visited by the project team on Sunday which is the principal market day. There were large quantities of fish available in the market, as well as dried cassava and cassava flour. About 20 percent of the increased sales of bananas discussed later in the paper will be coming from this area.

The major pole of activity in the project area is the Murango Mission with its church, schools, hospital and related cooperative structure which will be discussed below. A major periodic market is held twice a week on a plot of land adjacent to the Mission. It was visited on Sunday which was the minor day, and was found to be selling mainly dried fish and household items. Murango is at kilometer 25.2 of the road. The Mission has directed a labor-intensive road construction project to Kiri which is approximately 4 kilometers north of Murango (5 kilometers by road). This road connects an area of heavy population concentration with Route 84 and will assist in the marketing of coffee production from the area. At present, Murango's principal route of

contact with the outside world is overland to Minago, although the Mission and cooperative vehicles, plus vehicles which come to purchase the coffee crop, make use of the road when it is open.

The Murango Mission is separated from the next major pole of activity, Muyange at kilometer 34.9 by a very poor section of the road which traverses a high altitude portion of the area. Muyange is a succursale of the Mission with two schools, one run by the church and the other by the government, and a major periodic market which is held two days a week. The team visited the Sunday market which is the major day and found upward to a thousand people in attendance. Considerable quantities of fish and household items were offered for sale and minor quantities of meat, bananas, cassava and beans.

Muyange sits in the center of the second major valley in the project and is connected with Kiyagayaga by a road which has been constructed using labor intensive methods under the direction of the Murango Mission. Funds for the project were secured from CEBEMO, a German Catholic organization. Road construction is continuing south to Gatabo. The valley is oriented towards Rumonge which is the major center of attraction for the area. Most of the coffee production of the area is headleaded to Rumonge, a distance of 17 kilometers from Muyange overland. The combined Murango/Muyange area can be expected to generate 70% of increased banana sales.

Kadidagi was the next principal market town on the road (Kilometer 40.2) but it is currently inaccessible as it sits between two bridges which are out. The destruction of these bridges has stopped the flow of traffic up and down the road and forced the current fragmented pattern of transportation on the area. The team did not reach Kadidagi but was informed that the market there is currently very small with most persons who formerly frequented it going either to Muyange or Burambi. It could be expected to revive once the bridges are open.

Burambi is the final major center on the road. It is the administrative headquarters of the commune and thus is a center of governmental and court activities. It has a State School and a dispensary. Its market is on Wednesday which the team was unable to visit. However, discussions of products sold and prices were held with people in the area. Fish is one of the principal commodities sold in the market and is headloaded into the area from Rumonge, a distance of 21 kilometers. As a result, a standard measure of dried fish ("two handfuls") is double the price it is in Murango. A Toyota Stout which has recently been purchased by a group of people in the area comes weekly from Tora for the market bringing beer and soft drinks and

taking out bananas. As the Burambi area contains a greater proportion of high altitude agriculture it is only expected to generate 10% of sales. Tora is a major center for tea processing which is 25 kilometers by road from Burambi. Coffee is purchased in the Burambi market by buyers from the Rumeza Mission and portions of the crop are also headloaded to Rumonge.

Burambi was reached by the field team by traveling overland from Bujumbura for 100 kilometers on a series of mountainous and currently very poor roads. A large section of the road is to be paved by the Chinese government but it will still pass through mountainous country which renders driving conditions difficult, particularly in the rainy season. When Route 84 is open Burambi will be 103 kilometers from Bujumbura, 57 kilometers by paved, flat road and 46 kilometers on the improved earth road making this the preferable access route.

D. Cooperative Structure

1. The Cooperative Social Chretien de Murago is the principal cooperative in the area. It was founded in 1976 and currently has 260 members with a paid in capital of FBU 1,600,000 (approximately \$18,000). The cooperative was able to purchase a Toyota Stout in 1978 and to pay 12% interest on deposits from the profits it derived from sales. The cooperative is currently involved only in the purchase and sale of basic goods (blankets, hoes, matches, salt etc.). It maintains a shop at the Murago Mission which is open to the general public. The shop currently sells commodities valued at FBU 3 million (approximately \$33,700) per annum. That turnover represents 54 MT of produce which the cooperative truck collects from Bujumbura, making three to four trips per month with its one and a half ton truck. It is currently traveling to Bujumbura empty and returning full resulting in a cost per ton of produce moved of \$84.00.

When Route 84 is improved the cooperative intends to send its truck to the markets of Kiyagayaga, Muyange, Kiri and Busaga to sell its basic goods and to purchase local produce. It intends to purchase a 3.5 ton truck to use for the trip to Bujumbura and to send it to the city loaded with local produce to return carrying its bulk purchases. A profit can be made on the sale of the local produce and the cost of transporting the items sold in the cooperative reduced by 60 percent. As the cooperative adds only 15-20 percent to the purchase price plus transportation of the goods sold in order to cover its expenses and pay interest on member deposits, the road improvement should permit it to make reductions in the prices offered to consumers. In addition,

it will be offering good prices for products purchased thereby improving the competitive position of producers vis a vis other transport owners and traders.

b. Other Cooperatives. Four other cooperatives operate at the Murango Mission all of which are involved in productive activities; iron-working, woodworking, livestock raising and sewing. The groups were started with Mission assistance but it is attempting to transfer them to a more independent status. The various cooperatives have differing possibilities of financial viability at existing levels of economic activity and they could easily expand their operations by employing already trained individuals living in the area. These groups could be expected to benefit from the extra income earned by road workers and producers as the result of road construction as the most popular durable items for purchase out of earning are clothes and iron roofs. A more detailed description of these cooperatives is provided in the social analysis.

E. Development Activities

The principal development activities in the area are the Mission road building projects mentioned above, and the construction of church schools in local communities using self-help labor. In addition the Mission has been constructing safe sources of water at points around the area.

The government maintains three coffee extension agents in the area who provide trees for planting and insecticides free of charge. The field team was unable to locate the agents for information on the current status of coffee plantings in the area. The Mission is participating in a development project of the Burundi Government which is supported by Belgian aid. A one and a half hectare plot has been cleared at the Mission which will be used for the multiplication of improved seeds for subsequent distribution to farmers in the area. As this project is essentially an experimental activity it is difficult to estimate its likely success in increasing food crop production in the area.

The project area may also benefit from the Basic Food Crops Project to be directed by FED and the Burundi government and supported by an AID Seed Multiplication farm. The upper end of the road is just 13 kilometers south of Tora which is one of the four project centers. The project is designed to improve the cultivation practices of farmers in High Altitude areas and to introduce improved seeds to increase farm yields of food crops so they will be able to devote a portion of their farm to tea plantings without endangering their food supply. Farmers in the High Altitude zones are not able to plant coffee so tea is their

best means of earning a cash income.

As the Basic Food Crops Project progresses, the employment of improved practices can be expected to spread into the project area, particularly if extension personnel are able to increase their outreach. The planting of tea in zone of influence depends crucially on road improvement, however, as tea leaves must reach the processing center at Tora within twenty-four hours of plucking.

2. Discussion of Project Costs

The project cost figures were developed by the engineering member of the design team and represent the minimum necessary to do an effective job. The project is somewhat unusual in that approximately half to the funds provided by AID will be used to pay the local workers on the road. The wages to be paid to project workers (an average of \$2.45 per day in local currency, when the value of PL 480 foods are included) are within the range established by the IBRD as compatible with highly labor-intensive techniques or for those which employ a mix of labor and capital.¹ The balance of AID funds will be used for the purchase of POL, cement, reinforcing steel, and handtools. The Government of Burundi will be providing the capital equipment to be used on the job (which is already available within the country) as well as engineering, supervisory and administrative support. Project delays should be minimized as it will not be necessary to wait for the delivery of heavy equipment before commencing work on the road.

It should be noted that the PL 480 food to be used in the Food for Work component of the project is a significant item in total project costs being valued at \$624,643 at the project site as compared with AID's costs of \$823,941. The high costs of the food is due to the heavy cost of ocean and inland transportation which together costs \$411 per MT. These high costs have an impact on the IRR of the project which is reduced from 19.7 to 17.06 as a result of their inclusion. However, the food represents a significant portion of the income benefits to the local construction workers, and a labor intensive road project would appear to be a useful method for utilizing PL 480 foods and insuring that the foods reach their intended beneficiaries.

3. Identification of Project Benefits

Two categories of benefits have been identified as flowing from the project: 1) those accruing as a result of labor-intensive construction and 2) the producer surplus. The basis for calculating

1. See Judith Tender, New Directions Rural Roads. AID Program Evaluation Discussion Paper No. 2, March 1979, p.2)

the benefits is described in the following sections. In addition, road-user savings are considered although they have not been calculated in the benefit stream.

A. Labor-intensive Construction

It has been estimated that 40 percent of the salary costs for construction workers represent an increased income flow into the project area which is a benefit of the planned use of labor-intensive construction. This calculation has been based on the difference between the average productivity per worker in the agricultural sector (the "without" project situation) and the wage paid to unskilled labor ("with project"). Several categories of workers will be employed on the job, including supervisors and skilled craftsmen who will be compensated at a higher rate than the unskilled labor which will make up the bulk of the labor force. Although the income gain will most likely be greater among the more skilled personnel involved (i.e. without the road project they would be working in the agricultural sector and not using their already acquired skills), the difficulty in calculating the gain and the small numbers involved suggests that a forty percent gain is an adequate measure to apply for all ranges of personnel.

A second element is the income gain represented by the PL 480 Food for Work commodities. The workers will be provided with sufficient food for themselves and for four dependents. As it is expected that the construction workers will be men while women provide most of the labor for food crop production in the area, the construction program is not expected to result in a decline in food supply to the family.¹ Accordingly, the local market value of the PL 480 commodities has been calculated as a net gain to the worker's families.

It is likely that the availability of PL 480 foodstuffs will result in increased marketings of local foodcrops (bananas, cassava and beans) as the farm families find they have amounts in excess of their needs. With their husbands occupied on the road project it might be expected that wives would do most of the marketing of food crops and accordingly the use of Food for Work as a project component provides a means of channeling a portion of the income earned on road construction directly into the hands of women. This would be a highly valuable result, and the extent to which it occurs should be investigated in the course of project evaluation.

These two income benefits have been used to represent the economic gains resulting from increased productivity and the multiplier effects of the income flow into the area. It is a conservative estimate

1. Turnover among construction workers, adjustments in working schedules, and possibly the use of casual wage labor at harvest time should permit men to make their normal contribution to food production (see Social Analysis for additional information).

as it is only based on the value of the income stream provided by the project. Given the high marginal propensity to consume in a subsistence agricultural community, it is likely that the multiplier effect of the extra income will be significantly higher. Construction workers and their families can be expected to spend their additional income on clothes, fish, banana beer, roofing sheets and land, all of which represents additional income to persons living in the project area. Certain portions, of course, will be captured by other economic entities inside and outside the Burundi economy.

The stimulation of economic activity by the flow of income into the area is not expected to be strongly inflationary as it represents only a small percentage of the current total production in the area. However, the enhanced economic activity should make it easier to generate the producer surplus once the road is complete. If so, this is a strong argument for the use of local construction workers to build rural access roads and is another element which should be studied as a part of the project evaluation.

B. Producer Surplus

1. Description of the Analysis

The producer surplus approach to the evaluation of rural roads attempts to determine the likely impact on farmer's incomes of a decrease in transport costs. As such, it provides the best means of determining whether the road project will be successful in improving the standards of living of the farm families who make up most of the population living in the area.

The producer surplus approach is based on the answer to two sets of questions. The first set of questions relates to inputs used in the production process and are interested primarily in whether the decrease in transport costs will be reflected in a lower cost of farming inputs. If so, this would result in a lower cost of production to the farmer and a higher profit from any portion of the crop marketed. The second set of questions is concerned with the prices paid to farmers for their produce and attempts to determine whether the decrease in transport costs will be reflected in increased prices paid to farmers. If farm prices rise this could be expected to result in more marketings at the higher price, which when combined with a lower cost of production would have a dramatic impact on raising farm incomes. Currently, almost no purchased inputs are used in Burundian agriculture (metal hoes are an exception), and few are likely to be used in the absence of a profound change in the cultivation system. As a result, the analysis has concentrated on the potential for increased producer prices.

The suggested approach of the World Bank requires a detailed knowledge of the current production system in the area on a crop by

by crop basis. Since the data base available on the area was not sufficient to support such an analysis, it was decided to focus the analysis on a single crop, bananas, for which there was both the most potential for increased marketings and the best information. This projections serves as a means of illustrating the potential returns from the producer surplus but overall returns should be considerably larger than those shown here.

2. Analysis of the Banana Crop

Green bananas are produced in the Medium Altitude and Central Plateau portions of the project area which account for 80% of the area of influence of the road. Total current production is on the order of 15,800 MT. Bananas are an easy crop to cultivate, requiring only 90 person days per crop per hectare and yield the highest volume of product per land area used in cultivation (6,500-7,000 kg per hectare) of any crop grown in Burundi.

As such it represents a crop for which increased production could be achieved with relative ease. There is a ready market for bananas in Bujumbura and in regional markets. Bananas were also being sold in all the periodic markets visited by the field team. There is a substantial difference between current market prices for bananas in the project area (\$67.38 per MT) and in Bujumbura (\$194.27 per MT). Only 37 percent of the price difference is accounted for by the current high cost of transporting bananas from the project area to Minago market by headload (approximately \$28 per MT), plus the cost of transportation from Minago to Bujumbura (\$19.38 on the basis of a \$.34 per ton kilometer cost for transport over a paved road^{1/}).

It can be safely assumed that the balance of the price difference is due in large part to lack of market access. Prices in the project area are low because producers are selling to each other, to the limited number of persons who care to headload out bananas, as well as to the transporters who are collecting bananas at the Burambi market. Both the price and quantity of bananas marketed could be expected to expand substantially as a result of the road rehabilitation.

Current marketings of bananas are somewhat difficult to estimate and the baseline figures have been developed on the basis of total agricultural production which could be expected in the area^{2/} and the

^{1/} All ton kilometer estimates are based on the analysis of Louis Berger International prepared for the GRB and presented in Table 14.6 of the Annexes to the Road Investment Program 1978-1987 -- Summary Report dated February 1977. Prices have been revised upwards to 1979 levels.

^{2/} Based upon per capita food production in Burundi.

national average of crops marketed (5%). Given the low level of market activity in the area, it is believed that this would yield a reasonable estimate. Per capita food production in Burundi is approximately 600 k.g. (45% of which is bananas), which would indicate total production in the area of approximately 36,000 MT and a volume of marketed produce on the order of 1800 MT. It has been assumed that a little less than 60% of the marketings (1060 MT) are in terms of green bananas (6-7% of the banana crop). This is reasonable given the small volume of other types of produce which would be available after the family's food needs are met and the fact that families in 20% of the project area must purchase their banana supplies as they cannot grow their own. The amount of bananas marketed per producer family would be quite small; between 100-150 kilos or 6-7 percent of their production.

In order to determine the drop in transportation costs generated by the road, a calculation was made of the costs of headloading bananas from the middle of the projects area overland to Minago. The distance is approximately 14 kilometers and the cost of transportation is \$2.04 per ton/kilometer¹, yielding an average cost of \$28.58 per MT. By contrast, the average price of transporting foods from the projects area to Minago after the road is completed will be on the order of \$18.38 figured on the basis of \$.58 per ton kilometer over 28 kilometers of the project road, plus \$.34 per ton kilometer for the 6.3 miles up the main road to Minago. This is the cost for transportation in a 1.5 Toyota Camionette.

Accordingly the drop in transportation charges has been estimated at \$10.20 per MT.

It has been assumed that the full amount of the drop in transportation charges will be reflected in an increase in prices paid to the producer. The assumption is based on the large remaining margin in price difference between the market price in the project area and in Bujumbura which provides sufficient profit for transporters and traders. In addition, transporters will probably use larger vehicles than the 1.5 T Camionette used in preparing the cost calculation, with a resulting drop in their per ton kilometer costs. Finally, as was discussed in Section II above, the cooperative at the Murago Mission intends to purchase a 3.5 ton truck once the road is complete and to use it to transport produce from the area to Bujumbura as well as to collect supplies for its shops. Due to its nature, the cooperative will provide an outlet for producers at a price more favorable than that likely to be offered by transporters and traders, and should help to improve the competition between purchasers in the area.

¹The price per ton kilometer was derived somewhat crudely by asking how long it took to carry a normal headload (25 kilos or 55 lbs). overland from Murango to Minago. The analyst was informed that it took one day to carry the load to Minago and return unladen (if the headloader returned with a load, he normally made an overnight stop to rest before

Accordingly, the price per ton of bananas in the project area will be revised upwards from \$67.38 to \$77.58 per MT in constant 1979 prices after the road is complete. In determining producer response to prices, it has been assumed that a 1% increase in price will result in a 1% increase in total production, and the total amount of the increased production plus the amount normally marketed will be sold. A 15% increase in production can be achieved with ease as it represents only on the order of ¹/₄ extra person days of labor a year on .04 more hectares per family.¹ This increased production will be on top of that resulting from increased population size in the project area. Prices and quantities sold have been multiplied to give a revenue figure, and production costs times quantity calculated and subtracted from revenues to determine the revised income figure. The only production cost calculated was the opportunity cost for labor² in the agriculture sector as the nature of the cultivation system for bananas does not require any costs for other factors of production other than land. The opportunity cost for land has been taken as zero due to the negligible amount involved in the increased production and the amount of unused land in the project area.

In the without project case, production and marketing (at the lower prices) have been projected to grow at the rate of population growth in the area³. Costs were subtracted from revenues to determine the income figure. In determining the incremental benefit derived from the project, the income figure "without project" was subtracted from the income "with project".

A phased increase in producer income has been shown beginning in the second year of the project as the first ten kilometers of the road will be complete at the end of the first year. A further increase can be expected in the third year as 60% of the road is to be complete by the end of the second year. The full effect of the price drop has been projected to appear in Year 4.

¹(continued from previous page) returning). Accordingly, the cost of carrying 25 kilos 11 kilometers was valued at FBu 50, the minimum wage for unskilled labor in Burundi, and used to calculate the estimated cost of \$2.04 per ton kilometer. By coincidence, the figure is almost exactly the same as that determined in a World Bank Study in Kenya (\$2.02 per ton kilometer) see J.D.G.F. Howe. "Some Thoughts on Intermediate Technology and Rural Transport", ODI Review 1 - 1977, p.37

¹/₋ The same effect could be achieved without any increased in production if the family simply marketed a larger percentage of current production.

²/₋ This was calculated as the number of man days required to produce a metric ton of bananasx30 BuF which is the value added per man day in the agricultural sector.

³/₋ In Burundi as a whole production has been growing at a rate less than that of population increase. This is not expected to occur in the project area due to its currently relatively low population levels.

3. Analysis of other crops

a. Food Crops

The drop in transportation charges plus improved market access can be expected to raise prices and marketings of other crops, and particularly cassava. Cassava flour shows a marked difference in prices between the project area (\$225 per MT) and Bujumbura (\$364 per MT). In addition, dried cassava and cassava flour were seen for sale in large quantities at the Musave market but to a much more limited extent in the other markets along the road. It is likely that this difference was due to the fact that it was relatively easy to move cassava from Musave to the main road for transportation to Minago and Bujumbura while it is much more difficult from the central section of the project area.

No calculations have been made of the value to be expected from increased cassava marketings as there was not sufficient data available to prepare a realistic estimation. A particular problem is the conversion factors to be used in transforming production data on fresh cassava to expected outputs of dried cassava and cassava flour which are the forms in which cassava is normally sold. However, increased marketings of cassava can be expected and will increase the amounts of producer surplus beyond that shown in the cost-benefit analysis.

b. Coffee Production

There were suggestions from several observers that the level of coffee production in the project area had been affected by marketing difficulties. Coffee represents a heavy demand on family labor time at the time it is harvested, and the person days required to headload the crop to the nearest market are an additional burden. However, the project area has an output of coffee which is about average for Burundi, and there was no reasonable basis for projecting increased coffee plantings in the absence of a concerted government effort in the area.

Road-user savings are not involved in the calculation as coffee is purchased at a fixed price at each marketing point. Farmers are paid 2 BuF per kilo more in Minago than they are in Murango to compensate them for additional transportation costs. Despite these reservations, increased coffee plantings could well result from the increased economic activity in the area and improved market access which would increase the producer benefits from the road beyond the level shown in the economic analysis.

C. Road User Savings

In addition to the road-user savings of vehicles collecting agricultural commodities in the area which provided the basis for the analysis of producer surplus, savings would be made on deliveries of basic goods and other food items. It is possible that at least a portion of these savings would be passed onto consumers in the form of lower prices. This is especially true of fish which doubled in price in the markets between one end of the road and the other due to the greater headloading distances involved. These savings have not been calculated, but their efforts will be divided to an undetermined extent between producers, consumers and transport owners.

The same is true for three other types of traffic:

1. Private vehicles
2. Commercial transport sent in to collect the coffee crop.
3. Diverted traffic which can be expected to use the road as it represents an easy route to the Lake to collect fish and as access to the high quality Route Three.

These benefits from road improvement will represent real savings for the transport owners and the Burundi economy as a whole. However, they have not been calculated as they do not represent additions to the income of the rural poor who are the intended beneficiaries of the road program.

4. Benefit/Cost Analysis

The benefits of the program have been calculated on the basis of increased incomes to construction workers and farmers to be generated by the labor intensive construction activity, and the drop in transport costs plus improved market access once the road is complete. The producer surplus estimate has been prepared on the basis of the banana crop as this was the only crop with sufficient price and production data to serve as a basis for reasonable estimates. It must be emphasized that the projected benefits are a minimum, and that marketings of other crops including coffee, plus consumer benefits and road user savings will result in an improved I.R.R. for the project.

The program costs include contributions by AID, the PL 480 program and the GRB based on actual expenditures and disbursements. Inflation has

been assumed to effect both costs and benefits in the project equally.

The benefit/cost ratio for the project is 1.08 based on a discount factor of 15%. This analysis is displayed in Table 1. The I.R.R. for the project is 17.06 which would be increased to 19.7 if the PL 480 element was removed from the analysis of project costs and benefits.

Despite the conservative nature of the estimates of the benefit stream a series of sensitivity tests have been run to measure the accuracy of the estimated rates of return implied by these analysis. These are:

- Test 1: Increase in costs by 10%
 - Test 2: Decrease in benefits by 10%
 - Test 3: Increase in costs by 10% and decrease in benefits by 10%
- The results of these tests are:
- Test 1: Internal Rate of Return = 14.49
 - Test 2: Internal Rate of Return = 14.24
 - Test 3: Internal Rate of Return = 12.11

The sensitivity analysis confirms that the project is sound from a cost/benefit point of view particularly when the nature of overall project objectives are considered.

SOCIAL SOUNDNESS ANALYSIS ANNEX

I. Introduction

Burundi has the dubious distinction of ranking among the poorest six nations of the world. A land-locked densely populated country with extremely poor infrastructure and virtually no alternatives to small-scale subsistence and cash crop farming, it faces enormous and basic problems at all levels, from the top government structure down to the humble family "rugo" (homestead) which includes 90% of the country's population. For a description of Burundi's social and economic life, the reader is referred to the Area Handbook for Burundi (1969); and the recently completed Burundi Agriculture Sector Analysis (1979). For an overview of the country from the sociological perspective, the reader is referred to Annex IV in the draft Burundi CDSS prepared by REDSO/EA June 1978.

This analysis includes two remaining sections: 1) A profile of the Burambi Commune area, plus portions of the Rumonge and Makamba Communes which lie within the zone of influence of Route 84. This profile will complement the area description included in the Economic Analysis. 2) A discussion of the project in relation to topics of general AID concern including socio-cultural feasibility, benefit incidence, the role of women, spread effect and several outstanding issues related to project success.

II. Profile of the Zone of Influence

The zone of influence of Route 84 has been determined as including of Burambi Commune and a portion of Rumonge and Makamba Communes. The justification for this definition is included in the Economic Analysis.

Geography and Population

The road spans a considerable variety of terrain, from the shores of Lake Tanganyika (700 meters elevation) over two crests which exceed 2000 meters in height to the eastern junction with Route 82 at approximately 2000 meters. Along the Lake shore, there is an excellent road which runs north to Bujumbura. The population in this lower, western side of the "zone of influence" fish, produce palm oil, robusta coffee, as well as cultivate the ubiquitous bananas, beans and cassava. The main means of access to goods and services for people in this area is along

the lake shore road leading to Bujumbura: their reason for utilizing Route 84 is primarily confined to trading in the periodic markets (e.g. household commodities such as soap, matches, clothes, fish etc.), and visiting relatives.

Highway 84 mounts the crest fairly close to the lakeshore; the first ten kilometers it travels through a hilly area with relatively infertile soils and low density of population. As it proceeds east, it passes through two major valleys running north and south; these are split by a second crest area characterized by low population density and a high farming system. It is within these valleys that the majority of the population lives and farms in distinctive dispersed family homesteads called rugos. These rugos are perched on the sides of fairly steep hillsides which virtually cover the entire country. Access to the rugo is also universally accomplished over footpaths which thread across the country side. There are few markets or concentrated establishments (except those developed by the Murango Mission) and only one government settlement at Burambi, the commune center. Most rugos are situated off the road; to date there has apparently been no attempt by farmers to move their homesteads nearer to Route 84 or the north/south feeder roads currently being extended into the heavily farmed and populated corridors between the crest.

Population

The population of the catchment area is estimated to be 60,000 people. Just under 50% of this population is under age 15, 45% is between the age 15-59. The literacy is estimated to be 15%. Rugo (household) size within the area (based on Parish records) is an estimated 5.8 persons; this figure is comparable to the commonly accepted national average of 5.7. Parish estimates put the number of female-headed households in the area at just under 20%. The population growth rate is estimated by government sources (based on local studies) to be 5.05%-more than twice the national average. The explanation for this rate is considerable in migration by farmers from outside the area seeking land.

Overall, the area can be divided very crudely into three ecological farming/herding areas. To the far west is the lakeside road junction area discussed above. On the higher elevations a more traditionally pastoralist people predominate. Today many of these people still keep cattle, as well as grow the usual subsistence crops, wheat, peas and more recently, tea. The valleys between the crest support over 80% of the population of the area. Here the more traditionally agricultural farmers of Bantu stock predominate. Coffee is grown as the main cash crop at this elevation, along with the usual subsistence

crops. Population density in the coffee growing areas is far greater than at the higher elevations, with areas supporting over 100 persons per square km. A more detailed discussion of land use in the catchment area is found in the Economic Analysis.

Government Infrastructure

Burambi commune is not typical of rural Burundi in having extremely little in the way of government services, roads, administration points, or other infrastructure. There is a government dispensary near the commune administrative center at Burambi. Open 6 days a week, and staffed with two nurses and two assistants, it is the only government facility providing health services in the catchment area. There are 5 government primary schools in the area, and no secondary schools. About 650 students attend the primary schools, 20% of whom are female. These schools and the clinic are included in Map 3.

A number of periodic markets are found in the area, 5 of which are located along Route 84. There is relatively little government support of agricultural production or marketing activities. Two to three coffee extension officers work in the area with the prime task of looking after small-holder coffee production. The FED, with government and church support, is setting up a 1.5 hectare experimental farm at Murago Catholic Mission for the development and multiplication of improved seeds for crops grown in the Central Plateau area in Burundi (1,500 to 1,900 meters). At a later stage the improved seeds will be disseminated to local farmers.

Catholic Diocese Activities

The most important set of institutions promoting development for the population of the catchment area has been initiated by the local Catholic Diocese, whose main mission headquarters is located at Murago on km 25 of Route 84 and whose parish includes 20% of the area population. Founded by the Saveriani Fathers of Italy, the Mission at Murago has played a far-reaching role in establishing institutions which particularly in recent years, have been conceived and administered in such a way as to generate a high degree of commitment to local participation and self-sufficiency. These institutions are outlined briefly as they represent the most likely reasons why the proposed road rehabilitation will have a positive development impact on the rural poor of Burambi. To put this point in other terms: a description of these institutions should make clear the reasons why improving Route 84 will ease a critical transportation constraint in the area. The

institutions include:

a. Cooperatives

The mission at Murago has sponsored five cooperatives to date. The most important is the Cooperative Social Chretien de Murago established in 1975. With 260 members (11% females, primarily heads of households), this cooperative play the major role in making available for sale the necessary farm family commodities (corrugated roofing, hinges, hoe blades, soap, lamps, salt, school supplies) which otherwise are found only in varying and limited quantities in the periodic markets.

The Cooperative also assists in the marketing of coffee by providing the service of its 1½ ton Toyota to carry coffee purchased by the Mission (which is affiliated with FECOBU, a nationwide Catholic Coffee Cooperatives) to the bulking point at Minago on Route 3. It has five full time employees and a part-time cashier.

The other four cooperatives operating at the Mission are all production oriented: iron working, wood working, livestock raising and sewing. Twenty-two people are involved with these cooperatives, 6 of whom are women. Each cooperative was started with mission support, which provided premises, necessary basic equipment, stock, and paid the salaries of the cooperative members. Progressively the cooperatives are being transferred to a more independent status where they will rent Mission premises, reimburse the Mission for the basic equipment, and provide for cooperative salaries from revenues.

The various cooperatives are at different stages in the transition to self-sufficiency and have differing possibilities of viability based upon current demand in the area. There are substantial numbers of people living in the area with training in technical skills as a result of instruction provided in the senior schools (see below) who could be brought into the cooperatives if more demand existed for their services. The cooperatives provide a nucleus of skilled and organized local personnel who could be expected to benefit from the income earned by the laborers working on the road. For example, a portion of laborer wages will likely be spent on clothing, improved housing, metal roofs, furniture, animal protein etc. and as such will provide a basis for assuming that a substantial portion of the multiplier effects of the extra income will be captured within the area.

b. Parish Schools

The Mission-run parochial school system developed from catechist schools based at the satellite parish stations (succursales) throughout the catchment area will also benefit greatly from rehabilitation of Route 84. The system itself is an exceptional example of self-help institution-building based on local participation. There are 19 schools operating within the church-supervised system. Eight of these are senior schools - Grades 1-5 plus 2 years of higher social training (7+8 Foyer Sociale); 11 are junior schools (grades 1-3) (grade six is taught at the parish head-quarters). All parish members are obliged to send their children through eight grades of these schools; they and the other members of the parish are also fully responsible for all recurrent costs of the program. In principle these schools are self-supporting although an expatriate priest with a vehicle currently provides important logistical support.

In the 1978 school year there were 1835 boys in grades 1-6; and 2459 girls. More than a third of the students are non-Catholic (mainly following animist beliefs). The skewed ratio of girls to boys results from the larger proportion of boys in the government approved primary schools. In the Foyer Sociales (grades 7+8) which are similarly coeducational schools: there were 1400 students enrolled in 1978.

The focus of these 3 day-a-week schools - which are essentially terminal in nature - is on preparation for a productive, moral life in the home area. The main subjects are literacy, numeracy, religion, training, health and hygiene and from grade four, agriculture. In brief this school system is the only area-based institution which is systematically introducing a range of development-oriented training to the local population. Improved food production practices, for example, are introduced only through these schools. A three year agriculture course produced by INADES is followed; students maintain a school garden in the fourth grade and each develops a home garden in the fifth grade. The fifty locally hired teachers of the schools are responsible for supervising the garden work. The locations of these schools, which are built adjacent a parish compound which typically includes a church and small teacher residence, are noted in Map 3.

c. Health

The parish health program is far less extensive, despite plans to eventually establish a dispensary/clinic in each of the parish points now served by a school and Foyer Sociale. Currently, the Murago Mission runs a hospital (40 beds), a maternity (15 beds) and a dispensary open six days a week. Several small-scale preventive programs have been attempted including the training of traditional

birth attendants at 4 of the parish sub-stations and mass inoculations. Lack of time, lack of access to sub-stations and other factors have prevented development of a larger health program. Additional activities in the health area include the development of 106 safe water sources; another 100 are proposed with the help of external church aid.

d. Labor intensive construction

Currently the Mission is engaged in supporting work crews paid on a Food for Work basis coupled with a salary of 80 BUF daily. Three feeder roads connecting the populations in the 2 corridors with Route 84 have been under improvement and/or construction; to date 26 kilometers have been completed. Work crews are also employed by the Parish to assist in the preparation of the fields to be used in the FED-funded improved seed multiplication and dissemination project, and in construction of school buildings and water sources.

In sum the Catholic Diocese with headquarters at Murago has made significant strides towards establishing a set of institutions which promote development. Obviously, as will be discussed below, ease of transport and communications plays a critical role in maintaining and broadening the impact on these institutions. At this point poor roads and transport (the mission has but 3 vehicles) result in the majority of the work requiring transport having to be carried out on foot.

Other Development Related Activities

There are very few institutions besides those listed above which would immediately profit from and assist in ensuring the development impact of a rehabilitated road. At the eastern end of Route 84, there is a small parish school (grade 1-3) similar to the 11 described above except that it is sponsored by a Catholic diocese based in the adjacent commune. This diocese also provides transport and cooperative support for coffee growers living in the western portion of Route 84 near Burambi. Similarly in the western portion of the zone there is a major school sponsored by the Rumonge diocese. Protestant development-related activity is minimal in the area, however two of the current government supported schools were established by Protestant groups.

One of the most likely future possibilities which depends crucially on road access is the expansion of tea planting into the higher altitude portions of the area. A major project for tea production is centered in Tora which is 13 kilometers from the end of Route 84. Presently tea plantings in the area are limited as leaves must reach a processing center within 24 hours of plucking. Tora is also one of

the centers for the proposed Basic Food Project which is to be carried out by FED with AID support (See Basic Food Crops project paper). This project is designed to improve the efficiency of the food production system so that farmers can allocate a portion of their land to tea planting without jeopardizing their food supply and includes improvements in cultivation practices followed by introduction of improved seeds. In subsequent years it may be possible to expand this project into the area influenced by the road particularly if present transportation constraints are removed.

Transport and Communications

A cursory count of vehicles regularly using the road carried out by the PP team in late September 1979 produced the following: In the West there is at least one vehicle owned privately by residents or former residents which at least occasionally uses Route 84. These owners are reported to work outside the area. The Catholic Parish has three vehicles, a Land Rover, Toyota jeep, and the Toyota Stout owned by the Cooperative. The Land Rover is generally attached to the Sisters in charge of the health activities. In addition to regular support of the curative health facilities (including emergency trips of patients in serious condition to other neighboring hospitals such as Rumonge) this Land Rover has also been used for the pilot preventive health facilities. The jeep supports the School System, and religious activities. Coffee is also moved by traders in private vehicles, as well as by larger coffee cooperative trucks e.g. 8 tons) when road and weather conditions permit. At the eastern end of the road, in the Burambi commune administrative center area, a Toyota Stout has been making a regular round trip to and from Tora to the Burambi market on Wednesday market days. Recently this vehicle has been jointly purchased by five local men who live out of the area. The commune administration utilizes a motorcycle for transport; virtually all other transport is by foot or bicycle.

III. Topics of USAID Concern

The principal purpose of this project is to provide access to an area which has considerable agricultural potential and has been involved in a range of activities promoting local participation in development activities, but whose development has been seriously constrained due to the deterioration of the main route through the area. The development activities which stand to profit significantly from completion of Route 84 have been detailed in the last section and in the Economic Analysis. Several institutions in particular are illustrative of this need for improved access. The marketing cooperative and parish school systems, for example, are not well

established, but are also approaching self-sufficiency. Improved access only between the points within the system and to the "outside world" would strengthen such self-sufficiency.

A related purpose of this project is to rehabilitate the road utilizing to the extent possible labor intensive methods. This approach clearly has several major effects from the "social" perspective: it involves people in the process of local development, it provides employment, it builds skills for the future, and it ensures a cadre of local workers who are trained in road maintenance.

The pilot project also has an additional closely-related purpose - to seek to establish a system for labor-intensive road construction, which will be judged as effective based on objective evaluation criteria, and if effective, will be selected by the GRB on a national basis as an effective means for improving the conditions of the Burundi rural poor.

A. Benefit Incidence

Road Construction Workers

The project beneficiaries will be the locally recruited laborers who will each receive 50 BUF daily plus food for himself and 4 other family members for work on the roads. Although selection procedures for these workers (an average of 500 will be on the payroll at one time) have not been fully established, they will be adapted from existing procedures and those developed by the Parish Mission based at Murago where teams have been working on roads since 1973. Selection procedures will have the following characteristics: laborers will be hired from a pool of candidates following a community wide announcement (through churches, local headmen etc) issued at least 15 days prior to selection. The physically stronger will be hired, selection will also be based upon reputation of character. Although persons from all areas will hear the announcement via "bush-telegraph," it is likely that most of the candidates presenting themselves will come from the areas below the crests where the traditional subsistence farmers predominate. Based on Mission experience, there should be no difficulty in recruiting and training laborers.

Additional direct beneficiaries of the project will be the several Ministry of Works (Travaux Publics) road building personnel who will receive training under the project, also the labor team foremen or sub-contractors who will lead the different labor teams. The families, relatives and friends of the labor crews will also benefit

directly from the food provided to the laborers for their work, as well as (at least to a certain extent) from the wages paid to the laborers.

Community

Two classes of people will benefit from the completion of the road: 1) road users utilizing private, public and commercial traffic and 2) the farming community living in the area which will benefit from improved access to goods and services but most importantly from the increased value of its agricultural production as farm gate prices rise due to a portion of the road user savings being passed onto farmers. A full discussion of the benefits associated with the area's population including relevant assumptions is contained in the Economic Analysis.

Women

Women will benefit directly from the labor intensive component of the project to the extent their husbands and/or relatives bring home the food and wages earned. The system of payment has been planned to maximize the likelihood that women will receive the benefits from food and wages. In addition, as women are the principal agricultural workers and are responsible for assuring the family's food supply, the availability of food from the project should increase the surplus amounts they have available for marketing.

Increased speed and ease of access is particularly important for women if they are to make use of such services as schools and health care, and especially if they are to become involved in marketing of food crops. Their responsibilities for childcare, farming and meal preparation make it impossible for them to be away from home for any extended period and accordingly they must depend upon sufficient demand in local markets to dispose off their produce. In addition, if it were possible to come and go quickly from more important markets, such as that located at Minago on the lake shore road, women could be expected to take advantage of the higher prices offered there and thus becoming involved in a two way trade, selling local food stuffs and purchasing fish for resale in local markets. At present, although women were seen in the local markets in large numbers, they were not involved in such activities as selling fish. Typically fish selling requires at least an entire days walk to Minago and back, and an overnight stay. When these aspects are considered, the road can be expected to make a considerable improvement in the situation of women.

There may be some possible burdens for women associated with the improvement of the road, but their extent is difficult to determine at this time, and hence should be monitored. It is possible, for example, that wage labor opportunities for men will pull them "off the farm" to the detriment of the wife. If additional labor is not hired as a substitute, the wife may be faced with an added burden, e.g. in coffee cultivation, ground clearing, etc. particularly if her husband fails to bring home food and money.

At present, the system of payment on a piece work basis Mission at Murago provides for the easy departure of a laborer several days or more a month so that he can help out on the farm or whatever and still retain his job. As this system will be continued, the possibilities of adding to the wife's farm workload due to prolonged absence of the laborer husband should be minimized.

A second possible burden on women in the area may emerge over time as the road helps to accelerate the trend toward commercialization of food crops. In other parts of Africa such an acceleration of commercialization has been associated with an increasing involvement of male-oriented extension programs and men in farming, and a subsequent domination of the women's access to the sale and personal control of proceeds from farm yields. At present, the equitable involvement of girl students in the agricultural instructional activities in the parish schools makes this problem unlikely in the near and midterm.

Land Use

On a more general level, another potential "burden" associated with this project relate to the possible loss or destruction of land caused by the construction team in the course of their work. At this point, such loss and destruction is expected to be minimal. Cut and fill activities will be carried out in such a way as to protect areas under cultivation. As the road alignment is already established, very little land will be taken under the national policy of "eminent domain". At present, the only portion of the road to be altered which will require the usual GRB indemnification procedures will be one area near where a bridge requires rebuilding.

It is possible that as traffic increases on the road an inequitable trend may emerge whereby poorer families living near Route 84 are pressured to sell out to richer families wanting prime access to the road. Such a pattern has been identified for example, in a heavily-populated farm area in Western Kenya. Such a trend is unlikely to emerge in the

near future, however, given the traditional land tenure and use patterns of the area (based on unfruct and still at least partially under the control of local patrilineages), the long term existence of the road, and the relatively limited local involvement in the monetized economy.

B. Socio-Cultural Feasibility

There should be no difficulties associated with the socio-cultural feasibility of this project. The road exists, and in essence is simply being brought into an improved state. Mobility patterns may change in the area, as those living further away from Lake Tanganyika will avail themselves of a route which will take them to Bujumbura more quickly. Lake-caught fish and a number of other commodities will become more readily available, but given the existing system of head portorage, changes will be in quantity, not in kind.

Development activities are already underway. Improved access will quicken them but certainly not at a rate which could be predicted as detrimental, providing the GRB's official position vis-a-vis development of the interior is adhered to. Recruitment and employment of local labor should present no problems. The established practice of hiring those who present themselves may result in a bias towards the men of Bantu background who are more accustomed to hard physical labor, but such a bias should probably improve overall distribution of wealth in the area. Labor camps will be provided for the workers, with the first 5 days of pay being allotted to the men for construction of their own housing. Labor camp sites have been selected, and should result in relatively little local disruption given that recruitment is similarly local.

C. Spread Effect

Successful initiation of this roads project should result in a spread effect both within the project area, and beyond.

Within the project area, the development of a trained local labor force of over 500 men should increase the likelihood that Route 84 and additional feeder roads are well maintained over the long run. It is possible that a number of these laborers will be able to utilize the skills developed while working on the construction teams to find jobs or assist in self-help projects elsewhere after their involvement in the road rehabilitation is completed. While such future utilization of the labor force is beyond the scope of USAID, it clearly is not beyond the scope of local church or government sponsored development activities both in road building (i.e. within the

Parish, and for the GRB, the planned Bujumbura-Rutour road, and related activities, e.g. the seed multiplication farm and the small artisanal cooperatives.

As a pilot project in labor intense rural road rehabilitation, the project also has considerable potential for generating a country-wide "spread effect" as the GRB Travaux Public or private, non-governmental organizations adopt the purposes and procedures developed under the Route 84 construction program. In order that this project achieve such a spread effect, several conditions must be met. First, it must be recognized as a successful pilot activity. The procedures developed during life of project must be documented and evaluated. There must be some evaluation of impact as soon as possible after road improvement: i.e. to what extent has easing of a key transportation constraint contributed to an acceleration of development activities in the area? These evaluations must be undertaken in such a way as to be credible, their results must be effectively communicated to relevant decision-makers and practitioners throughout the country. The project evaluation plan is described in section 6; careful implementation of this plan will play a critical role in whether or not the project does achieve the maximum spread effect.

Given a favorable evaluation, it is also possible that USAID itself will attempt to extend the benefits of this type of project on a larger scale. A follow-on project in the same area (e.g. construction of a connecting road from Route 84 to Rumonge) or another area is a possibility, another is support for the development of a labor-intensive road rehabilitation and construction unit within the GRB Travaux Publics.

D. GRB and Local Government Commitment

There seems to be no question that the GRB is genuinely interested in rehabilitation of the road; there is also ample evidence that the GRB Travaux Publics is committed to the concept of trial utilization of labor intensive road rehabilitation for Route 84. Knowledge of and commitment to the project by GRB at the local level was unable to be ascertained by the PP team as the appropriate officials were available for interviews. It is understood, however, that the Travaux Publics personnel working on preliminary feasibility studies have found the local and regional GRB administration to be supportive. The support of the strongest local development institution in the area - the Murago Catholic Mission is clearly established; the Mission will play an important role in project implementation. Local participation is also assured through incorporation of the labor-intensive aspect of road rehabilitation.

INITIAL ENVIRONMENTAL EXAMINATION

Country: BURUNDI

Project Title and Number: Farm to Market Road (Route 84): 695-0103

Funding: FY 1980: \$ 230,000 Life of Project:
\$ 900,000

Period of Project Implementation: FY 1980 - FY 1982

IEE Prepared by: Abbe Fessenden, Acting AAD/Burundi

Environmental Action Recommended: A negative determination is requested

Concurrence:

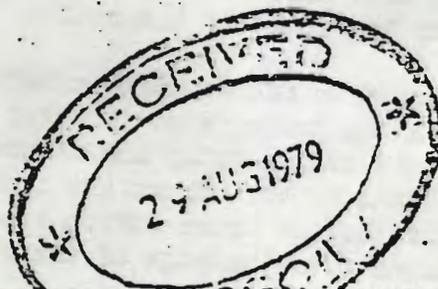
Abbe Fessenden
Abbe Fessenden
Acting AID Affairs Officer
Bujumbura

Assistant Administrator Decision:

Approved: _____

Disapproved: _____

Date: _____



I. Description of the Project

The purpose of the project is to help rehabilitate the 58 kilometers of rural road (route 24) serving Burambi commune by labor intensive methods. The road links Lake Tanganyika with the route along the Zaire/Nile crest. The road traverses three distinct ecological zones in climbing from 800 meters to more than 2,000 meters in about 28 kilometers.

Burambi commune is a strong candidate for future integrated rural development programs. It has a population of about 70,000 people, growing at a rate of about five percent a year because of migration into the area. It is in one of the poorer areas of the country where few cash crops are grown and it does not benefit from other donor or central government development programs (with the exception of the activities of the Catholic missions). The higher, more densely populated areas are part of the Zaire/Nile crest ecological zone and would be ideal for an expansion of the high altitude food crops program, of which AID's Basic Food Crops project is a part. Unless the transportation problem is solved, it will not be possible to include the Burambi area in any substantial development program because of problems of access to the population and difficulties in marketing production.

The dirt road was originally built in 1956-58 and includes two masonry bridges across the Ruhora and Dama Rivers. Lack of maintenance, combined with heavy rainfall, landslides and earthquakes have virtually closed the road. Rehabilitation will require reconstruction of the road and its embankments, renovation of the drainage system and rebuilding the two bridges and several box culverts. The road will have a 5.0 meter gravelled travelway with 1.5 meter shoulder on both sides, with a maximum four percent transverse slope and a maximum gradient of ten percent. The minimum horizontal radius will be 20 meters and the minimum proposed right of way will be 20 meters.

Renovation of route 24 is particularly suited to a labor intensive approach because:

- Suitable material for concrete aggregates, bedding and gravel are available along the road construction limits.
- Much of the work involves side hill cutting with laborers washing excess material directly over the point of the cut.

The sidehill cutting operation vary from one to three meters transversely. The natural slope of the terrain along the edge of the road opposite the cutting operation is such that it is economically and structurally unsound to use benching to achieve additional depth. Therefore material not needed for filling in areas of saddles, or where stream crossing necessitates a fill section, will be dumped over the edge of the road at the

point of excavation.

The material required for fill sections will be headloaded into the GEB trucks and compacted by GEB furnished rollers. The material in general is good granular material with clay binder which should create no handling problems.

The AID Grant funded portion of the project amounts to approximately \$ 900,000 over three years. This will finance the purchase of hand tools for construction laborers, laborer's salaries, cement, reinforcing steel and some petroleum products. We expect that a substantial percentage of the adult population will participate in the project at one time or another. Approximately 500 locally hired workers will be engaged in road construction at any one time during the three year life of the project. The workers will obtain daily food ration for themselves and their families through the Catholic Relief Services food-for-work program, as well as their pay. The planned pay scale for workers begins at FEU 50/day (US\$.55) for an unskilled laborer and rises to FEU 160/day (US\$ 1.77) for a skilled worker. An additional 65 workers will be hired locally for road maintenance.

The GEB will finance the project's administration, engineering services, job supervision, heavy equipment (already provided to the Roads and Bridges Department by other donors) some labor cost elements, as well as the Para and Sabera river bridges. The Roads and Bridges Department will provide administrative supervisory, engineering, inspection and supply management for the project. The Ministry currently receives assistance from an IRRD loan financed UNDP and road planning and maintenance team. The total GEB contribution is estimated at \$ 504,000.

II. Examination of Nature, Scope and Magnitude of Environmental Impacts

The Para to Market Road project consists of rehabilitating an existing road. Realignment of the road will not be done. The proposed backslope gradient is less than the one on the existing road. The result of the project will be an improvement of the drainage regime which will reduce erosion tendencies. Construction nuisances (dust and noise) will be temporary and unavoidable. The road's improvement will have a negligible impact on atmospheric pollution. Thus the project can, in general, only improve the physical environmental conditions of the area.

The renovation of route 04 will improve the transportation of the area and facilitate the movement of people and commodities, as well as improve access to health and educational facilities. It will have a moderately favorable secondary impact on the economy and employment patterns, in that it will facilitate the development of rural markets and the

production and marketing of food crops and cash crops. The disrepair of the existing road has severely hampered the marketing of cash crops and the population's access to health and educational services. Once the road is rehabilitated, both the CRB and donors should find it much easier to implement development programs and provide services to the local population.

Another secondary impact will be that the road will facilitate the movement of people into and out of the area. The commune, despite its rapid increase of population due to recent migration, is still less densely populated than many other rural areas in Burundi. The improvement in the road will facilitate the process, but we doubt if it will rapidly accelerate the rate of population increase. In turn, population growth will result in the tertiary effect in that there will be some increase in farming and land clearance. Since the local practices include keeping some ground cover and mulching of the cash crops and bananas, the erosion potential of the additional farming is rather low. We think that the project will not, by itself, result at any substantial acceleration of changes already under way in the area.

In general, the secondary impact of the program should be to facilitate implementation of rural development programs financed by AFD and other donors, as well as the economic development of the area itself.

III. Recommended Environmental Action

The Farm to Market Road will have no significant adverse effect on the environment since it will be limited to rehabilitating an existing road. It should reduce erosion tendencies through improvement of drainage along the road. The project has a moderately favorable impact on the socio-economic environment through eventually permitting increased food and cash crop production and the people's access to schools, health centers and government services.

This examination of the project's environmental impacts indicates that no further analysis is required, therefore, a negative determination is requested.

^F
Drafted: A. Fessenden

Clear: W. Egan

PROJECT STATUTORY CHECKLIST

Standard Item Checklist has been reviewed for this project

A. General Criteria for Project

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634 A -
 (a) Described how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) Is assistance within (OYB) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?

(a) Congressional Notification is being submitted for FY 1980 funds.

(b) Yes, the allocation is within the country OYB.

2. FAA Sec. 611 (a) (1) - Prior to obligation in excess of \$100,000, will there be (a) engineering, financial and other plans necessary to carry out the assistance and (b) a reasonable firm estimate of the cost to the U.S. of the assistance?

(a) Yes, See Engineering Annex to PP

(b) Yes, See Engineering Annex and Financial Analysis.

3. FAA Sec. 611 (a) (2) - If further legislative action is required within recipient country.

No additional legislative action is required.

4. FAA Sec. 611 (b); FY 79 App. Act Sec. 101 - If for water or water related land resource construction.

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.

N/A

6. FAA Sec. 209 - Is project susceptible of execution as part of regional or multilateral project ?

No.

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; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

(a) The upgrading (reconstruction) of Route 84 will provide access to agricultural marketing facilities within the project area as well as to outside markets, such as Bujumbura.

(b) It is expected that the availability of access to a reliable market will create greater private initiative and competition among farmers as it will increase his opportunities for sale and purchase of agricultural and other goods.

(c) Improved access to markets will stimulate and expand the five Catholic Mission-sponsored production cooperatives already located in the area (the largest being a marketing cooperative with 260 members). At present there are no credit unions and savings and loans institutions in the project area, however we expect that governmental and non-governmental organizations could be encouraged to expand their activities in the project area, because of the economic gains resulting from increased productivity and the multiplier effects of income flow into the area, as well as the substantial numbers of people living in there with training in technical skills.

(d) The project will have no effect on monopolistic practices.

(e) The project, with the assistance of other donors, will help improve technical efficiency of industry, agriculture and commerce.

(f) There will be no effect upon Burundi's efforts to strengthen free labor unions.

8. FAA Sec. 601 (b) - Information and conclusion 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).

The project will neither encourage nor discourage U.S. private trade or investment abroad. See 7 (c) above.

9. FAA Sec. 612 (b); Sec. 636 (h) - Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

U.S. will furnish neither technical assistance nor capital equipment, but mainly costs for construction and studies and Food for Work (funded separately by PL 480 Title II). This project is characterized by very active participation of the host government. The GRB will undertake all aspects of administration, engineering and supervision of construction, and construction labor will be provided through a series of mini-contracts with local labor contractors. The technical advisor will be a Belgian construction engineer attached to the Ministry of Public Works.

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 79 App. Act Sec. 608 - If assistance is for the production of any commodity for export.

N/A

B. Funding Criteria for Project

1. 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 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?

(a) An all weather road to agricultural market facilities will extend access to the local economy. This labor-intensive road rehabilitation project will employ a local labor force varying from 60 to 800 laborers with an average of 500 laborers active at any point in the year. It is well tailored to help the development needs of Burundi's rural poor: more than 10,000 families living in the project area will benefit through increased access to markets and social services. The project's Food for Work component will provide direct benefits to laborer and his family through raising their nutritional levels and permit a saving in a portion of workers' incomes, thereby resulting in an increased marketing of local food crops.

(b) The five cooperatives already existing in the project zone have different possibilities of financial viability at existing levels of economic activity, and they could easily expand their operations by employing already trained individuals living in the area. (Also See 1 (c) above.)

(c) The principal development activities in the area are the Catholic Mission funded schools, dispensaries, cooperatives and safe water sources program. Self-help labor is frequently used, especially for construction of church schools in local communities. The Mission which has considerable experience in implementing Food for Work, Title II Programs, will provide local and logistical support for both project implementation and the further development of rural infrastructure which are important elements to project success. Better access throughout the area generating increased productivity should further encourage self-help projects.

(d) Women will benefit directly from the labor intensive component of the project to the extent their husband and/or relatives bring home food and wages earned. The system of payment has been planned to maximize the likelihood that women will receive the benefits from food and wages. Since women are the principal agricultural workers responsible for the family's food supplies, the availability of food from the project should increase the surplus amounts they have available for marketing.

(e) This project neither encourages nor discourages regional cooperation between developing countries.

2. FAA Sec. 103 - Is assistance being made available for agriculture, rural development or nutrition: if so, extent to which activity is specifically designed to increase productivity and income of rural poor?

The principal purpose of this project is to provide access to an area which has considerable agricultural potential and has been involved in a range of activities promoting local participation in development activities, but whose development has been seriously constrained due to the deterioration of the main route through the area. The reconstruction of Route 84 provides reliable access to markets and other social services and is expected to increase productivity providing a significant boost to economic activity in the project area. (See project description and beneficiaries section for additional information.)

3 (107) Is appropriate effort placed on use of appropriate technology ?

- This project will utilize an appropriate mix of capital equipment and labor but will stress the use of labor whenever technically feasible, even though some tasks could be executed somewhat more quickly and more economically with the use of certain pieces of earthmoving and compact equipment. Among inputs to be supplied by GRB will be pumps, trucks, rollers and air compressors to supplement the activities of labor to ensure proper compaction and the utilization of proper road construction techniques that labor cannot accomplish within a reasonable time frame without equipment support. A beneficial side effect of this construction method will be greater local involvement and hence greater interest by the area inhabitants in ensuring that the road will later be properly maintained by crews comprising many of the same workers rather than outside DFW personnel brought in from another area. It should be noted that regional assistance will be employed when necessary, where equipment is needed for rapid slide removal and periodic "blading" of the travelway.

4. FAA Sec. 110 (a) - Will the recipient country provide at least 25% of the costs of the program, project or activity ?

Yes. GRB will provide more than half (59%) of AID cost of program, and 34% of total AID and PL 480 Title II costs (See Project Inputs)

5. FAA Sec. 110 (b) - Will grant capital assistance be disbursed for project over more than three years ?

No.

6. FAA Sec. 281 (b) - Describe extent to which program recognizes the particular needs, desires, and capacities of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

The goal of increasing agricultural productivity sufficiently to feed Burundi's growing population is the top development priority of the GRB. Lack of ready access between agricultural producer and consumer is a major obstacle to meeting this goal. This project represents the GRB's effort to address this constraint in one important rural area. Labor intensive methodology will be developed under the project and the use of labor intensive construction methods will be utilized to establish a generalized operations and management system which can apply to other appropriate development activities in Burundi (i.e. other rural roads of type similar to Route 84, conservation work, integrated rural development projects, etc.).

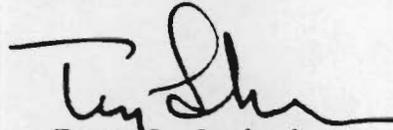
In addition, 800 laborers and 80 construction supervisors will have received training by end of third year construction period.

7. FAA Sec. (b) - 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. See economic analysis section of Project Paper.

C E R T I F I C A T I O N
Required by Section 611(e) of the Foreign Assistance Act

In view of the thorough and highly professional preparatory design and engineering work undertaken by the GRB for this project, and in view of the excellent progress made recently by the GRB in its road maintenance capacity, as described in the Financial Plan of this paper, I am satisfied that the GRB possesses both the will and the technical and financial resources to ensure proper maintenance of Route 84 following its reconstruction under this project.



Terry L. Lambacher
AID Affairs Officer
Bujumbura, Burundi.

ACTION: RDS
(7-2-2)
INFO: CONT, CHRG, RF,
C

TELEGRAM

~~SECRET COPY~~

ACTION: AID
INFO: AMB DCM ECON ADM

UNCLASSIFIED
Classification

27 AUG 79 06:13

R 251506Z AUG 79
FM SECSTATE WASHDC
TO RUTAOK/AMEMBASSY BUJUMBURA 7322
RUVQC/AMEMBASSY NAIROBI 6721
BT
UNCLAS STATE 223640

NBI-15184
8/28

AIDAC-NAIROBI FOR REDSO/EA

E.O. 12065: N/A

TAGS:

SUBJECT: PROJECT COMMITTEE REVIEW OF BURUNDI FARM TO
MARKET HIGHWAY 84 PID

REF: (A) BUJUMBURA 1091; (B) BUJUMBURA 1230;
(C) STATE 177929; (D) BUJUMBURA 1381;
(E) BUJUMBURA 1523; (F) BUJUMBURA 1525;
(G) BUJUMBURA 1524; (H) BUJUMBURA 1521

1. SUBJECT PID WITH SUPPLEMENTAL MATERIAL SUBMITTED
REFS E, F, G, AND H WAS REVIEWED AUGUST 10 AND APPROVED
FOR FURTHER DEVELOPMENT. APPROVAL IS GRANTED WITH
UNDERSTANDING THAT IEE WILL BE SUBMITTED BY AAO ASAP.
FURTHER DEVELOPMENT OF PROJECT IS CONTINGENT UPON
APPROVAL OF IEE.

2. COMMITTEE WAS SATISFIED THAT SUPPLEMENTAL MATERIAL
ADEQUATELY ADDRESSED EARLIER COMMITTEE CONCERNS AS
EXPLAINED IN REF C. HOWEVER AAO/BURUNDI SHOULD
NONETHELESS INSURE THAT PP FULLY ADDRESSES THESE SAME
CONCERNS, I.E. EVIDENCE THAT ROAD WILL STIMULATE
AGRICULTURAL AND ECONOMIC ACTIVITIES IN THE ADJACENT
AREA, MANNER PROJECT TIES INTO U.S. AND OTHER DONOR
STRATEGIES, AND THE SEVERAL ENGINEERING/CONSTRUCTION

ISSUES. ENGINEER REPRESENTATIVE ON PROJECT COMMITTEE ALSO
EMPHASIZED THE IMPORTANCE OF MAINTANCE FOR THIS ROAD GIVEN
ITS DIFFICULT PHYSICAL ENVIRONMENT AND STRESSED THAT THE
SUBJECT SHOULD BE CAREFULLY ADDRESSED IN PP.

3. AAO IS REQUESTING REVISION OF FY 1980 AND 81 BUDGET TO
INCLUDE FUNDS FOR THIS PROJECT. IN THE EVENT THE REQUESTED
REVISION IS NOT APPROVED, AID/W WILL IN ANY CASE MAKE
EVERY EFFORT TO LOCATE FUNDS WITHIN OVERALL COUNTRY LEVELS

Classification

TELEGRAM

UNCLASSIFIED
Classification

PAGE...2

AT THE TIME PROJECT IS AUTHORIZED. IN THIS REGARD AID/W
WISHES REMIND FIELD THAT THIS PROJECT STANDS BEST CHANCE
OF RECEIVING FUNDING IF IT IS AUTHORIZED AS EARLY AS
POSSIBLE IN NEW FISCAL YEAR. CHRISTOPHER

EDC

UNCLASSIFIED
Classification

OPTIONAL FORM 151(H)
(Formerly FS-412(H))
January 1975
Dept. of State

REPUBLIQUE DU BURUNDI
 MINISTERE DES TRAVAUX PUBLICS
 DE L'EQUIPEMENT ET DU LOGEMENT
CABINET DU MINISTRE

Bujumbura, le 24/8/... 1979

Rec 9/4/79

807-165-46
 N° 720/1305

✓
 A Monsieur le Directeur
 de l' U.S.A.I.D.
 à BUJUMBURA.

Monsieur le Directeur,

J'ai l'honneur de vous rappeler qu'en approche de la conclusion d'un accord de coopération entre les Gouvernements des Etats-Unis et du Burundi, il vous a été adressé un projet de travaux pour la réhabilitation de la Route Provinciale N° 84, située entre la RN 3 et la RP 82, visant à désenclaver la région de BURAMBI.

Je ne saurais qu'insister sur l'intérêt socio-économique que représente la remise en état de ce tronçon routier qui permettra, aux populations rurales de la région de bénéficier d'une voie de communication carrossable pour ses opérations de négoce et l'exportation rapide de ses produits agricoles vers les centres commerciaux de Bujumbura et de Rumonge.

Un autre aspect intéressant du projet est que sa réalisation est envisagée par une exécution des travaux avec haute intensité de main d'oeuvre, ce qui créera pour la région plus de trois cents emplois pendant une période estimée à trois ans.

Le montant global des travaux est évalué à 52.000.000 de Fr.Bu. La participation du Gouvernement du Burundi consistera en l'établissement des études, la surveillance des travaux par des cadres nationaux, la mise à disposition de 50 travailleurs actuellement engagés pour l'entretien de routine du tronçon et par