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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

CARIBBEAN REGIONAL

PROJECT PAPER

PRODUCTIVE INFRASTRUCTURE REHABILITATION

AID/LAC/P-110

Project Number: 538-0082

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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____	DOCUMENT CODE 3
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2. COUNTRY/ENTITY Regional Development Office/Caribbean	3. PROJECT NUMBER 538-0082
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4. BUREAU/OFFICE Latin America and the Caribbean (LAC)	5. PROJECT TITLE (maximum 40 characters) Productive Infrastructure Rehabilitation
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6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 30 85	7. ESTIMATED DATE OF OBLIGATION (Under "B:" below, enter 1, 2, 3, or 4). A. Initial FY 82 B. Quarter 4 C. Final FY 82
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8. COSTS (\$000 OR EQUIVALENT \$1 = EC\$2.7)						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(7,650)	()	(7,650)	(7,650)	()	(7,650)
(Loan)	()	()	()	()	()	()
Other U.S.						
Host Country						
St. Vincent		200	200		465	465
St. Lucia		400	400		800	800
TOTALS	7,650	600	8,250	7,650	1,265	8,915

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF	701	821		0		7,650		7,650	
(2)									
(3)									
(4)									
TOTALS				0		7,650		7,650	

10. SECONDARY TECHNICAL CODES (maximum 5 codes of 3 positions each) 061	11. SECONDARY PURPOSE CODE 133
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12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)			
A. Code	BR	LAB	
B. Amount	80%	30%	

13. PROJECT PURPOSE (maximum 480 characters)

To increase productivity in St. Vincent and St. Lucia, particularly in the agricultural sector, and to provide dependable access by road from productive areas to major population centers and ports.

14. SCHEDULED EVALUATIONS Interim MM YY MM YY Final MM YY 01 84 09 85	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" type="checkbox"/> 000 <input checked="" type="checkbox"/> 941 <input checked="" type="checkbox"/> Local <input type="checkbox"/> Other (Specify) _____
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16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

17. APPROVED BY	Signature:  Title: Director	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY 09 17 82
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PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Countries: St. Lucia and St. Vincent

Name of Project: Productive Infrastructure Rehabilitation

Number of Project: 538-0082

Pursuant to Part II, Chapter 4, Section 531 of the Foreign Assistance Act of 1961, as amended, and to Redlegation of Authority No. 133.3, I hereby authorize a grant to St. Lucia of not to exceed Five million one hundred fifty thousand United States Dollars (US\$5,150,000), the "Authorized Amount", and a grant to St. Vincent of not to exceed Two million five hundred thousand United States Dollars (US\$2,500,000), the "Authorized Amount", to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The project will assist the Governments of St. Lucia and St. Vincent in rehabilitating key primary and feeder roads which serve economically productive areas of their respective countries. The project will also provide the road equipment and technical assistance necessary to carry out road and bridge rehabilitation and to up-grade the countries' institutional capacities to maintain their road networks.

I approve the total level of AID appropriated funding planned for the Project of not to exceed Seven million six hundred fifty thousand United States Dollars (US\$7,650,000) of Grant Funding during the period FY 1982 through FY 1985.

I hereby authorize the initiation of negotiation and execution of the Project Agreement or Project Agreements, as the case may be, by the officer to whom such authority has been delegated in accordance with AID regulations and Delegations of Authority, subject to the following essential terms, covenants and major conditions, together with such other terms and conditions as AID may deem appropriate:

A. Source and Origin of Goods and Services

Except for ocean shipping, and except as set forth in Section E below, goods and services financed by AID under the Project shall have their source and origin in the United States and the cooperating country. Ocean shipping financed by AID under the Project shall be procured in the United States, except as AID may otherwise agree in writing.

B. Conditions Precedent to Disbursement - St. Lucia

1. To Initial Disbursement

Prior to the first disbursement under the grant, or to the issuance by AID of documentation pursuant to which disbursement will be made, the grantee will, except as the parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID:

- (a) An opinion of counsel satisfactory to AID that this Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Grantee, and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms;
- (b) A statement of the name of the person holding or acting in the office of the Grantee specified as a representative, and of any additional representatives, together with a specimen signature of each person specified in such statement; and
- (c) Evidence that the Grantee has executed a contract with Crown Agents for Oversea Governments and Administrations Ltd. for the management of construction and rehabilitation activities undertaken in the Project.

2. To Disbursement for Road Rehabilitation

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of any road, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, an overall, time-phased implementation plan covering road rehabilitation for the Project.

3. To Disbursement for Particular Road Segments

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of a particular road segment, the Grantee shall, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, the following:

- (a) Detailed cost estimates and construction schedule;
- (b) Economic analysis evidencing a rate of return of not less than 10%; and
- (c) Certification that the Grantee has obtained appropriate rights of way.

4. To Disbursement for Equipment

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the purchase of equipment, the Grantee shall, except as AID may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID a list of proposed equipment with specifications.

C. Covenants - St. Lucia

1. Except as AID may otherwise agree in writing, the Grantee shall covenant to:

- (a) Make available Government owned land or "borrow areas" necessary to supply aggregate materials required for road reconstruction activities under the Project;
- (b) Provide a minimum of the average amount expended for road maintenance in fiscal years 1980 - 1981 and 1981 - 1982 for annual road maintenance operations each year during the life of the Project;
- (c) Execute and finance a contract with Crown Agents for Oversea Governments and Administrations Ltd. for the purpose of managing construction and rehabilitation activities undertaken in this Project; and
- (d) Use AID financed equipment solely for project activities until all road rehabilitation is satisfactorily completed, after which time the equipment will be used on a priority basis for road maintenance and construction.

D. Conditions Precedent to Disbursement - St. Vincent

1. To Initial Disbursement

Prior to the first disbursement under the Grant, or to the issuance by AID of documentation pursuant to which disbursement will be made, the Grantee will, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID:

- (a) An opinion of counsel acceptable to AID that this agreement has been duly authorized and/or ratified by, and executed on behalf of, the Grantee, and that it constitutes a valid and legally binding obligation of the Grantee in accordance with all of its terms; and
- (b) A statement of the name of the person holding or acting in the office of the Grantee specified as a representative and of any additional representatives, together with a specimen signature of each person specified in such statement.

2. To Disbursement for Road and Bridge Rehabilitation

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of roads and bridges, the Grantee shall, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID:

- (a) An overall, time-phased implementation plan covering road and bridge rehabilitation for the entire Project;
- (b) Evidence of establishment of a Project Management Unit which shall include a counterpart construction manager,

highway engineer, road overseers, and such additional professional staff as necessary to manage road and bridge rehabilitation activities under the Project; and

- (c) A commitment to contribute in timely fashion for Project Implementation, a bulldozer, motor grader and pavement spreader.

3. To Disbursement for Particular Road and Bridge Segments

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of a particular road or bridge segment, the Grantee shall, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, the following:

- (a) Detailed cost estimates and construction schedule;
- (b) Economic analysis evidencing a rate of return of no less than 10%; and
- (c) Certification that the Grantee has obtained appropriate rights of way.

4. To Disbursement for Equipment

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the purchase of equipment, the Grantee shall, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID, a list of proposed equipment with specifications.

E. Covenants - St. Vincent

Except as AID may otherwise agree in writing, the Grantee shall covenant to:

- (a) Make available Government owned land or "borrow areas" necessary to supply aggregate materials required for road reconstruction activities under the Project;
- (b) Provide a minimum of the average amount expended for road maintenance in fiscal years 1980 - 1981 and 1981 - 1982 for annual road maintenance operations each year during the life of the Project;
- (c) Use AID financed equipment solely for project activities until all road rehabilitation under the Project is satisfactorily completed, after which time the equipment will be used on a priority basis for road maintenance and construction; and

- (d) Establish and maintain for the life of the Project a Project Management Unit which shall include a counterpart construction manager, highway engineer, road overseers and such additional professional staff as necessary to manage road and bridge rehabilitation activities under the Project.



Director
Regional Development Office/Caribbean

17 September 1982
Date

PRODUCTIVE INFRASTRUCTURE REHABILITATION

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ANNEXES

- A. Letters of Application
 - Exhibit 1. St. Vincent
 - Exhibit 2. St. Lucia
- B. DAEC Guidance Cable
- C. 611(c) Certification
- D. Log Frame Matrix
- E. Environmental Threshold Decision
- F. Economic Analysis Calculations
- G. Statutory Project Checklist
- H. Road Prioritizations and Construction Costs
 - Exhibit 1 - St. Lucia
 - Exhibit 2 - St. Vincent
 - Exhibit 3 - Value of Equipment Contributions
- I. Scopes of Work
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 - Exhibit 2 - Construction Manager
 - Exhibit 3 - Equipment Specialist
 - Exhibit 4 - Short-term Technical Assistance
- J. Road Inventories

PRODUCTIVE INFRASTRUCTURE REHABILITATION
PROJECT PAPER

I. SUMMARY AND RECOMMENDATION

A. Recommendation

RDO/C recommends that AID make a grant for the Productive Infrastructure Rehabilitation Project as follows:

Grant to Government of St. Lucia:	\$5,150,000
Grant to Government of St. Vincent:	\$2,500,000
Government of St. Lucia Contribution:	\$ 800,000
Government of St. Vincent Contribution:	<u>\$ 465,000</u>
 Total Project	 \$8,915,000

Implementation Period: Three years.

B. Project Summary

St. Lucia and St. Vincent, like other Eastern Caribbean LDC's, face a range of economic constraints common to small island nations. These have been compounded over the last three years by the large OPEC oil price hikes and two major natural disasters. Both countries have a limited resource base to draw upon, and each has had its public sector budget further strained by emergency programs following Hurricane Allen, and in St. Vincent, the eruption of Mt. Soufriere. In responding to these critical and unforeseeable needs, both governments have had to reduce their normal level of financial support in essential areas. One sector which has been heavily affected is transportation; budget allocations for repair and maintenance of roads has barely been adequate to undertake even minimal maintenance of the national road networks. Over the past several years important segments of the road network have fallen into a serious state of deterioration, until they are now in such poor condition that they can neither be restored or maintained within present government capabilities. Without prompt action, many will rapidly deteriorate to a point where a very costly program of complete reconstruction will be required to restore them to economic use.

In response to the development problem of rehabilitating and monitoring the road networks in St. Vincent and St. Lucia, the proposed project will finance a program of road and bridge rehabilitation activities to be carried out by the Governments' respective Ministries of Communications and Works. St. Lucia, the larger of the two islands, has more than twice as many miles of paved road as St. Vincent, and the greatest need for road rehabilitation assistance. Additionally, the construction management unit under contract to the Ministry of Communications and Works in St. Lucia is just completing a five year EDF-financed feeder road project, during which it constructed or restored more than 70 miles of access rural roads. Because of the greater need for rehabilitation assistance demonstrated in St. Lucia and the

presence of a construction management unit with proven experience in the type of road improvement contemplated under the project, the GOSL will receive approximately 65% of total AID funds.

Although the project will focus primarily on road rehabilitation in both countries, some assistance will be provided to upgrade the road maintenance capabilities of the Ministries of Communications and Works. Rehabilitation activities will include patching, resurfacing, installing and repairing drainage systems, repair of headwalls and bridges. Construction work will be supervised by Ministry of Communication and Works personnel, and overall project activities managed by an engineering consultant team. AID will provide certain pieces of road equipment essential to timely completion of rehabilitation activities, which will also be used by the host country governments after the project to help upgrade their road maintenance capabilities. Short term technical assistance will be provided to assist the GOSL and GOSV in developing annual maintenance programs and carrying out studies useful in road planning.

To respond to the employment and foreign exchange problems, the project will also emphasize the use of labor in road rehabilitation activities and will provide a significant foreign exchange transfer.

Economic Support Funds (ESF) are recommended for the project. This recommendation is based upon the need to provide immediate visible support for the governments of St. Lucia and St. Vincent and the economic requirements of those countries. In view of the tenuous foreign exchange position of both countries, ESF funds also will permit use of grant funding without placing further demands on Development Assistance grant resources.

C. Summary Findings

The project committee has reviewed the proposed Productive Infrastructure Rehabilitation Project and finds that it is technically, socially, economically, and financially sound and consistent with the development objectives of the host countries and of USAID. It has also been determined that with the technical assistance provided, the host countries have the institutional capacity to administer and complete the project for the amount of funds committed within the time planned for implementation (three years).

D. Project Issues

Issues identified in the PID guidance cable (see Annex B) are addressed in the following sections:

- A. - Strategy - see Section II.B.
- B. - Selection Criteria - see Section IV.B.2. and Annex J.
 - Road Design - see Section IV.B.
- C. - Road Maintenance
 - 1. - Covenants - see Section VI.F.

- 2. - Community Participation: See Sections III.C.1.a. and 2.a. and Section IV.D.
- D. - Equipment Pool - see Sections IV.A.1.b. and IV.A.2.b.
- E. - Funding - see Section II.B.
- F. - Managerial Arrangement - see Section VI.C.

II. BACKGROUND

A. Economic Setting

St. Lucia and St. Vincent are both independent states located in the Windward Island chain. St. Lucia has a population of 125,000 and land area of 237 square miles, while St. Vincent has 120,000 people and 149 square miles of land. Hence, population densities are high. Both countries receive heavy rainfall and have mountainous terrain factors that influences road maintenance negatively. St. Lucia is the most developed of the Windwards, having achieved a measure of economic diversification. While St. Vincent has had moderate success in promoting economic diversification, the country remains one of the least developed states in the East Caribbean. Both are encountering unemployment problems (St. Lucia has an unemployment rate reported variously between 15 - 25%, and St. Vincent 11%), and balance of payments difficulties. St. Lucia's current account deficit as a proportion of GDP reached 40 percent in 1981. As would be expected, both states have many of the economic problems typical of small island developing states, including (a) the diseconomies of scale in producing for small domestic markets; (b) heavy reliance on exports of a few commodities, especially bananas, for which a protected market exists abroad; (c) vulnerability to economic disturbances abroad; (d) high per capita cost of the heavy infrastructure needed for economic growth (e.g. roads, airports); (e) high transportation and communication costs emanating from the geographic isolation of the two states; (f) declining aid flows from the United Kingdom--once the region's most important benefactor--associated with independence, and (g) emigration of managerial, entrepreneurial, and skilled labor to more developed Caribbean states and North America.

1. St. Lucia

The May 1982 General Elections brought back to power a moderate government - headed by Prime Minister John Compton - and one supportive of private sector development. This, as well as the remarkable recovery in the physical production of bananas following the wake of Hurricane Allen in 1980, suggests that St. Lucia is once again on a road to self-sustaining growth. A combination of political instability, labor difficulties, and the massive OPEC oil price hikes precipitated a slide in 1979, and the downturn intensified in 1980 with the onslaught of Hurricane Allen and the global recession. These severe financial difficulties strained the government's ability to maintain and rehabilitate the country's economic infrastructure, particularly the national road network. Thus, Prime Minister Compton accords top priority to rehabilitation of roads necessary to restore and expand productivity in the agricultural, industrial and tourist sectors.

Prior to the 1979-1981 turn-down, the country had benefitted from notably sound economic management and had been a model for other Eastern Caribbean LDCs, growing annually in real

terms from 1976-78 in excess of 10 percent. Over this time span, St. Lucia relied almost exclusively on the private sector as the engine of growth and entered a period of diversification. The country moved away from its heavy reliance on the agricultural sector (primarily bananas) and pushed into tourism, manufacturing and related construction activity.

In spite of the diversification efforts, agriculture remains the country's most important sector, accounting for 17 percent of GDP. The Compton government recognizes the importance of growth in the agricultural sector, especially the banana industry, as a source of increased foreign exchange earnings.

Bananas are the most significant agricultural commodity, providing 20 percent of export earnings, although coconuts also are important. St. Lucia--the major banana producer in the Windward Islands--exported 37,00 tons in 1981, up almost 15 percent over 1980 but still well below the peak of 48,000 tons in 1979. Losses of up to 15 percent of total production are encountered because of poor transport between (a) the roadside and packing plant and (b) the packing plant and terminal. Over six million pounds of bananas are produced and shipped to boxing plants in the vicinities of the 16 feeder roads which have been proposed for rehabilitation under this program. In addition to bananas, the other major crop (i.e. coconuts) also will move over the improved roads.

In numerous instances the deterioration of the road network has prevented full exploitation of agricultural potential. The Morne Penache-Grande Riviere road, for example, serves an area of such intense banana production that a second boxing plant was recently installed at the junction of the road feeding into the East Coast Highway. Yet, the Morne Penache road is so deteriorated that many small farmers in the hilly interior cannot transport their bananas to the plant, and leave them to spoil in the field. On the leeward coast, the Canaries Road has failed completely and has not been motorable for three years. Complete reconstruction will be required to restore this road to use, which is the only one serving the agricultural lands of the Canaries Valley. Restoration of these and other key feeder roads is essential if agricultural productivity - especially in bananas - is to increase.

Manufacturing has become an important sector, providing 7 percent of GDP. Manufacturing firms producing garments, plastic products, cardboard boxes, flour, beer, furniture, glass products, soft drinks, and paper bags have been established, and total employment in the sector already exceeds 3,000. Between 1979 and 1980 alone, nine industrial companies, employing some 600 people were started. The entity responsible for industrial promotion--the National Development Corporation--has been successful. The NDC, which has established promotional offices abroad in New York, Caracas and Cologne, has developed a set of investment incentives and builds and rents factory shell space. The list of investment opportunities, it has prepared includes agro industries (biscuits and snack foods, fishing, food product processing, concentration of

fruit juice and manufacture of charcoal); tourism (Holiday Village, Pointe Seraphin and other smaller scale projects); and manufacturing (auto part rebuilding, brick manufacture, boat building and maintenance, housing and construction, machine shop, sashes and doors, sandals, uniforms, sporting equipment, small foundry, textile mill and uniform manufacturing).

The country has a number of industrial estates. One large estate on the harbor front in Castries is situated on 29 acres; other estates are located at Bisee Park (Castries), Dennery, and Hewanorra Airport in Vieux Fort. The country is seeking assistance for the newly created free zone in Vieux-Fort, which will provide for offshore manufacturing. In addition to these more formal attempts to encourage industry, efforts are being made to develop a handicraft industry at Choiseul along the Vieux Fort-Soufriere section of the West Coast Highway.

While the bulk of the industry is located in the Castries area, the Vieux Fort concentration is growing in importance. At least ten industries with a total employment of nearly 700 persons are located in proximity to the Soufriere-Vieux Fort road which will be rehabilitated under this project. Another two industries with a total employment of 125 are located in Soufriere. Improvement of this highway will not only provide better access for the industry presently located in the vicinity, but may attract additional entities such as the cottage industry at Choiseul.

Although tourism in St. Lucia currently is beset by many difficulties including the recession in North America, the industry, nevertheless, contributed 45 percent of the country's foreign exchange in 1981. Arrivals, which totaled 130,000 in 1981, were off 15 percent with earnings down 10 percent. The industry has substantial impact on the economy; jobs created either directly or indirectly are estimated to total 5,000 or roughly 18 percent of total employment.

The bulk of the tourist industry activity is concentrated on the west coast north of Castries. However, tourist attractions are found south of Castries along the West Coast Highway (e.g. the Piton mountains, a volcanic crater, and the coastal towns of Soufriere, Choiseul, Canaries, and Anse La Raye). Improvement of the Soufriere Vieux Fort road will undoubtedly generate additional tourist traffic.

2. St. Vincent

A strong economic expansion is underway in St. Vincent. Banana production in 1981 made a dramatic recovery in the wake of the La Soufriere volcano eruption in 1979 and Hurricane Allen a year later. Continued brisk manufacturing activity--an outgrowth of the country's noteworthy effort to promote economic diversification--also is contributing to the expansion. In 1976-78, the country had fared remarkably well, achieving average annual increases in real output of 9 percent. Nonetheless, the country with an estimated GDP

of \$660 remains one of the least developed of the East Caribbean LDCs and the recent spate of natural disasters has put an overwhelming strain on the budget.

St. Vincent's economy is based largely on agriculture, primarily bananas, arrowroot, coconuts, and more recently sugar. Agriculture contributes approximately 25 percent of the island's export earning and 17 percent of its GDP. Bananas are the major crop. Except for a few commercial plantations, much of the banana production comes from small farms of one to five acres. Because of the scarcity of flat bottomland, most bananas are cultivated on steep slopes and require relatively high labor and other input costs. St. Vincent exported a little over 30,000 metric tons of bananas last year, almost eclipsing the previous high set in 1978. Roughly \$10 million in foreign exchange was generated from the sales.

Arrowroot ranks as the second export crop. St. Vincent is the only Caribbean producer of arrowroot, from which is extracted a high quality starch suitable for both home and pharmaceutical uses and, more recently, computer paper. Expansion of arrowroot starch production has been frustrated by (a) the unavailability of labor, (b) poor roads, (c) inefficient factories which cause delays in arrowroot processing, (d) limited knowledge of the end uses and (e) pricing of the starch product. Vegetable and root crops are also grown in St. Vincent, but are mostly consumed locally or within the region. Coconut production has decreased, due to the combined effects of the natural disasters and disease infestations.

Because of the excessive demands on the budget due to natural disasters, the GOSV has not had the financial resources to maintain its roads. The disrepair of the road network is reducing the economic value of production, affecting the quality of bananas as well as shipment time. Losses and wastage incurred intransit as a result of the poor road network are estimated to be at least 12 percent of the island's total banana production. Nearly 40 percent of the country's production of this fruit comes out of the Mesopotamia Valley, an area which is served by the Vigie Highway which originates just south of Kingstown, the capital city. The highway also provides an alternate route for other producing areas, and is a cheaper more direct route than the Windward Highway for an additional 33 percent of the banana production located on the east coast as far north as Diamonds. Smaller amounts of production (approximately 5 percent) are carried over the Vermont and Vermont-Dalway road and the Leeward Coast Highway as far as north as Richmond.

Rehabilitation of the Vigie Highway would reduce losses incurred in the 10 mile journey from the Mesopotamia region to the Kingstown reception station. Additional savings would accrue to shipments from the boxing plants at Greiggs, Union Estate, Laundera, Massaraqua and Fond Estate on the Windward Coast. Improvement to all the roads will affect other crops, including arrowroot, nutmet, dasheen, tannia, ginger, avocado, and mangoes.

Over the past several years, the government has had a significant measure of success in attracting labor-intensive manufacturing plants to the country. Manufacturing, which accounts for 16 percent of GDP, is almost as important as agriculture. In fact, the country's manufacturing sector is relatively large for a country at St. Vincent's stage of development; manufacturing's share of total economic output exceeds that of Antigua (considered to be among the most developed of the Eastern Caribbean LDCs) and is double that of Dominica. The success in attracting manufacturing can be attributed to an appropriate set of investment incentives, relative political stability, a healthy investment climate, low wages, good industrial relations, an adaptable labor force, and assistance provided by the consultancy firm, Coopers and Lybrand, to the island's development corporation.

Manufacturing activity increased 16 percent in 1981, and between mid-year 1980 and 1981, an additional 1,000 jobs were created in the manufacturing sector, bringing the total to 2,000. Firms include garment making, corrugation of iron, plastics, glove manufacturing, and electronics. More recently, construction of a brewery is being planned. Over 180,000 square feet of factory shell space is in use, and the country's only industrial estate (Campden Park) which is located on the Leeward Highway, is now full. The government is searching for a second location and considering Rutland Vale, a site with more than 30 acres of land suitable for development and with access to Kingstown (the island's most important city) via the Leeward Highway. The proposed estate will generate traffic associated with the expansion of service activities, including commodity deliveries and worker movements. These developments will put increased pressure on the Leeward Highway which must be rehabilitated.

Although it accounted for \$23 million in foreign exchange receipts last year, tourism contributes only 2 percent of the GDP. While the Grenadines--a chain of smaller islands extending to the south of the main island--provide an outstanding yachting area, tourism activity on the main island is constrained by a lack of white sand beaches, a paucity of high standard hotels, limited airport size, and a weak Tourist Board.

B. Mission Strategy

1. Overall Assistance Strategy

RDO/C's development assistance strategy is rooted in the analytical and policy framework of the Caribbean Basin Initiative (CBI). While the CBI emphasizes development of the private sector and associated creation of new job opportunities, there is a clear recognition of the importance of an adequate infrastructural base that is necessary in order to attract and support new private and productive investment, both foreign and domestic. President Reagan was explicit on this point when he delivered his statement to Congress in March 1982, introducing the CBI legislation. Indicating that the United States will be

developing private sector strategies for each of the region's countries, he stated:

"The strategies will seek new investment and employment opportunities and will also seek to remove impediments to growth including lack of marketing skills, trained manpower, poor regional transport, and inadequate infrastructure."

In the Eastern Caribbean LDC's it is a fact that with the enormous increase in energy costs of the 1970's and the decline of U.K. involvement, many of the development assets of the islands have deteriorated dramatically. Hurricanes in recent years have intensified the problem. The islands' inability to meet the rising costs associated with these external shocks is well documented. Thus the vicious cycle is set in motion of neglected basic infrastructure that discourages new productive investment thus eroding the revenue base as well as foreign exchange resources needed to restore the infrastructure.

These conditions have given rise to a mission development strategy, recently consolidated in a policy decision memorandum approved by the AID Administrator, that deals both with urgent, short-term objectives involving restoration of economic activity and job opportunities in concert with longer term regional development objectives involving regional integration and institution-building. The short-term strategy calls for special measures that include proposals for Economic Support Funding as well as a portion of the supplemental funding put forward in the CBI legislation.

As stated in the approved strategy documentation, urgent, relatively quick disbursing assistance that hits high priority needs must go hand-in-hand with the longer-term regional institutional building program, in order for the latter to have sufficient time to take hold. In addition, RDO/C's regional strategy has recently been modified to include direct bilateral projects. This decision was made in recognition that a mix of regional and bilateral projects was necessary to achieve our developmental and political objectives in the region.

In development terms, there is a range of projects which is best altered through a bilateral approach. In particular, projects which require changes in public policy or commitments to new policies are most effective when we are dealing directly with the involved government rather than through regional intermediaries. The development of several projects of this type require close and supportive efforts between the host country and AID as well as the careful and direct negotiation of policy questions.

The second basic argument supporting bilateral project development is the need to be able to more carefully direct major assistance to those countries which support our view that equitable

economic development flourishes in a climate of stable, democratic institutions within a free enterprise economy. In addition, there is a desire to increase the viability of AID assistance. The bilateral assistance mode is most appropriate for addressing these concerns.

Clearly, the staff and budget implications of adopting a bilateral approach without programmatic limitations are overwhelming. Therefore, it was agreed that bilateral initiatives would be focussed in the agriculture and energy sectors and would flow from a sector program which combines technical assistance and other AID-financed resources with the development of a positive policy framework and commitment of resources on the part of the host country. RDO/C's bilateral programs therefore will take the form of structural adjustment projects in the aforementioned sectors.

In both St. Lucia and St. Vincent, RDO/C is helping those respective governments to carry out a comprehensive assessment of the respective agricultural sectors with a view to develop separate bilateral structural adjustment projects in FY83.

2. Project Strategy

The proposed regional Productive Infrastructure Rehabilitation project then, like the Basic Human Needs/Employment Sector project that preceded it, contributes directly to the approved mission strategy that incorporates economic reconstruction and associated balance of payments support through the Caribbean Development Facility together with the strengthening of region-wide development institutions and programs. Unlike the BHN project, the proposed project is focussed on a single, critical infrastructural constraint essential to one of the key productive sectors (agriculture) in the region and particularly in the islands proposed for assistance. However, as in the case of the BHN project, the proposed project deals with the islands' serious unemployment/underemployment problem with the labor-intensive sub-projects and at the same time it addresses the problem of maintenance of vital economic infrastructure.

The project being proposed here constitutes additional AID support to the Caribbean Development Facility (CDF) mentioned above. The CDF was established by the multilateral Caribbean Group for Cooperation in Economic Development in 1978. The Caribbean Group is the consultative forum comprised of donor and recipient nations that serves to coordinate the flow of development resources to the region. It has contributed to the CDF, along with most other donor members of the Caribbean Group, on an annual basis consistent with pledges that are normally announced at the annual Caribbean Group meetings. While for the MDCs, AID's contribution to the CDF has been in loan form, for the LDCs it has been in grant form, with the exception of an initial \$2.0 million allocation that pointed up the serious absorptive capacity problems of the LDCs.

Beginning in FY 79, the LDC grant component of the CDF

program was the Basic Human Needs/Employment sector project. To date, this innovative \$10.5 million grant has financed over 105 subprojects and generated over 11,000 person-months of employment. The Caribbean Development Bank was the implementing institution for the project and established an effective project approval and monitoring system to help insure that subprojects were designed and implemented expeditiously.

Given the success of the BHN program, including requests from LDC states to expand the resources under the program, RDO/C submitted a BHN II PP in March 1981. Although the project was authorized by AID/W, the Board of Directors of the Caribbean Development Bank declined to enter into the BHN II agreement based on the exclusion of Grenada from the project. The CDB's decision effectively precluded building upon the BHN project through the existing institutional mechanism. To continue to implement our assistance strategy in the Eastern Caribbean, RDO/C has examined various approaches to replicate the short-term productivity and medium-term economic benefits of the BHN program. Following a careful examination of the implementation difficulties which would confront us if we duplicated the BHN project on a direct basis, RDO/C determined that: (a) only a few LDCs could be included in such a project at least during its initial stages and (b) a narrower range of subproject activities would have to be selected to keep project management within cost and staff limitations.

In terms of subproject activities, it appears that the most manageable and economically productive focus of the project would be in the area of road maintenance and rehabilitation concentrating on those road segments which serve productive areas of the island involved. A broader agriculture program in the areas of commercial agricultural production and crop diversification would be too complex to manage on a regional basis. In addition, with the approval of the development of bilateral project activities in the agriculture sector, RDO/C believes these broader concerns are more appropriately addressed bilaterally in terms of a structural adjustment program.

The geographic focus of the proposed project also was reviewed at length. St. Lucia and St. Vincent are clearly of the highest priority given their dependence on agriculture, their rugged terrain, and the condition of their road network. Dominica, while an obvious possibility based on need, is not included in the project, given the strain which will be placed on its absorptive capacity by the multi-donor road rehabilitation program which will enter the implementation stage later this year. Belize, while again fulfilling the need criterion, presents logistical and management difficulties which preclude its participation. Finally, neither Antigua nor St. Kitts/Nevis were considered appropriate for participation at this time.

3. Relationship of the Proposed Project to Structural Adjustment

The proposed project is being developed apart from and in anticipation of agricultural structural adjustment. First, the project is regional in nature involving a regional, AID-direct contractor rather than two totally discrete projects. Both long and short-term technical assistance will be shared between countries. The project also was conceived at the PID stage to provide assistance to at least three countries (see Project Strategy below). Second, problems of access to agricultural areas is of such priority and significant developmental impact it was considered reasonable to proceed with the project in the absence of an overall sector plan or a policy framework which addressed the overall sector.

The proposed project will be underway in advance of the structural adjustment program and therefore will be addressing the transportation constraint to agricultural development in advance of the sector program. It should be noted, however, that the proposed project is justified and appropriate independent of a structural adjustment program as detailed in the project's economic analysis.

4. Policy Dialogue

There has been an on-going policy dialogue between the donor community and St. Lucia and St. Vincent since the establishment of the Caribbean Group for Cooperation in Economic Development in 1978. The Caribbean Group is a World Bank-led consultative group designed to focus on policy-level discussions involving donors and recipients. With the support and encouragement of the Caribbean Group, both countries have instituted self-help measures to improve their overall economic performance. This is in addition to the successful steps taken by both countries to restore banana production to the levels realized prior to natural disasters in 1979 and 1980 which devastated production.

In St. Lucia, these measures include: (a) the adoption of fiscal reforms following an IMF consultation to the island last year, (b) the establishment of an energy unit at the Ministry of Finance and the exploration of alternative energy sources such as geothermal, (c) the set-up of a tripartite commission consisting of labor, management, and the government to seek to resolve current labor difficulties, (d) the creation of a national development bank to reorganize and strengthen national development organizations, (e) the engagement of a British firm to promote tourism for Europe, and (f) improvements of airport and port facilities.

As for St. Vincent, in addition to its banana rehabilitation efforts it (a) has mounted an aggressive promotional campaign to attract foreign manufacturing concerns, (b) is increasing tariffs charged by utilities to ensure their financial viability, (c) is strengthening the public finances through new revenue measures, (d) is exploring alternative energy sources--primarily hydro-electric and biogas, (e) has made physical

improvements to the airport and port, and (f) is constructing new clinics and starting up phase one of the Kingstown Hospital redevelopment. In rewarding these self-help measures, the two countries would be encouraged to adopt additional measures, that would help them move toward greater economic viability.

In addition to the evolution of sound economic policies, both countries are committed to the democratic process and recognize the key role the private sector has to play in the development process. The proposed project therefore is a clear expression of our support for the overall policy framework in both countries.

In terms of the project itself, the respective governments will commit themselves to sustaining relatively high levels of expenditures for road maintenance. This is essential if the transportation system, including the roads to be rehabilitated under the project, is to remain viable and supportive of growth.

The technical assistance under the project will permit the development of sound road construction and maintenance planning over time as well as review such key policy areas as road construction standards. For its part, St. Vincent already is establishing a Construction Monitoring Unit in the Ministry of Communications and Works. The reports and recommendations arising from the technical assistance will form the basis for an on-going dialogue with the involved governments which will explore ways in which to use road maintenance resources as effectively as possible.

C. Other Donor Activities

1. St. Lucia

The following donors have provided assistance to St. Lucia either for improvement of its road network or its maintenance capabilities:

British Development Division (BDD)

The BDD is currently providing about \$300,000 for the repair of a major roadway slide failure at Bare de L'Isle. The project will be completed this year.

The BDD has been funding 50 percent of the salary of a Management Advisor for the Government Funding Scheme (GFS - a centralized government motor pool) since 1979 (the other 50 percent is provided by the Government), and is expected to continue this assistance until mid-1983.

In 1980-81 the BDD provided \$446,396 in equipment for the GFS and this year an additional \$110,000 for spare parts procurement. The purchase of additional equipment for the GFS is being considered, and perhaps some road rehabilitation assistance, but as yet there are no definite plans nor amounts budgeted.

Caribbean Development Bank (CDB)

Under a recently completed CDB-financed feeder road program, approximately 20 miles of feeder roads in the eastern half of St. Lucia were reconstructed. (Other feeder roads in St. Vincent and Antigua were also reconstructed). AID contributed a total of approximately \$2.7 million to this program.

European Development Fund (EDF)

The EDF has been grant financing a feeder road project which is scheduled for completion in September 1982. Since 1977 approximately 71 miles of access roads have either been newly out or rehabilitated. The project is being implemented by a force-account Construction Unit managed by the Crown Agents. (See Section II.C.a. for a description of the Crown Agent Management Unit). Project costs include equipment and materials for the Construction Unit; the final 8 miles of work carried out in 1982 cost \$776,729.

The proposed project has been developed in coordination with the BDD and will complement their activities. No further EDF assistance is planned at this time.

United Nations Development Program (UNDP)

The UNDP is financing Phase II of a pre-feasibility study by Louis Berger International for the identification of a bankable project for the development of an industrial zone. The study includes the technical and economic pre-feasibility study of improvements to the Vieux Fort-Soufriere Road, the two major cities in the southern part of the island, which is an industrial center of the country. This would include a proposal for improvement of road alignment and surface widening to select road segments. The field work for the study has been completed, and the final report is expected sometime in September.

Rehabilitation of the 21 mile Vieux Fort-Soufriere road is a priority in the GOSL program because the road is in extremely poor condition, and needs to be restored as soon as possible to prevent complete loss of the sunk costs. Actual rehabilitation will be carried out after consultation with the Government and other donors, and in relation to the status of the Louis Berger proposal.

Based on the above, the proposed project will be complemented by on-going assistance from BDD. Regular meetings with BDD will be held to assure appropriate coordination.

2. St. Vincent

British Development Division

The BDD is providing technical assistance to the Ministry of Communications and Works and the Government Funding Scheme. An advisor is working in the MCW as the Deputy Chief Engineer and is

responsible for the design of roads and other public works. A team of four advisors is working in the Government Funding Scheme repair shop. One engineer is responsible for shop management, and a training program is being developed that will be carried out by the other three engineers. Two will provide training for mechanics and the third will advise on workshop methods and on-the-job training. A short-term spare parts manager will also be arriving shortly. The BDD will also be financing the rehabilitation of approximately six miles of road on the windward coast between Georgetown and Sandy Bay. Work is estimated to begin in 1983.

Caribbean Development Bank

The CDB is providing funds (\$2.8 million) for the improvement of ten miles of feeder roads. This work is being carried out by COPACO, a French company with offices in St. Lucia. The work was begun in January of 1982 and is scheduled for completion in one year.

Other Donors

The Government has advised AID that OPEC will finance procurement of the rock crusher plant and asphalt premix plant, which it had earlier requested in its letter of application for AID assistance (See Annex A, Exhibit 1).

Neither the EDF nor the UNDP have announced plans for assistance for road work in St. Vincent. The BDD has considered providing funds for construction/paving equipment, but because of budgetary limitations it now appears that these funds will not be available.

As in the case of St. Lucia, collaboration with BDD will be important during the implementation of this project. In addition, RDO/C will monitor the delivery and installation of the rock crusher and asphalt premix plant given their overall importance in supporting project activities.

III. DETAILED PROJECT DESCRIPTION

A. Goal and Purpose

The goal of the Productive Infrastructure Rehabilitation Project is to increase income and economic productivity in St. Vincent and St. Lucia. The purpose of the Project is to provide dependable transportation from the islands' agricultural and industrial areas to major population centers and ports. This will be accomplished through a program which will restore and repair key primary and access roads in the participating countries, and will upgrade their respective institutional capacities to maintain national road networks and develop comprehensive road programs consistent with economic development goals.

B. Existing Road Conditions

a. St. Lucia

St. Lucia's road network is a relatively extensive one, consisting of a total of 480 miles which includes some 330 miles of paved roads and 150 miles of unpaved or boulder-surfaced roads and trails. The total mileage has remained fairly constant for some time, as what is termed "new construction" has actually been mostly upgrading and paving previously unpaved roads and trails.

The primary roads, which comprise some 169 miles, largely follow the coast where most of St. Lucia's towns and villages are situated. The secondary and feeder road system serves the inland population centers and agricultural areas. The primary roads vary from 10-22 feet in roadway width while feeder roads range from 8 to 16 feet. There are no established design and construction standards so that roadway structure, pavement and geometric design, as well as construction quality varies widely. In addition, there is no formal highway construction or maintenance planning, nor systematic collection of traffic and inventory data.

Although the road network is generally adequate for the country's needs in terms of linking the largest population centers, the two international airports and sea ports, and the productive agricultural and industrial areas, road conditions are generally poor and are deteriorating. Intensive rainfall and flooding resulting from Hurricane Allen in 1980 inflicted heavy damage on the road network. Numerous demands made on the Government's budget in the aftermath of Hurricane Allen did not permit the allocation of sufficient capital resources for needed repairs, and as a result, road deterioration has virtually outpaced maintenance efforts. Further, the advanced state of roadway failure and disrepair visible today would indicate that even prior to these events, the network in general suffered from a lack of proper planning and the use of inadequate design and construction standards.

b. St. Vincent

The St. Vincent road network consists of 563 miles of road and trails. A total of 166 miles are paved, 200 miles are unpaved and the balance consists of tracks and foot-paths. The main roads generally follow the coast, where most of the population is located, while the secondary roads penetrate the agricultural interior serving the banana, coconut and arrowroot growing areas and their small villages. The widths of the coastal highways range anywhere from 8 to 32 feet and their physical condition varies from a sound asphalt pavement with proper drainage to unimproved tracks with no drainage at all. The secondary and feeder road networks have similar differences and can range in width from 6 to 16 feet with surface conditions varying from asphaltic surface in good condition to dirt tracks.

Drainage is generally inadequate and roads often lack both side and cross drainage. The roadways are almost all devoid of shoulders and in many places widening of narrow roads would not be feasible because cultivation, backslopes, houses or other structures run up to the edge of the pavement. Sight distances are often extremely short and the horizontal and vertical alignments, particularly on the leeward highway are severe. Some horizontal alignments would support no more than 5-10 mph speeds and some grades approach 20%.

Most of the concrete bridges and drainage structures are in fair to good condition, but only a few are wide enough to accommodate the roadway lanes into and out of them. Retaining walls are almost all masonry and are in remarkably good condition in spite of their age and long exposure to weather. There are also some concrete guard rails and bridge rails included in the network, with some in fair to good condition, and others in urgent need of repair or replacement.

c. Project Activities

1. St. Lucia

The St. Lucia component of the program includes rehabilitation of two primary and 16 feeder roads, and provision of the technical assistance and equipment to carry out project activities, which will also improve the Government's maintenance capability.

a. Road Rehabilitation

The new Government recently prepared a proposal to restore the entire road network at an estimated cost of more than \$10 million. The program would rehabilitate 85 percent of the national road network through medium to long term maintenance activities including repair of roadway failures and potholes, scheduled re-sealing, improvements in the drainage system, and purchase of equipment.

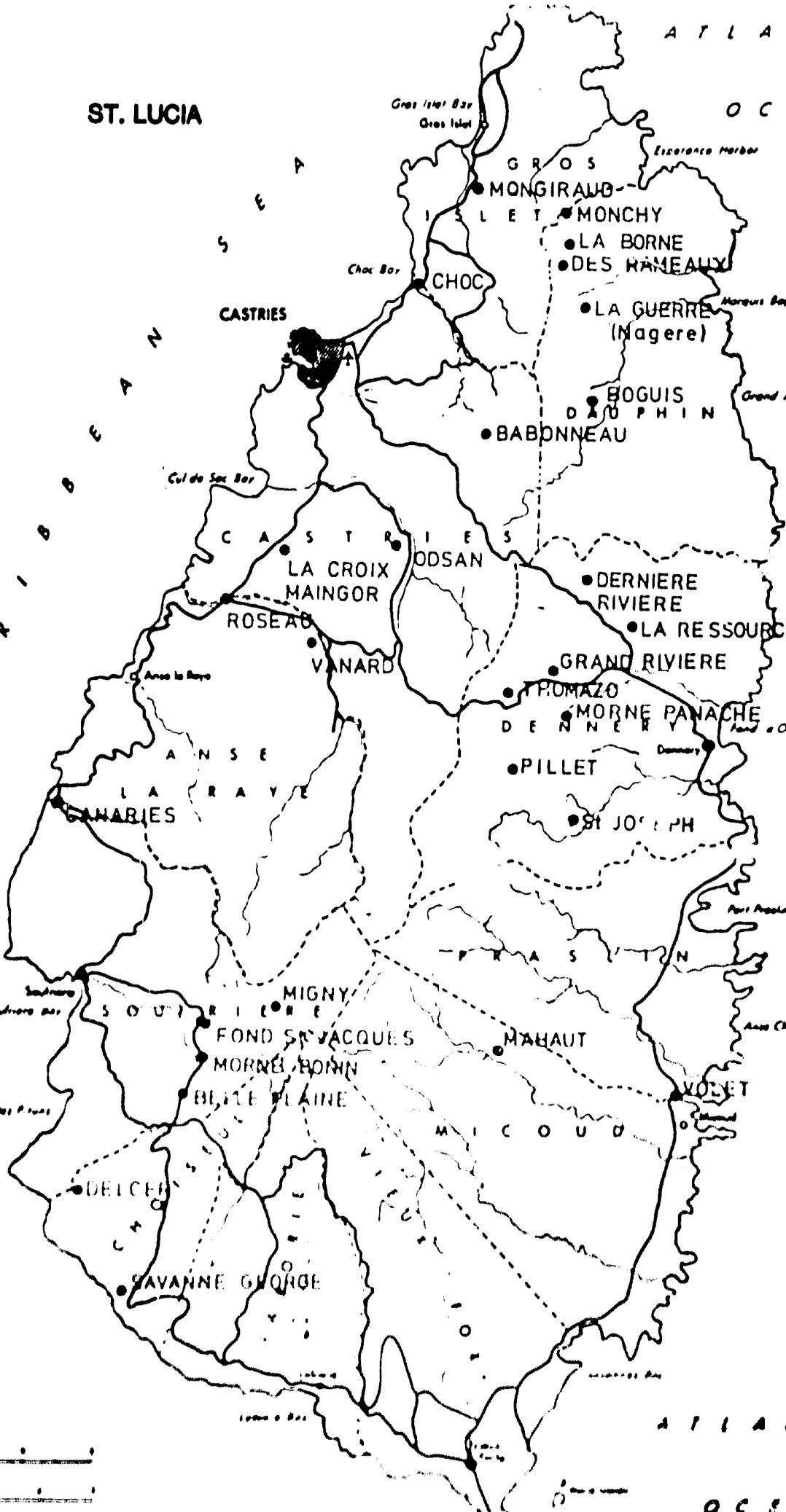
ST. LUCIA

ATLANTIC OCEAN

CARIBBEAN SEA

ATLANTIC OCEAN

- Major Roads
- Major Town
- ↑ Airport
- ↓ Port
- - - Parish Boundaries
- ~ Rivers



The roads identified for rehabilitation include primary as well as secondary roads, and have been broken down into 34 segments for purposes of determining priorities. Selection and ranking of the individual segment was based on several criteria: traffic counts, support of economic productivity, and road condition. The list in Annex H identifies the entire 110 miles of road segments proposed for rehabilitation by the GOSL, and a rank ordering by group (i.e. high, medium and low priority) with rankings assigned within each group category. The project will finance the rehabilitation of all the road segments in the high priority group (approximately 65 miles) which will include two primary road sections and 16 feeder road sections.

Rehabilitation activities will include some or all of the following depending on the particular condition of each road section: clearing and cleaning of the roadway shoulders and edges; excavation and grading; patching of pot holes; reinstatement of base gravel; addition of double bituminous surface dressing; cleaning, repair or installment of new drainage structures; and repair of some masonry wall. All roads will be rehabilitated according to the design standard for intermediate volume roads described in the Technical Analysis. (See Annex H for detailed cost estimates).

Actual rehabilitation will be carried out by the Crown Agents, a non-profit British firm which is currently completing the upgrading of more than 70 miles of feeder roads through an EDF financed contract with the Ministry of Communications and Works. While the Crown Agents are carrying out road construction and rehabilitation activities which come under the purview of the MCW, their day-to-day operations are directed by a Construction Management Unit (CMU) staffed by contract personnel. For purposes of carrying out the EDF feeder road project, the CMU included a Resident Site Manager (construction engineer), a locally-hired Work Supervisor (Field Engineer), a Mechanical Supervisor (heavy equipment specialist) and a locally-hired Office Manager/Accountant. The Crown Agents - Ministry of Works contract for proposed project rehabilitation activities will be financed by the GOSL as part of its counterpart contribution. Additional assistance in construction management will be financed by AID and include a part-time, life-of-project Manager who will provide general supervision for project activities and be responsible for certification of completed road work to be reimbursed under the FAR (Fixed Amount Reimbursement) system. (FAR described in Section V.B).

AID will also finance a long-term Highway Engineer, construction-related labor, materials and equipment. Several pieces of road equipment, including two asphalt distributors and various rollers, will be purchased by AID; other equipment will be provided by the GFS or, in a few instances, rented from private hire. While GFS has most of the types of heavy equipment needed for road rehabilitation operations, much of it is old and unreliable. There are also not enough pieces of equipment to provide for the large scale of rehabilitation proposed in this project, and at the same

time, carry out a routine maintenance program. The seven pieces of equipment which AID will finance are those identified as necessary to insure that road construction activities will be completed on schedule, and are described in the Technical Analysis. The cost of the equipment is estimated at \$345,000.

Given the poor condition of much of the equipment in the GFS inventory and a shortage of many items as well as spare parts, the equipment used to carry out road rehabilitation under the project will be closely monitored and used only under supervision. As such, it will not be lent out to communities for road maintenance particularly as they have no local facilities or expertise for repair and maintenance of road equipment.

Engineering analyses have already been completed on the 110 miles of road which the GOSL has proposed for rehabilitation and, since the Crown Agents Construction management unit is in place, road rehabilitation activities in St. Lucia can proceed as soon as the Project Agreement is signed. An interim manager will be hired under a personal services contract to assist with implementation plans, certification and the use of the FAR system for two months prior to the arrival of the permanent Project Manager. An equipment specialist will also begin work as soon as the Agreement is signed to initiate procurement. Half of his eight week technical assistance will be project-financed and the other half will be paid for with PD&S funds.

b. Maintenance Capacity

The Ministry of Communications and Works has responsibility for all road work, including routine maintenance, rehabilitation, reconstruction, and construction of new roads. Routine maintenance work (i.e. cleaning and grubbing of roadways, patching potholes, clearing drainage ditches, shaping slopes and top dressing of existing paved roads) is carried out by the MCW. The more extensive rehabilitation, reconstruction or new construction which involves grading, scarification, laying new base materials and surface dressings, gabion work and installment of new drainage systems, is carried out by contract, i.e. the Crown Agents.

Road equipment to carry out these activities can come from three sources. Generally, the MCW rents its equipment from the Government Funding Scheme (GFS), an autonomous government unit which leases out heavy equipment to both public and private sector agencies, but because the GFS equipment is frequently old and unreliable, the Ministry also rents from private hire companies. In addition to these two sources, the Crown Agents also have at their disposal several pieces of equipment received under grant projects financed by other international donors.

Repair and maintenance of GFS road equipment is carried out at the GFS repair facility (the Crown Agents have a small shop facility for handling their own equipment). While the GFS has good management, the operation is not financially viable because there is

not enough sound equipment to generate the income necessary to pay both operating expenses and replacement of old equipment. The GFS also does not have the resource capability to repair deadlined equipment in a timely manner.

While the principal focus of the project is road rehabilitation, limited assistance will be provided to help increase the GOSL's capacity to carry out road maintenance programs. Six months of short term expertise will be provided in various areas of transport planning. This will include assistance in conducting road surveys and inventories, road classification and traffic counts, and such techniques and data collection methods as needed to provide the information upon which long term national road planning decisions can be made. Assistance in road design, construction, inspection and maintenance standards will also be financed. In addition to the short term assistance, the Project Manager will be able to provide some on-the-job training in engineering skills to MCW staff as the project progresses.

Funds will also be provided for the purchase of laboratory equipment to test the suitability of aggregate and other materials used in road and bridge construction activities, and to determine the acceptability of construction in terms of approved engineering standards. The equipment will include a drying oven (\$2,000), an unconfined compression testing machine (\$1,500), a Shear box testing machine (\$4,000) and miscellaneous tools, equipment componentry and materials (\$2,500). The final list will be prepared by the contractor.

Finally, at the end of the project, the equipment purchased by AID will be turned over to the GFS, thus increasing the Ministry of Communication and Works' physical resource base and capability for maintaining the national road network.

COST ESTIMATES FOR
TECHNICAL ASSISTANCE SERVICES
(US\$)

St. Lucia Activities

Equipment Specialist	-	2 weeks	\$ 6,000
Interim Manager	-	2 months	22,000
Project Manager	-	18 months	218,000*
Short term Assistance:	-	6 months	60,000
Transport Economist (2 mos. - \$20,000)			
Maintenance/Transport Specialist (2 mos. - \$20,000)			
Planning/Management (2 mos. - \$20,000)			

Support Commodities	<u>24,000</u>
4 wheel drive vehicle (\$14,000)	
laboratory equipment (\$10,000)	
TOTAL	\$340,000 =====

- * The Project Manager will direct both St. Lucia and St. Vincent activities, the cost to be divided on the basis of 60% of his time spent in St. Lucia, and 40% in St. Vincent.

Total cost of the St. Lucia component of the project is estimated at \$5,950,000 of which AID will provide approximately \$5,150,000: \$5,040,000 for road rehabilitation; \$66,000 for short-term technical assistance; \$24,000 for office support; and \$15,000 for evaluation. The \$800,000 contribution of the GOSL will be in-kind and include the cost of the Crown Agent contract (\$540,000); personnel, which includes a works Supervisor, two foremen, a laboratory technician and assistant (\$85,000); and overhead and travel costs (\$175,000).

2. St. Vincent

The St. Vincent component of the project will include the rehabilitation of four bridges and 12 miles of roads; procurement of road maintenance equipment; and technical assistance in project implementation and transport planning. These activities will provide the means for improving the national road network and at the same time contribute towards increasing the Ministry of Communication and Works' (MCW) ability to maintain roads.

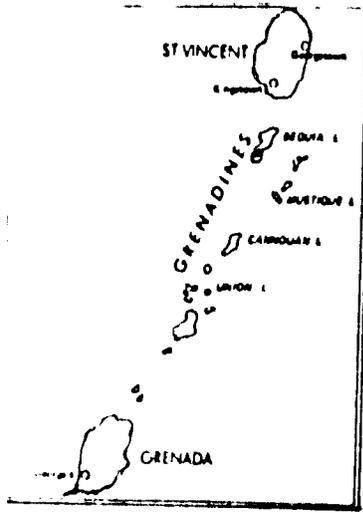
a. Road and Bridge Rehabilitation

The list of roads which the GOSV has proposed for rehabilitation, together with the estimated costs and priority rankings, is contained in Annex H. AID funds will be used to finance rehabilitation of the two highest priority roads on the list: the Vigie Highway (6 miles), which includes the repair of three bridges, and the Mesopotamia-New Prospect road (4 miles) with the repair of another bridge. A two mile segment of the Layout-Richmond Highway will also be rehabilitated. Criteria for the selection of roads included the application of a formula which weighted road condition, traffic count and agricultural productivity (see Annex H). Both the Vigie Highway and Mesopotamia road, which connect at the town of Mesopotamia, service the highly productive Mesopotamia Valley where more than 40% of St. Vincent's banana cultivation is located. Many other crops are grown in this region, and the traffic count over the roads traversing the Valley are among the highest in the country. An arrowroot factory is located in New Prospect on the windward coast, so the upgrading of the proposed roads will allow more efficient transport of harvested crops to this facility. The arrowroot plant produces a very fine grade of starch, but loses its starch content rapidly after cutting. The rehabilitation of these two roads should have a significant positive impact on agricultural productivity in the area.

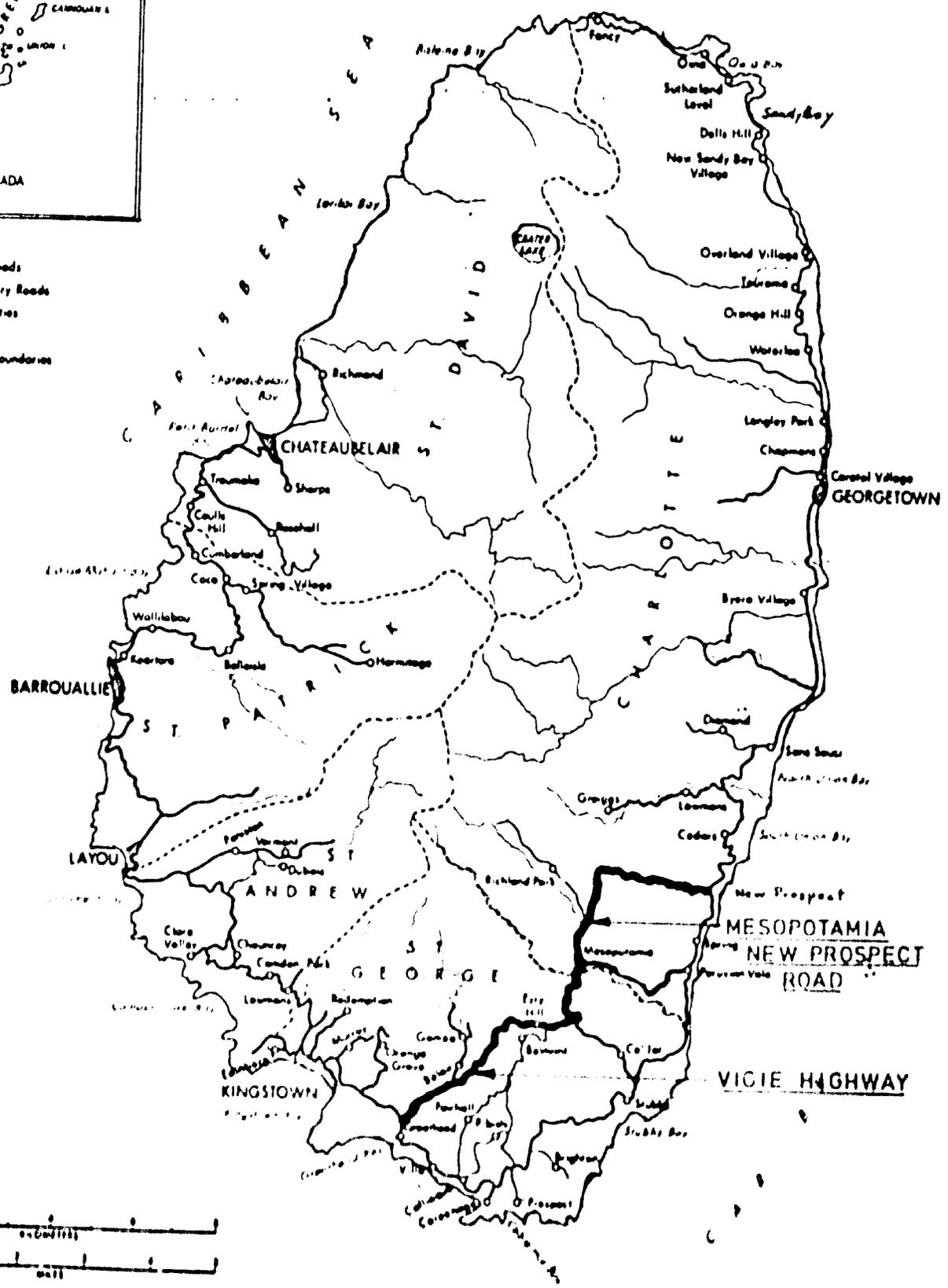
ST VINCENT

ST. VINCENT

12° 45' N
60° 15' W



- Main Roads
- - - Secondary Roads
- Main Cities
- Towns
- - - Parish Boundaries
- Rivers



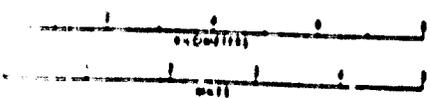
13° 00'

12° 45'

12° 30'

MESOPOTAMIA
NEW PROSPECT
ROAD

VICIE HIGHWAY



This map was prepared for the St. Vincent and the Grenadines Government by the Survey Department. It is based on the Survey of the Island of St. Vincent and the Grenadines, 1960-1965. The Department is not responsible for any errors or omissions. The map is published by the Survey Department, St. Vincent and the Grenadines.

The rehabilitation activities and design standards will be the same for these roads as those described for St. Lucia. Road work will be carried out by the Ministry of Communications and Works using the force account system. The FAR method of payment will be used.

The engineer contracted for the long term position as Project Manager will spend 40% of his time in St. Vincent and 60% in St. Lucia. He will be responsible for overall project implementation, certification of completed road segments, identification of short term technical assistance needs and resources, and liason with RDO/C.

The Construction Manager will be responsible for actual road rehabilitation activities, including cost estimates for FAR, quality control and cost accounting during construction, final acceptance of construction, and periodic progress reports.

Selected pieces of equipment will be purchased in order to carry out road rehabilitation activities. The MCW needs to increase the production of aggregate material for which a hydraulic impactor will be purchased. The impact hammer can be mounted on an excavator which the MCW presently has and will enable the government's quarry operation to feed rock to the crusher in increased amounts. Other equipment needed for road rehabilitation, including rollers, concrete dumpers and a bitumen distributor, will be financed under the project and are itemized in the Technical Analysis. The equipment which AID will finance is necessary to supplement the existing inventory of GFS equipment in order to complete the project on schedule without tying up equipment needed to carry out routine maintenance. Additional demands will be made on GFS equipment when the BDD road rehabilitation project begins next year.

Given the poor condition of much of the equipment in the GFS inventory and a shortage of many items as well as spare parts; the equipment used to carry out road rehabilitation under the project will be closely monitored and used only under supervision. As such, it will not be lent out to communities for road maintenance particularly as they have no local facilities or expertise for repair and maintenance of road equipment.

The GOSV will contribute the use of three pieces of road equipment (a motor grader, bulldozer and pavement spreader) as part of its counterpart contribution for project activities.

b. Maintenance Capacity

As in the case of St. Lucia, the principal focus of activities in St. Vincent will be road rehabilitation with limited assistance for increasing the Government's institutional capacity to carry out road maintenance programs. Six months of short term expertise will be provided in various areas of transport planning. This will include assistance in updating a 1968 road sufficiency report (by Enfield University) as well as in developing an annual

road maintenance program. Assistance in institutionalizing data collection methods, such as road inventories, classifications and traffic counts, will be provided both for purposes of developing annual maintenance programs and long range national road plans. The Project Manager and Construction Manager will be able to provide some on-the-job training in engineering skills to MW staff as the project progresses.

Also, as the project is completed, the equipment purchased by AIB will be turned over to the GFC, thus increasing the Ministry of Communication and Works' physical resource base and capability for maintaining the national road network.

COST ESTIMATES FOR
TECHNICAL ASSISTANCE SERVICES
(US\$)

St. Vincent Activities

Equipment Specialist	-	2 weeks	\$ 6,000
Project Manager	-	12 months	129,000*
Construction Manager	-	24 months	239,000
<u>Short term Assistance:</u>	-	6 months	60,000
Transport Economist (2 mos. - \$20,000)			
Maintenance/Transport Specialist (2 mos - \$20,000)			
Management/Planning (2 mos. - \$20,000)			
<u>Office Support:</u>			
Secretary, (30 mos.- \$12,000)			49,000
Accountant/Office Manager (30 mos.- \$28,000)			
Office Equipment and Supplies, (\$9,000)			
TOTAL			<u>\$483,000</u>
			=====

- * The cost of the Project Manager will be divided on the basis of 60% of his time spent in St. Lucia and 40% in St. Vincent.

The total cost of the St. Vincent component is estimated at \$2,965,000 of which the GOSV will make an in-kind contribution of approximately \$465,000 which will include \$205,000 for equipment; \$110,000 for personnel (counterpart for the Construction Manager, a Field Engineer, Road Supervisor and two foremen); and \$150,000 for overhead and travel. AID funds of \$2,500,000 will finance road and bridge rehabilitation (\$2,370,000) short-term technical assistance (\$66,000), operating expenses (\$49,000) and \$10,000 for evaluation.

IV. PROJECT ANALYSES

A. Institutional Analysis

In both St. Lucia and St. Vincent there are two government entities which are involved in road maintenance and rehabilitation activities: the Ministry of Communications and Works (MCW) and the Government Funding Scheme (GFS). The responsibilities and capabilities of each are as follows:

1. St. Lucia

a. Ministry of Communications and Works

The Ministry of Communications and Works is responsible for all planning, construction and maintenance of the country's road network. The MCW Chief Engineer, who is supported by an assistant engineer, supervises the road work programs and their implementation.

Road Maintenance Capability

Within the Ministry is a permanent "Roads Section" comprised of two supervisors and 18 foremen, and which is supported by MCW administrative, accounting, laboratory and engineering staff. The two supervisors report to the assistant engineer and are in charge of supervising day-to-day road maintenance activities. Road maintenance operations are divided by parish (or county); the foremen are assigned responsibility for certain sections of road within the parish and organize work gangs to carry out repair activities accordingly. All labor for the road gangs is hired on an as-needed basis and funded from the Ministry's road maintenance budget account. The MCW Roads Section obtains heavy equipment and transportation services from the Government Funding Scheme (a centralized motor pool and equipment workshop with internal repair capability). As an autonomous self-supporting entity, the GFS generates operating revenue from rental of its equipment to both Government and private users. When the GFS cannot provide the equipment needed, the Road Section rents it from private operators or contractors.

While the MCW receives budgetary support adequate to carry out routine maintenance activities, it does not have the financial resources necessary to undertake more costly, but necessary, road rehabilitation. It is further handicapped by a certain dependency on the inadequate and unreliable inventory of road equipment available through GFS.

In FY 1981-1982 the budget for road maintenance was \$2.57 million. Maintenance of bridges is budgeted separately and was \$56,000 that year. For the present fiscal year (April 82 - March 83), the road maintenance budget is \$2.59 million and bridge maintenance increased to \$97,000. This would allow approximately \$7,000 per mile of paved road and \$2,000 per mile of unpaved road,

which is considered adequate to pay for routine maintenance of St. Lucia's road network (including the roads rehabilitated under the project).

Some assistance will be provided under the project to enable the MCW to more effectively use their limited financial and physical resources. Approximately six months of short term technical assistance in various aspects of transport planning will be financed. Specialists in transport economics and road planning will work with MCW personnel, in coordination with the Ministry of Planning, to identify and establish data gathering methods appropriate for use in developing annual road maintenance programs and long range planning to meet projected road needs. As necessary to supplement the data now available on road transportation, assistance will be provided in road classification, inventories and surveys, and traffic flows. Other engineering specialists will work with MCW staff in road design, construction inspection and maintenance standards.

In addition to helping the GOSL develop its road planning capabilities, the project will help to increase the Ministry of Communication and Works' physical capacity to maintain roads through the contribution of seven pieces of road equipment, which will be turned over to the GFS at the end of the project.

Road Reconstruction and New Road Construction

Since 1975, the MCW has obtained financial assistance from the Caribbean Development Bank (including some USAID funds), the British Development Division and the European Development Fund for force-account road reconstruction and new road construction. These donor-financed activities, which account for most of the reconstruction and new construction undertaken by the Ministry, have been managed by the Crown Agents, a non-profit British organization active in the public service sector and with expertise in construction management. Since 1975, The Crown Agents have been under contract to the Ministry, assisting in the construction of more than 80 miles of roads (including reconstruction of a 20 mile section of the East Coast Road), and 71 miles of feeder road rehabilitation and new construction. Currently, the Crown Agents are under contract to the MCW to complete eight miles of feeder roads by September, 1982.

In performance of their contracts, the Crown Agents have established a Construction Management Unit which organizes, manages and conducts force-account construction activities for the Ministry. This includes the operation and maintenance of its own equipment pool (for equipment provided under donor-financed projects), and hiring of laborers as required. The Crown Agents management team consists of a Resident Site Manager, an office manager, a mechanical supervisor and a works supervisor. Additional supervisory staff hired on-site and paid with project construction funds include general foremen, who are in charge of road sections under construction, and specialist foremen in charge

of primary and surface dressing operations. Equipment operators and other labor are hired on an as-needed basis.

The Construction Unit has performed well over the years. Quality of construction has been good and generally completed on schedule. Use of local labor has been maximized, and construction costs have been lower than those of a construction contractor whose fees must allow for profit. As in previous reconstruction and new construction activities, the Crown Agents will carry out those contemplated in this project and will be contracted and financed by the Government of St. Lucia.

b. Government Funding Scheme

The Government of St. Lucia formed the GFS in 1971 by combining the workshops of the Agricultural Department and the Ministry of Communications and Works into a centralized mechanical workshop, motor pool and repair facility which would serve all Government departments. The purpose of the GFS was twofold: 1) to establish a pool of vehicles and construction equipment which would provide transport, road construction and maintenance support on an at-cost basis; and 2) to avoid inter-departmental duplication of these supports. The GFS was to be self sufficient financially; rental fees and charges for services were to cover all operating costs as well as replacement of old or damaged equipment.

Unfortunately, the GFS was under-capitalized at the time it was formed; the useful life of the equipment acquired from the Ministries was not enough to generate the income needed to purchase replacements and at the same time meet rising maintenance and repair costs. GFS operations have also suffered from a lack of administrative skills, including improper financial and accounting controls, high overhead costs, and an unrealistic schedule of charges for equipment and services. Social and political factors have also affected the establishment of sound management systems and proper charges for equipment and services.

The GFS employs 160 people (down from 200 one year ago) of whom 28 are administrative staff (including a full-time training officer), 40 skilled workers and the balance made up of drivers, operators, apprentices, laborers and security staff. A Peace Corps Volunteer has been assisting the GFS in the accounting section. The GFS maintains 98 pieces of potentially serviceable equipment, including vehicles and construction equipment, of which 50% are over five years old, and 37% are more than ten years old. As of June, 1982, 41% of the equipment was deadlined, principally for lack of parts.

GFS equipment rental rates have been revised so that they are now adequate for generating the income necessary to maintain serviceable equipment. Rates generally range 10-15% below private operator/contractor rates and are adjusted annually. They are, however, too low to produce sufficient revenue for purchase of

replacement equipment. Whereas the replacement cost of equipment is normally earned in the first two to three years of vehicle life (when repair costs are low) the present equipment is quite old and very costly to maintain.

Since 1979 the British Development Division (BDD) has provided a management advisor, who has assisted the GFS manager to improve planning and operation of the workshop. During this time, the BDD has provided grant funds for procurement of 15 new pieces of equipment (1980-81) and about \$100,000 for spare parts (1982). Various improvements have also been made in establishing proper accounting and management controls, setting realistic charges for services and equipment, and reducing the number of personnel to a more cost effective level. However, the GFS is still unable to generate the income necessary to purchase spare parts and new equipment. While the financial status of the GFS has improved somewhat, operations continue to run at a loss; \$180,000 for 1981-82, and \$90,000 projected for 1982-83. AID will not undertake to assist the GFS at this time. The identification of appropriate assistance for the Government Funding Scheme would require an in-depth analysis of its financial status, management and operations which is beyond the scope of the proposed project. The GFS will undoubtedly benefit, however, as AID-financed road equipment is turned over to its motor pool at the completion of the project.

2. St. Vincent

a. The Ministry of Communications, Works and Labor

The roads division of the MCW is responsible for the maintenance of existing roads and the construction of new roads (which is usually done under contract). The Chief Engineer for the Roads Division is responsible for all road works and the Government Funding Scheme workshops. Road maintenance and new construction are carried out by a Senior Engineer, with crews supervised by an Assistant Engineer for the Leeward side and another for the Windward side of the island. Each crew contains 20 gang foremen with 10 to 12 laborers per gang. The maintenance program is carried out on a year round basis, but because of insufficient funds, actual physical improvements on existing roadways have not kept pace with the increased usage of the roadway network. Traffic has increased some 10% per year over the last ten years, with little increase in the amount of maintenance and virtually no new road construction. Maintenance is limited to the patching of holes, cleaning drainage ditches, cutting back or shaping slopes, patching masonry structures, top dressing of existing roads and more or less trying to give the public traveller an overall satisfactory roadway surface on which to drive.

Some assistance will be provided under the project to enable the MCW to more effectively use their limited financial and physical resources. Approximately six months of short-term technical assistance will be provided, particularly to help in the development of an annual road maintenance program and

to update a 1968 road sufficiency report. Specialists in road planning and transport economics will work with Ministry personnel to identify and establish data gathering methods such as road inventories, classification and surveys and vehicle counts. Assistance in use of this information for long range planning to meet projected transportation needs will also be provided. Other specialists will work with MCW engineers in road design, construction inspection and maintenance standards.

In addition to helping the Ministry of Communication and Works establish an annual maintenance program, the project will help to increase its physical capacity to maintain roads through the contribution of 13 pieces of road equipment, which will be turned over to the GFS at the end of the project.

b. The Government Funding Scheme

The equipment repair facility or Government Funding Scheme is responsible for maintenance and repair of all Government vehicles and equipment. It operates as a separate entity and derives revenue from equipment rented to both Government and private enterprise. The GFS is well managed by an advisor who has been employed by the BDD for a four year period, which started in August, 1981. The BDD will also be supplying a mechanical engineer to head the training department for mechanics and two mechanical instructors to provide on-the-job training this year (1982). A short term spare parts manager will also be provided to inventory and organize the GFS spare parts service. Because GFS needs are currently being addressed with BDD assistance, AID assistance will focus more directly on the Ministry of Communications and Works.

c. Financial Resources

Annual recurring budget levels are based on revenues. In 1981-1982 (the GOSV fiscal year begins in July) the amount allocated for road maintenance was \$852,000. Actual expenditures necessary to meet road maintenance needs, however, came to approximately \$1,850,000. The present 1982-83 budget allocates \$1,185,000 for road maintenance. The Ministry of Planning and the MCW both recognize that actual needs are closer to \$1,850,000 and have assured that the additional funds will be forthcoming as they have in previous years. After the GOSV budget is approved by Parliament, and the MCW can show an additional need for road maintenance funds, the Minister of Communications and Works can request a supplementary budget by letter of petition to the Minister of Finance. For purposes of this project, the MCW has assured that it will request at least \$665,000 in supplemental funding, which would bring the total for road maintenance to \$1,850,000 (see section on Conditions and Covenants). This is considered adequate for routine maintenance of St. Vincent's road network, allowing approximately \$8,000 per mile of paved road and \$2,600 per mile of unpaved road.

Also, according to the Director of Planning, approximately \$278,000 in capital costs has been set aside for road maintenance and rehabilitation in FY82-83, and will be used as government counterpart contribution for international donor programs.

B. Technical Analysis

1. General Considerations

The project design is based on a recent evaluation of St. Lucia's and St. Vincent's road systems and maintenance capabilities carried out by the consultant engineering firm of Morrison-Maierle. The findings and recommendations of the Consultants' report are consistent with the request that the evaluation:

(1) Identify and rank, by priority, high productivity roads in need of repair and reconstruction, including representative cost estimates and economic analysis;

(2) Identify equipment and spare parts required by the GFS workshops in order to establish sufficient capacity for proper road maintenance, including cost estimates;

(3) Identify and recommend the types of technical assistance and training necessary to improve the capabilities of the GFS workshop, the road maintenance capacity of the MCW, and the institutional capacity of the Governments to develop annual maintenance programs and long range national road plans.

The dimension of the three basic activities described in the Project (i.e. road rehabilitation, equipment and technical assistance) is based on the technical recommendations of the Consultant's report and Mission engineers' evaluations, and also in consideration of budgetary limitations. The amount of equipment and technical assistance proposed is that which is necessary to ensure the rehabilitation of approximately 77 miles of roads in St. Lucia and St. Vincent.

2. Road Selection and Design

Roads identified for rehabilitation work have been ranked in accordance with considerations of present road condition, traffic volume, support of agricultural and industrial productivity, and social impact. Roads that have been assigned the highest priority are generally those whose rehabilitation would not only produce user cost savings for the entire island population, but would provide a direct and measurable economic benefit in improved transport of agricultural or other productive commodities. An initial list of roads in St. Lucia has been selected based on these factors. Prior to finalization of the list, seven-day traffic counts for each road or road segment will be carried out and a cost benefit analysis will be performed on each section to insure that there is a minimum rate of return of 10%. In St. Vincent, where

more data was available, a formula incorporating road condition, traffic flow and banana production factors was used to help determine road priorities. The formula is contained in Annex H. Road classification information giving vehicle counts, tonnage of produce, structural, service and safety indicators is given in Annex J.

The complete list and priority assigned to roads and bridges in St. Lucia and St. Vincent which need repair and rehabilitation can be found in Annex H, Exhibit 1 and 2. It is estimated that the Project will finance approximately 12 miles of road rehabilitation in St. Vincent and 65 miles in St. Lucia. The construction manager will be responsible for determining the sequence of road segments to be reconstructed and the application of the design standards described on the following page. Rehabilitation activities will generally be limited to intensive patching, surface sealing, and cleaning and repairing failed drainage systems. However, on certain roads, for example, the Mesopotamia-New Prospect road in St. Vincent and the Canaries Valley road in St. Lucia, additional work such as base course, culverts and masonry walls will be carried out. This additional work is reflected in the cost estimates in Annex H. Undertaken now, these repair activities will restore the roads to a condition adequate for normal maintenance work, well within the technical and financial capabilities of the governments. However, if the roads are left to deteriorate at the present rate, complete reconstruction would be necessary in a few years time. This would entail in addition to drainage, verging etc., excavation to subgrade, recompaction with additional sub-base and base material and resurfacing. In other words the construction of a brand new road.

DESIGN STANDARDS
FOR INTERMEDIATE VOLUME ROADS

1. Geometrics: Road rehabilitation will follow existing horizontal and vertical alignment.
2. Drainage: Side drains - minimum width 2 feet, minimum depth 1.5 feet. Earth drains where water velocity is less than 4 feet per second; concrete drains where velocity exceeds 4 feet per second.
3. Culverts: Minimum diameter for cross drains - 24"; Minimum diameter for side drains - 18".
4. Road Structural: 6 inch base course - optimum compaction 4 inch sub-base - CBR 8% plus.
5. Paving: Prime - MC-0 7 s.y. per gallon; Blot with sand or crusher run.

Final - MC-5 5 s.y. per gallon; Chips - 60 to 65 s.y. per c.y.

NOTE: Use DBST on tangents and curves below 10% gradient. On sharp bends and surfaces over 10% gradient use 1 1/2 inch asphaltic concrete.

These standards will be used as a guide to help assure consistency between the estimated cost of road work in the preliminary stage of project development and the final stage of preparing the Fixed Amount Cost Estimates just prior to construction. The standards will be applied to road rehabilitation in both St. Lucia and St. Vincent and can be varied as required for special circumstance, with RDO/C approval.

3. Selection of Equipment

Since the project will be carried out by force account, and the MCWs are basically dependent upon the equipment available in their respective Government Funding Schemes, an evaluation of their equipment inventories and condition was carried out by the consultants. The findings of the evaluation indicated that there was a serious shortage of certain types of road equipment in both GFSs, that other pieces were old and unreliable, and that while some equipment was available through private hire, it could not possibly supply all that was needed to carry out a large scale road rehabilitation project. In St. Vincent, there was the additional consideration that the BDD would be starting a road project in 1983, which would place a further demand on GFS equipment.

The items listed below are identified by the Mission as the minimum additional equipment necessary to insure that the project is completed on schedule without tying up GFS equipment needed to carry out routine maintenance operations. In a few instances it may also be necessary to rent a piece of equipment from private hire for a short period of time, but by and large, the present GFS inventories plus the AID-financed equipment will be adequate to carry out the activities as scheduled.

An equipment specialist will be hired for eight weeks as soon as the Project Agreement is signed, in order to help write specifications and begin procurement at the earliest possible date.

(a) St. Lucia

The equipment inventory of the Crown Agents Construction Management Unit (CMU) is growing but still not sufficient to perform construction and rehabilitation on a large scale basis. The unit has an immediate need for a 1,250 gallon asphalt distributor before January of 1983, which is the beginning of the next construction season when conditions should be ideal for surface treatment operation. CMU's existing distributor is 7 years old and no longer in a reliable condition. A distributor breakdown, since it is the main stay of any surface dressing operation, could greatly affect the progress of the road rehabilitation project on St. Lucia. A second 1,250 gallon asphalt distributor is necessary to deliver asphalt to the construction site. It will enable significant production increase, can be used as a mixing device at the bulk site, and provide a back-up unit should the other distributor breaks down.

The third equipment priority is an 8 to 10 ton steel roller with a vibrating front drum - and front and rear drive. This, and the other vibratory rollers listed below, are versatile units that can be used on both surface treatments and base compaction. The construction unit's other priority is a small industrial tractor with a front end loader. The tractor will be used mainly to pull a power broom to be purchased under an EDF grant.

The estimated equipment costs are as follows:

1) 2-	Asphalt Distributors, 1,250 gallon	\$ 100,000
2) 1-	Vibratory Roller, 8 ton	\$ 75,000
3) 1-	Tractor-Loader (Industrial 50-60 HP)	\$ 30,000
4) 1-	Vibratory Roller, Single drum	\$ 60,000
5) 2-	Self-propelled pedestrian vibratory rollers, fitted with breaker units and compressor	<u>\$ 16,000</u>
	Total with CIF	\$ 281,000
	12% spare parts	\$ 33,000
	10% for inflation	<u>\$ 31,000</u>
	TOTAL	\$ 345,000 =====

(b) St. Vincent

In its letter of application (See Annex A, Exhibit 1), the GOSL requested AID financing for a premix plant and crusher. Recently, OPEC has agreed to purchase both these pieces of equipment so that AID financing will address other needs.

Most important is the need for a large increase in aggregate production. St. Vincent has an abundance of aggregate resources, both from rock outcroppings and river deposits (which are continuously renewed as rains wash boulders down from higher ground), but they are also difficult to quarry. Outcroppings show no evidence of strata conducive to a ledging type quarry operation and deposits are interlaced with cracks and fissures running in every direction. Much of the blast energy is dissipated in the rock fissures and what rock does get dislodged is generally so large that it requires costly secondary blasting before it can be fed into the primary crusher. The difficulty in blasting rock deposits into a suitable size has resulted in low feed rates into the primary crusher and, ultimately, insufficient amounts of aggregate to maintain a satisfactory pace of road work. In order to increase existing crusher production a hydraulic impact tool will be purchased. This can be mounted on an existing JCB-5 excavator and used for quarrying and secondary boulder reduction. Field review of production increases and implementation of more efficient crusher delivery procedures will be used to get the existing Parker crusher up to capacity.

A second purchase will be an asphalt distributor to lay the double bituminous surface dressing. The distributors being used currently are not only very old and subject to breakdown, but have inefficient valve systems which do not close completely and permit tar to leak out.

Three new pedestrian double rollers will be provided. Presently GFS only has three, 8-year old single rollers, which are adequate for patching pot holes but not for road widening which requires the double rollers. A self-propelled vibratory roller will also be purchased. Right now there is only one 8-year old towed roller available for road maintenance work.

A mechanical broom will be purchased to enable more efficient sweeping of the roadways being rehabilitated. At present there is none on the island.

While GFS already has two loaders and some concrete dumpers, they are both old and insufficient in number to accommodate the increased level of road activities that will be taking place next year. In addition to routine maintenance work, the loaders and dumpers will be needed to help carry out the BDD road rehabilitation project on the windward coast as well as the AID project in the Mesopotamia Valley and to accommodate the increased production of aggregate that will be achieved with the new crusher. In order to assure that AID rehabilitation operations are carried out on schedule, four concrete dumpers and a 4-wheel drive loader will be purchased. The above list of equipment is the minimum which will be required in order for AID activities to proceed on schedule without tying up GFS equipment needed for routine maintenance.

The Government Funding Scheme in St. Vincent, which is receiving BDD assistance, is making good progress toward achieving viability as an equipment support facility, and does not require any direct AID assistance at this time. AID-financed equipment will be assigned on a priority basis for road rehabilitation activities under the project, although it may be turned over to the GFS after project completion to help with their maintenance operations. The following will be financed by AID:

1. Hydraulic Impactor	\$ 20,000
2. Asphalt Distributor	\$ 50,000
3. Pedestrian Rollers (3)	\$ 36,000
4. Concrete Dumpers (4)	\$ 30,000
5. Mechanical Broom	\$ 10,000
6. Vibratory Roller (6 ton)	\$ 60,000
7. 4 Wheel Drive Loader (2)	\$ 166,000
	<u>372,000</u>
Spare parts (12%)	45,000
Inflation (10%)	43,000
TOTAL	<u>\$ 460,000</u>

As part of its counterpart, the GOSV will contribute full-time use of a motor grader, bulldozer and Barber Green pavement spreader.

C. Economic Analysis

1. Macroeconomic Considerations

The project is expected to play a significant role in arresting the economic stagnation that has plagued St. Lucia and St. Vincent in recent years. The two states had been hard hit by natural disasters as well as the massive OPEC oil price increases and global recession. Growth rates have slipped; employment opportunities have fallen off; the balance of payments worsened, government finances have deteriorated; and inflation has spiralled upward. The program seeks to address two of these problems in particular: unemployment and balance of payments. By providing additional employment opportunities and strengthening the balance of payments, the project will directly contribute to sustained non-inflationary growth.

Although the economic performance of both states improved last year, unemployment is still a serious problem. At year-end 1981, the unemployment rate stood at 14.5 percent in St. Lucia and 11 percent in St. Vincent. The project will generate substantial employment in both states. Road rehabilitation activities in both states will be carried out using labor intensive methods. Construction technologies are also labor intensive and consequently, we estimate that as much as 35 percent of the road rehabilitation expenditures in both states will go for employment of local labor. This translates to \$1.5 million in St. Lucia and \$500,000 in St. Vincent. Given that these expenditures will take place over a two year period, almost 550 jobs will be created in St. Lucia and more than 300 in St. Vincent.* These data, however, account only for jobs generated directly by the program. Since the program is expected to have a positive impact on the overall economic performances of both countries, additional employment undoubtedly will be created.

The project is also expected to have a measurable impact on the countries' balance of payments. While a sizable portion of the foreign exchange that USAID is providing under the program will finance foreign currency costs to the extent that project funds are used to finance local currency costs, the program will have a positive impact on the balance of payments. Under the program, roughly \$7.5 million in foreign exchange will be provided; \$5.1 million for St. Lucia and \$2.5 million for St. Vincent. The grant will finance approximately \$5.8 million in road construction activities; \$800,000 in technical assistance; and \$850,000 in equipment and materials.

* Based on wage rates of \$6.70 per day in St. Lucia and \$3.70 per day in St. Vincent.

Almost all the monies allocated under the "technical assistance" and "equipment and materials" categories will fund foreign exchange costs. Of the funds provided under the "road rehabilitation" category, we estimate that roughly 40 percent, or \$2.3 million, will finance foreign exchange costs such as the purchase of asphalt. The remainder of road rehabilitation funds will be used for local costs. Hence, the program will have a net positive impact on the balance of payments, increasing foreign exchange reserves in St. Lucia by \$2.5 million and in St. Vincent by \$800,000.

2. Cost Benefit Analysis

To examine the economic feasibility of the proposed expenditures under this Project, cost-benefit analyses were carried out on the Vigie Highway and Mesopotamia-New Prospect Road in St. Vincent. In St. Lucia, three road segments were selected from the High Priority list of roads in Annex H: two feeder road segments (the Choc-Babonneau-Marquis and Roseau-Vanard) which are considered representative of the secondary roads to be rehabilitated, and the Vieux Fort-Soufriere portion of the West Coast Highway.

St. Lucia's Choc-Babonneau-Marquis Road is a 7.5 mile long secondary road (18 feet wide) which commences at Choc, off the Castries-Gros Islet Highway, and terminates at the junction of the Cacoli-Decarras road. This road serves one of the most agriculturally productive areas in St. Lucia and acts as a collector for all the feeder roads emanating from the productive areas of Americ, Nagere, Boguis, Grand Anse, Cacoli, Fond Cannie, and Fond D'Assau. Approximately 136 tons of bananas per week move over the Choc-Marquis road to Port Castries.

The Roseau-Vanard Road, a 2.3 mile, 16 foot wide link, commences at the junction with the Castries to Anse-la-Raye road and ends at the Sarot to Vanard road junction. An average of 59 tons of bananas per week moves down this road, which also serves the communities of Vanard, Durandean, Tete Cherrin, and JacMel. The area also produces coconuts, pineapples, citrus mixed fruit, vegetables and root crops.

The trunk road connecting Vieux Fort on the southern tip of St. Lucia with Soufriere 21 miles to the north, is an important section of the West Coast Highway, passing through two towns and areas of banana, coconut and citrus cultivation. Vieux Fort is the site of the country's major international airport, a free port, industrial estate, fishing center, and numerous hotels to service the tourist trade. Soufriere, situated almost mid-way between Vieux Fort and the capital of Castries, is also a major tourist attraction and located in an area of significant agricultural activity. Approximately 31 tons of bananas per week pass down this road destined for Vieux Fort.

The Vigie Highway in St. Vincent, is a 6 mile long main road (18 feet wide) which begins near the international airport at a junction of the Leeward Highway just north of Greathead (approximately one mile east of the capital, Kingstown) and goes northeast to Mesopotamia where it continues as the Mesopotamia Road. From the standpoint of commercial agriculture, the Vigie Highway serves the fertile Mesopotamia Valley and is one of the most important roads in the country. More than 50 million pounds of bananas were transported over the road in 1981. Moreover, in the lush agricultural areas traversed by the road, crops such as sweet potatoes, dasheens, coconuts, plantains, breadfruit and mangoes are grown, in addition to bananas.

St. Vincent's Mesopotamia Road is a 4 mile long road which begins as a continuation of the Vigie Highway and moves north and then directly east, intersecting the Windward Highway halfway between Cepas and Spring. The road, which carries substantial traffic is in the heart of some of the finest agricultural lands in the country. Last year, more than 20 million pounds of bananas were transported over the road. As in the case of the Vigie Highway, crops other than bananas are grown in areas adjoining the road, including arrowroot, plantains, breadfruit, mangoes, dasheen, coconut, and peanuts. The road also serves an arrowroot factory at New Prospect on the Windward Coast. St. Vincent is a leading producer of arrowroot, the source of a very high quality starch, but also one which quickly deteriorates after harvest. The improved roads will enable the harvested plant to be transported more rapidly to the processing factory and reduce losses caused by damage and deterioration.

Economic costs of a road rehabilitation program are comprised of two components: (a) the actual costs involved in rehabilitation activities and (b) the cost of maintenance required to keep the roads in good repair once rehabilitated. For both countries, economic costs, will diverge from financial costs. Each has a significant pool of unemployed and underemployed labor, and since labor to be used under this Project will draw away from that pool, financial costs of labor will overstate economic costs.

Benefits consist of user cost and production savings. User costs savings are the reduction in operating costs of vehicles as a result of the rehabilitation of roads and also include any time saved by road users. It is assumed, however, that any savings in time are negligible because the mountainous topography rather than road condition determines vehicle speed in both countries. Production savings include the positive impact that the improved roads would have on production. For both countries, these production savings will be primarily reductions in banana spoilage, although the road maintenance program will undoubtedly have a favorable impact on the production of other agricultural commodities, tourism and manufacturing activity, especially in St. Lucia.

Rates of return of 18, 12, and 28 percent were calculated respectively for St. Lucia's Choc-Babonneau-Marquis, Roseau-Vanard, and Vieux Fort-Soufriere roads. For St. Vincent rates of return of 28 percent for the Vigie Highway and more than 33 percent for the Mesopotamia Road were computed. (See Annex F for methodology of calculations). These data as well as the macroeconomic considerations detailed above, suggest that the project will have a positive economic impact.

D. Social Soundness Analysis

While specific or localized social impacts are difficult to isolate in road rehabilitation projects, it is anticipated that given the size of St. Lucia (233 sq.miles) and St. Vincent (150 sq.miles), and the mobility of their residents, that the entire island populations will benefit both directly (in the form of user cost savings), and indirectly from this project. Improvements in primary and secondary roads will permit increased and less costly movement to employment in the capital and industrial estates and in like manner facilitate travel to schools, health care facilities and other services. The area of social services becomes even more important in light of the average annual population increase of 3%. In economic terms, those who stand to benefit most are probably the farmers who will be using the improved roads to bring their produce to markets and to transport agricultural inputs to their farms.

Communities are typically involved in the Governments' force account road rehabilitation programs as they provide the principal source of unskilled labor. The local residents receive wages for this work, however, and there is no indication that they would favorably reconsider a contribution of their labor. The possibility of involving community volunteers in vehicle counts will be explored, however.

1. St. Lucia

In St. Lucia, the project will improve 16 feeder roads which are located throughout the island. Almost all of these roads serve land which is under intense banana cultivation and the productivity of which is measurably diminished by the damage incurred when the fruit is transported over rough roads to market points. Banana growers, particularly the small farmers located in the mountainous interiors, are frequently unable to harvest and transport their bananas down to the coast in time to meet the Geest boats (where they sell their crops) simply because the access roads are so deteriorated. The rehabilitation of these 16 feeder roads then, will directly benefit a significant number of banana growers in St. Lucia, especially those with small land holdings, by reducing losses in their banana production.

Almost half of the roadway rehabilitation in St. Lucia will take place on two primary roads. The 21 mile section between Vieux Fort and Soufriere is a part of the much traveled West Coast Highway, and the nine mile section between Castries and Dennery

forms part of the East Coast Highway. Both of these trunk roads are used by the entire island population, which will benefit in terms of user cost savings and the advantages of reduced travel time to the facilities and services located in urban centers. Greater economic benefits will pass to those who live in the areas traversed by the highways. In addition to the banana growers, particularly in the Castries-Dennery area, the citrus growers and vegetable farmers in the southwest coastal area will benefit by being able to transport their produce to market in less time and with less spoilage. Also located in the area are several cottage industries and tourist sites. The improved roads will directly benefit employees of these businesses as well as those with jobs in Vieux Fort, by reducing commuter costs.

2. St. Vincent

Proposed road rehabilitation activities in St. Vincent will focus on the Mesopotamia Valley: the Vigie Highway and its extension from Mesopotamia to New Prospect on the Windward coast. The Vigie Highway is a primary road and serves the Mesopotamia Valley, often referred to as the breadbasket of the island, where 40% of all banana production is located. The Vigie road also serves as a more direct and cheaper route than the Windward Highway for an additional 33% of the banana production located on the west coast. As such, the banana growers stand to derive the greatest economic benefits from rehabilitation of this highway. The Mesopotamia road also traverses an area of intense banana cultivation, mostly grown by small farmers on 4-5 acre plots. This same area is also the location of arrowroot cultivation, the second crop of St. Vincent, and an arrowroot processing plant in New Prospect. In addition to user cost savings which will accrue to the entire population, the banana and arrowroot growers will profit from reduced losses in spoilage of their crops and the ability to deliver them in a more timely fashion.

3. Women in Development

Statistical information about women in St. Lucia and in St. Vincent include the following:

	<u>St. Lucia</u>	<u>St. Vincent</u>
Total Population	125,000	120,000
Percent Women	52%	51%
Women in Labor Force	36%	34%
Family-Headed Households	41%	46%
Mean Size of Households Headed by Women	4.1%	4.9%

One of the characteristics of the female heads-of-households in both countries is a relatively low educational standard (i.e. primary level) and as a result, a tendency to work in occupations in which the wages are quite low. By definition, however, these women are primarily responsible for the economic support of their families.

In the St. Lucia Statistical Digest 1978/79, the percentages of females employed by economic sector were:

Agriculture	25%
Mining/Manufacturing	47%
Electricity	54%
Services	60%
Occupation not stated	80%

Characteristic in both islands is a high rate of female underemployment/unemployment, as well as a statistical underestimation of the productive work rural women perform.

While the impact of this project on women in St. Lucia and St. Vincent will be difficult to measure in quantitative terms, it will improve access to markets, agricultural centers, places of employment, and other locations difficult to reach due to poor road conditions. More specifically, the repairs to the Vigie Highway and Mesopotamia Road in St. Vincent will service the Mesopotamia Valley, a rich, fertile fruit and vegetable crop-growing area, as well as the main thoroughfare to the capital city and hub of commercial activity. In St. Lucia, the rehabilitation of feeder roads will improve the network serving rural areas throughout the island; the twenty miles of improved primary road on the Leeward side of the island will connect Vieux-Fort with Soufriere, which is an important tourist, agricultural, and cottage industry area; and the road link between Castries and Dennery will provide easier access to the agricultural lands and agro-processing center. The involvement and employment of women in all of these areas is important; and the refurbishing of the roadways will directly benefit women due to the increased efficiency in travel cost and time; the improved accessibility of women to various economic opportunities, services and supplies; and the resulting overall improvement in the standard of living.

E. Environmental Concerns

The approved Initial Environmental Examination (IEE) recommended a Negative Determination. The project consists of rehabilitation activities rather than new construction, and no long-term negative environmental impact is attributable to the project in either St. Lucia or St. Vincent. Environmental problems associated with the construction work itself will be contained and of short duration.

The road rehabilitation work will be carried out in accordance with the following environmental considerations:

- a) Drainage work should reduce erosion potential along the road and will use normal flow patterns;
- b) Work will be carried out using existing Government quarries which are being operated in accordance with sound environmental practices.

V. FINANCIAL ANALYSIS

A. Summary Financial Plan

The estimated total project cost of all activities in both St. Lucia and St. Vincent is \$8,915,000. Of this amount, AID will provide \$7,650,000 in grant funds which includes: \$7,410,000 for road and bridge rehabilitation; \$142,000 for short-term technical assistance; \$73,000 for operating expenses; and \$25,000 for project evaluation.

St. Lucia's in-kind contribution of \$800,000 assumes a 24 month implementation period and is as follows:

Crown Agent Contract	\$540,000
Personnel (Supervisor, 2 Foremen, 2 Technicians)	85,000
Overhead & Travel	<u>175,000</u>
	\$800,000

St. Vincent's in-kind contribution of \$465,000 assumes a 30 month implementation period and is as follows:

Construction Personnel (3 Engineers, 2 Foremen)	\$110,000
Operating Expenses (Rent, Vehicles & Drivers)	150,000
Equipment	<u>205,000</u>
	\$465,000

Project funds will be disbursed over a 36 month period. It will take a minimum of three months for the Project Manager and Construction Manager to be contracted and begin work. Because of the urgent need to begin work in St. Lucia at the earliest possible date, interim assistance will be provided through a short-term personal services contract as soon as the Grant Agreement with St. Lucia is signed.

In order for AID-financed equipment to arrive during the first construction season, an equipment specialist will be hired for eight weeks to help write the specifications and initiate procurement. The first four weeks of his services will be financed with PD&S funds so that he can be brought on board as quickly as possible. The last four weeks of his assistance will be grant-financed.

Summary Cost Estimate and Financial Plan
All Years (\$000)

	<u>AID</u>	<u>Host Country</u>	<u>Total</u>
<u>St. Lucia</u>			
1. Rehabilitation			
a. Road Construction*	4,455	-	4,455
b. Equipment	345	-	345
c. Construction Mgt.	240	540	780
Sub-total	5,040	540	5,580
2. Short-term T.A.	66	-	66
Inflation	5	-	5
3. Operating Expenses			
a. Personnel	-	85	85
b. Overhead, Travel	24	175	199
Sub-total	24	260	284
4. Evaluation	15	-	15
St. Lucia's Total	5,150	800	5,950
<u>St. Vincent</u>			
1. Rehabilitation			
a. Road Construction*	1,163	-	1,163
b. Bridge Rehab*.	294	-	294
c. Equipment	460	205	665
d. Construction Mgt.	368	-	368
e. Inflation	85	-	85
Sub-total	2,370	205	2,575
2. Short-term TA	66	-	66
Inflation	5	-	5
3. Operating Expenses			
a. Personnel	40	110	150
b. Materials, Supp.	9	150	159
Sub-total	49	260	309
4. Evaluation	10	-	10
St. Vincent's Total	2,510	465	2,965

PROJECT TOTAL	7,650	1,265	8,915
	=====		

* This includes labor, materials, other equipment, job-site overhead and approximately 13% for inflation.

B. Recurring Costs

St. Lucia is presently proposing an annual budget of \$2,590,000 for road maintenance, St. Vincent approximately \$1,185,000 with a commitment to increase the total to \$1,850,000. These budgets are considered adequate to carry out routine maintenance operations for each country's road network, based on the amount of \$7,000/mile of paved road in St. Lucia (\$8,000/mile in St. Vincent where costs ran higher) and \$2,000/mile of dirt road (\$2,600 in St. Vincent).

B. Project Management

An engineer will be contracted for 30 months to oversee and coordinate project activities in both countries. He will be based in St. Lucia, but will also spend about 12 months of his time in St. Vincent over the life of the project (focusing more on St. Vincent activities following the departure of the Construction manager from there at the end of 24 months). The Project Manager will be a Civil Engineer with experience in highway planning construction and maintenance, and in addition to overall coordination of project activities, will be responsible for short-term technical assistance arrangements, and certification of completed road work in St. Lucia. He will also assist the MCW in developing an implementation plan so that actual construction can begin. As liaison officer with USAID and MCW, he will be responsible for preparing monthly reports for submission to RDO/C and assisting the MCW in preparing quarterly progress reports for USAID review. The RDO/C Engineering Office will provide backstop assistance to the Project Manager, and on-site approval of certified road work for reimbursement under the FAR system. The engineering back-stop officer will make periodic trips to both St. Lucia and St. Vincent for this purpose.

Because it will take at least three months to complete the process of selection and contracting for consultant services, and because there is an urgent need to begin implementation as soon as the Grant Agreement is executed, USAID will hire a civil engineer by personal services contract for short term assistance. This interim Manager will be stationed in St. Lucia, and assist in the development of an implementation plan, so that rehabilitation activities can proceed immediately. It is anticipated that the Interim Manager will begin work in late October and remain for eight weeks. Between the time of his departure and the arrival of the contractor, RDO/C engineers will work with the MCW to avoid any delay in project implementation. An equipment specialist will also be brought on board for eight weeks beginning in September to write specifications and begin procurement of AID-financed equipment in order that it arrives during the first construction season.

C. Force-Account Construction

Two basic methods of carrying out the construction work were considered: contract and force-account (i.e. use of MCW personnel and equipment under the leadership of a management team). The nature of road work to be undertaken in the project, however, does not lend itself to performance by a private sector construction firm contracted under the competitive bidding system. The proposed rehabilitation activities include intensive patching, cleaning and repair of existing structures at various locations throughout the island, as opposed to new construction of a single road. This work is traditionally carried out by the government's public works department (i.e. Ministry of Communication and Works) which has the established capability to carry out road maintenance operations in separate parts of the country at the same time. Previous experience under the CDB feeder road project has shown that force account is the most appropriate method for carrying out road rehabilitation programs in St. Lucia and St. Vincent. Local contractors in the

area are small and do not have the capacity to handle large scale road projects, while tenders from international bidders have always been higher than the amounts budgeted for the work, generally due to their high mobilization costs. In addition, ineligible source contractors have participated in bidding in far larger numbers than U.S. firms. Using force account in St. Lucia, 18 miles of feeder roads were just completed on schedule under the CDB program. Although there was an 18% cost overrun, it was due to unforeseen excavation and drainage work which had not been provided for in the original engineering design. In an earlier project in Belize, using force account, the work was not only completed on schedule, but below the estimated cost.

The Mission also agrees with the host countries' stated preference for this method in terms of employment generation. The project will utilize labor intensive methods to carry out road rehabilitation activities and it is estimated that approximately 850 jobs will be created, primarily for unskilled workers. In addition, MCW personnel who will be working on the project as part of the host country's in-kind counterpart contribution (e.g. engineers, road supervisors, foremen, technicians) will be able to improve and expand their skills through on-the-job training and guidance provided by the Project Manager and Construction Engineer, and through the short-term technical assistance program.

D. Fixed Amount Reimbursement

A variation of the FAR method will be used for road rehabilitation activities in both St. Lucia and St. Vincent. Using this method, the amount of reimbursement for each segment of road rehabilitation is fixed in advance based upon reasonable cost estimates reviewed and approved by RDO/C. (The Project Manager, or Interim Manager as the case may be, will help the MCW prepare these estimates). Ordinarily, reimbursement is made after satisfactory completion of each segment, but in the immediate case where neither the Government of St. Lucia or St. Vincent has the budgetary resources to provide working capital to begin construction, AID will make an advance of funds for this purpose. Each host country, with the assistance of the Project Manager and Construction Manager, will submit an implementation plan for the construction year which identifies the road segments to be rehabilitated, with cost estimates, and the schedule for road work. As work is to begin on a given road segment, AID will provide an advance of funds in the amount necessary to initiate road work for that segment. Subsequent disbursements will be made on a monthly basis upon submission of vouchers for RDO/C approval, until the entire road segment is satisfactorily completed. At this time the total of the advances made will be deducted from the fixed amount agreed to, and a final payment of the outstanding amount reimbursed. The contractor will certify on each request for disbursements that the rehabilitation has been satisfactorily completed. RDO/C will approve final certification of each completed road segment and monitor interim progress.

The FAR system lends itself particularly well to construction projects which can be broken into physically discrete activities, such as in the case of sections of road work. It offers the host country greater ease and flexibility in carrying out the agreed activity and, for AID, avoids the need to monitor contractual procedures of the host country - as in the case of competitive bidding. Because the reimbursable amount for each section of road rehabilitation is established before work begins and not subject to change at a later date, the FAR system provides an additional incentive for the host country to complete the road work in a timely fashion and within the predetermined budget.

E. Project Evaluation

An interim evaluation is scheduled for January, 1984 and a final evaluation of the Project in August, 1985. Approximately \$25,000 has been allotted (\$15,000 for St. Lucia; \$10,000 for St. Vincent) to finance six person weeks of evaluation. Both AID/W TDY assistance and an engineering consultant will be utilized.

F. Conditions and Covenants

1. Conditions Precedent to Disbursement

Prior to any disbursement for project activities in St. Lucia, the Grantee shall submit to AID evidence that a contract with the Crown Agents for the management of construction and rehabilitation activities financed under the project has been expected.

2. Disbursement for Road Rehabilitation

(a) St. Lucia

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of roads, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID, an overall, time-phased implementation plan for all rehabilitation activities undertaken with project financing.

(b) St. Vincent

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of roads and bridges, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID:

- (i) An overall, time-phased implementation plan for all rehabilitation activities undertaken with project financing;

(2) Evidence of the establishment of a Project Management Unit which shall include a counterpart construction manager, a highway engineer, road overseers and such additional professional and technical staff as necessary to manage rehabilitation activities under the project; and

(3) A commitment to contribute in timely fashion for project implementation a bulldozer, motor grader and pavement spreader.

3. Disbursement for Individual Road Segments

Prior to any disbursement, or to the issuance of any documentation pursuant to which disbursement will be made for the rehabilitation of any individual road segment, the Grantees shall, except as the Parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID:

- (a) Detailed cost estimates and construction schedule;
- (b) Economic analysis evidencing a rate of return of no less than 10 percent; and
- (c) Certification that the Grantee has obtained appropriate rights of way.

4. Conditions Precedent to Procurement of Equipment

Prior to the commencement of any equipment procurement for road rehabilitation under the Project, the Grantees shall submit for AID approval a list of the proposed equipment with specifications.

5. Covenants

a. Except as AID may otherwise agree in writing, the Grantee - Government of St. Lucia covenants to:

- 1) Make available Government owned land or "borrow areas" necessary to supply aggregate materials required for road reconstruction activities under the Project;
- 2) Provide a minimum of the average expended for road maintenance in fiscal years 1980-1981 and 1981-1982 for annual road maintenance operations each year during the life of the Project;
- 3) Maintain and finance a contract with Crown Agents Ltd. for the management of project-financed rehabilitation activities for the life of the project;

- 4) In addition to the Crown Agent Construction Unit, provide such professional staff as necessary to manage and supervise project activities; and
- 5) Use AID-financed equipment solely for project activities until all road rehabilitation under the project is satisfactorily completed, after which time the equipment will be used on a priority basis for road maintenance and construction activities.

b. Except as AID may otherwise agree in writing, the Grantee - Government of St. Vincent covenants to:

- 1) Make available Government owned land or "borrow areas" necessary to supply aggregate materials required for road reconstruction activities under the Project;
- 2) Provide a minimum of the average expended for road maintenance in fiscal years 1980-1981 and 1981-1982 for annual road maintenance operations each year during the life of the Project;
- 3) Use AID-financed equipment solely for project activities until all road rehabilitation under the project is satisfactorily completed, after which time the equipment will be used on a priority basis for road maintenance and construction activities.
- 4) Maintain for the life of the project a Project Management Unit which shall include a counterpart Construction Manager, highway engineer, road overseers and such additional professional and technical staff as necessary to manage road rehabilitation activities under the project.



OFFICE OF THE PRIME MINISTER
SAINT VINCENT AND THE GRENADINES
WEST INDIES

June 17th, 1982.

Director, USAID
P.O. Box 302
Bridgetown
Barbados.

Dear Mr. Wheeler:

Productive Infrastructure
Rehabilitation Project

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During the past weeks meetings have been held together with representatives of your office and officials of our Government here in St. Vincent.

On the basis of these meetings a mutual plan of assistance in road rehabilitation and improved maintenance capability has been developed. The plan includes:

- i. Road rehabilitation;
- ii. Additional Equipment for road rehabilitation and maintenance;
- iii. Technical Assistance in Management, Procurement, etc.

St. Vincent and the Grenadines has an aggregate of six hundred and three (603) miles of motorable roads, ways and bye-ways. Of this total, three hundred and six (306) miles are provided with asphalt concrete surfacing. Some of these roads were built as long as thirty years ago, and whilst regular routine maintenance is carried out, the roads have outlived their design life and are suffering severely with age.

The topography of the islands indicates higher gradients than are technically acceptable, thus influencing the rate of wear on the pavement and erosion on the drains. As if to

/aggravate the ...

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Mr. W. Wheeler
Barbados.

June 17, 1982.

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road problem even further, our efforts in expansion of agriculture - viz, the re-introduction of cane-sugar, arrowroot expansion, a new Dairy Industry, banana and coconut improvements - have increased the load demand on already ageing pavements.

In order to obtain optimum returns from our efforts, crops must be taken to market at an economic transportation cost and in top quality. Roads, the only means of transport, must therefore be upgraded to withstand the heavier and increased loads.

My Government plans top priority on the plan for upgrading the remainder of the main or primary road system during the next two years. The Vigie Road from Cane Hall to Mesopotamia, the Mesopotamia/New Prospect/Biabou Road, the Leeward Highway from Layou to Richmond, the Vermont/Dalaway road and the Hermitage road form this system.

It is important also to include the fact that there is no public transport system in the State, and this function is provided entirely by private entrepreneurs. The cost of the service increases alarmingly with poor road conditions. Whilst bus and taxi owners appear to thrive on routes with good quality roads, others come to grief on bad roads/routes. The resulting pressures on Government become enormous.

Preliminary estimates for the plan outlined above are put at US\$5 million, made up as follows:

- | | | |
|----|--|----------------|
| 1. | Provide upgrading to Vigie road and bridges, ie 6 miles @ \$166,500.00 | US\$999,000.00 |
| 2. | Provide upgrading to Mesopotamia/Biabou road, i.e., 3 miles @ \$111,000.00 | 333,000.00 |
| 3. | Provide upgrading to Layou/Richmond road, i.e. 14 miles @ \$120,000.00 | 1,680,000.00 |
| 4. | Provide for Vermont Road i.e. 3 miles @ \$111,000.00 | 333,000.00 |
| 5. | Provide for Hermitage Road i.e. 3 miles @ \$111,000.00 | 333,000.00 |

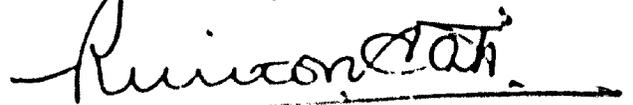
Mr. W. Wheeler
Barbados.

June 17, 1982.

6. Provide for Technical Assistance in Project Management, Preparation of Project, Equipment Procurement, and Operation Training, etc.	US\$450,000.00
7. Provide for supporting equipment, e.g. Premix Plant, Crusher, temporary bridgeworks, forms, etc.	650,000.00
Total	<u>4,778,000.00</u>
Say US\$5,000,000.00 with a 10% contingency.	

We hereby make formal request for financial assistance to develop and implement the proposed plan. Provision is being made in our 1982/83 estimates to meet the local counterpart funds necessary to implement the plan, and we look forward to a speedy response and the signing of a contract between our two Governments.

Yours sincerely,



R. MILTON CATO, P.C., M.P.
Prime Minister.

cc: Financial Secretary ;
Director of Planning;
Chief Engineer.

- 2 -

I know that you will give urgent consideration to the financing of this priority reconstruction and maintenance project and I look forward to holding further discussions with you on the question of a longer term road development programme.

In conclusion I must thank you for the speed with which you and your advisers have responded to our request for assistance in formulating this priority road project. I know that I can look forward to similar cooperation in the future.

Yours faithfully



John C. Leighton
Prime Minister

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TAGS:

SUBJECT: PRODUCTIVE INFRASTRUCTURE REHABILITATION PID

1. THE SUBJECT PID WAS REVIEWED AT THE DAEC MEETING HELD ON MAY 13, 1982. THE PID IS HEREBY APPROVED AND THE RDO/C IS AUTHORIZED TO DEVELOP AND APPROVE THE PP IN THE FIELD. DURING INTENSIVE REVIEW THE FOLLOWING POINTS SHOULD BE EXAMINED:

A. STRATEGY. THE PP SHOULD DEFINE IN GENERAL TERMS THE MISSION'S NEW BILATERAL AGRICULTURAL SECTOR STRUCTURAL ADJUSTMENT APPROACH AND DESCRIBE HOW THE PROPOSED PROJECT RELATES TO IT. THIS STRATEGY STATEMENT SHOULD BE INSTRUMENTAL IN SUGGESTING THE CRITERIA (SEE PARA B BELOW) TO BE USED FOR SELECTING ROAD SEGMENTS TO BE REHABILITATED.

B. SELECTION CRITERIA. THE PP SHOULD DISCUSS THE CRITERIA TO BE FOLLOWED IN SELECTING ROAD SEGMENTS TO

BE REHABILITATED UNDER THE PROJECT. UNDERSTAND THAT ROADS TO BE REHABILITATED WILL BE SELECTED DURING INTENSIVE REVIEW BY IOC CONTRACTOR AND WILL PRIMARILY SERVICE PRODUCTIVE AGRICULTURAL AREAS. CONCERN WAS EXPRESSED ABOUT THE OVERDESIGN OF ROAD UPGRADING AND IMPROVEMENTS UNDERTAKEN IN ST. LUCIA AND ST. VINCENT AS DESCRIBED IN PID. TO HELP SENSITIZE THE HOST COUNTRY INSTITUTIONS TO THIS ISSUE, MISSION SHOULD ATTEMPT TO DEVELOP A RELATIVELY SIMPLE SET OF CRITERIA WHICH WOULD ALLOW HOST COUNTRY OFFICIALS TO FAIRLY EASILY DETERMINE WHICH REHABILITATIVE TREATMENT IS APPROPRIATE FOR A ROAD OR SEGMENT. THESE CRITERIA MIGHT INCLUDE SUCH ITEMS AS TRAFFIC CHARACTERISTICS, MAINTENANCE CONSIDERATIONS, VULNERABILITY TO ADVERSE WEATHER. (FOR EXAMPLE, IF A ROAD SEGMENT HAD TRAFFIC OF NOT MORE THAN 20 VEHICLES PER DAY, THEN A GRAVEL TREATMENT WOULD BE INDICATED.) RESULTS OF THIS EFFORT SHOULD BE REPORTED IN THE PP.

C. ROAD MAINTENANCE. THE PROJECT SHOULD INCLUDE A COVENANT WHICH REQUIRES THAT, AT A MINIMUM, THE HOST COUNTRIES PROVIDE THE SAME LEVEL OF BUDGET RESOURCES FOR ROAD MAINTENANCE AS WAS PROVIDED IN THE RECENT PAST. HOWEVER, OTHER MECHANISMS SHOULD ALSO BE

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IDENTIFIED DURING INTENSIVE REVIEW TO HELP ASSURE ADEQUATE ROAD MAINTENANCE OF AID-FINANCED ROADS. TWO POSSIBILITIES WORTHY OF EXPLORATION ARE (1) INVOLVING THE INHABITANTS OF COMMUNITIES ADJACENT TO THE ROAD IN ITS MAINTENANCE, AND (2) MAKING EQUIPMENT AVAILABLE TO COMMUNITIES WHICH WOULD SELECT ONE OF ITS MEMBERS TO UNDERTAKE ROAD MAINTENANCE ACTIVITIES. RESULTS OF THIS EXAMINATION SHOULD BE INCLUDED IN THE PP.

D. EQUIPMENT POOL. DURING INTENSIVE REVIEW, MISSION SHOULD EXAMINE QUESTION OF HOW TO PUT THE PARTICIPATING COUNTRIES' ROAD EQUIPMENT POOLS ON A SELF-SUSTAINING BASIS. IF ADEQUATE ARRANGEMENTS CANNOT BE MADE TO IMPROVE THEIR OPERATION AND ASSURE THEIR VIABILITY, RDO/C SHOULD RECONSIDER THE IDEA OF PROVIDING ROAD MAINTENANCE EQUIPMENT TO THE COUNTRY EQUIPMENT POOLS. RESULTS OF THIS EXAMINATION SHOULD BE INCLUDED IN THE PP.

E. FUNDING. IN VIEW OF THE MIXED NATURE OF THE PROJECT (I.E., WITH BOTH AN AGRICULTURAL PRODUCTION AND TOURIST ENHANCEMENT TRUST) AND THE DIFFICULTIES THE PARTICIPATING LDC WILL FACE IN RAISING ITS COUNTERPART CONTRIBUTION (25 PERCENT REQUIREMENT WHEN AID FINANCES BILATERAL-TYPE, DA PROJECTS), THE PROPOSED PROJECT WOULD BE MORE APPROPRIATELY FINANCED WITH ESF FUNDS. THIS SUBJECT WILL BE ADDRESSED IN A SUBSEQUENT SEPTTEL.

F. MANAGERIAL ARRANGEMENT. BUREAU SUPPORTS PROJECT MANAGEMENT ALTERNATIVE IN WHICH RDO/C WOULD CONTRACT WITH ONE ENGINEERING FIRM THAT WOULD OVERSEE THE ROAD REHABILITATION PROGRAM IN THE PARTICIPATING COUNTRIES AND REPORT DIRECTLY TO RDO/C.

2. FYI: ALL LAC PID APPROVALS ARE NOW SUBJECT TO BUREAU REVALIDATION IF THE POST-PID PROJECT DEVELOPMENT PROCESS EXTENDS BEYOND ONE YEAR. STOESEL
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ANNEX C

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

I, William B. Wheeler, as Director of the Agency for International Development Regional Development Office/Caribbean having taken into account, among other things, the maintenance and utilization of projects in the Caribbean region previously financed or assisted by the United States, do hereby certify that in my judgement St. Vincent and St. Lucia have both the financial capacity and the human resources capability to effectively utilize and maintain goods and services procured under the proposed capital assistance grant project entitled Productive Infrastructure Rehabilitation.

This judgement is based upon the implementation record of externally financed projects including AID-financed projects, in St. Vincent and St. Lucia, the commitments from the Government of St. Vincent and the Government of St. Lucia, and the quality of the planning which has gone into this new project.

(Signed) William B. Wheeler
William B. Wheeler
Director

(Date) 17 September 1982

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

LIFE OF PROJECT:
FROM FY 82 TO FY 85
TOTAL U.S. FUNDING: \$7,650
DATE PREPARED:

PROJECT TITLE & NUMBER: Productive Infrastructure Rehabilitation

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																								
<p>Program of Sector Goals: The broader objective to which this project contributes:</p> <p>To increase per capita income in St. Lucia and St. Vincent.</p>	<p>Measures of Goal Achievement:</p> <p>Increase in productivity of population served by project area.</p>	<p>Annual statistical Government data.</p>	<p>Assumptions for achieving goal targets:</p> <ul style="list-style-type: none"> Government will remain stable and pursue economic growth. No major weather disaster. 																																								
<p>Project Purpose:</p> <p>To increase productivity in St. Lucia and St. Vincent, particularly in the agricultural sector, and to provide dependable access by road from productive areas to major population centers and ports.</p>	<p>Conditions that will indicate purpose has been achieved. End of project status:</p> <ul style="list-style-type: none"> Increased vehicular transport on project roads. Increased movement of agricultural and industrial goods. Decreased travel time on project roads. 	<ul style="list-style-type: none"> Ministry of Communications and Works reports. World Bank reports. Project evaluation. 	<p>Assumptions for achieving purpose:</p> <ul style="list-style-type: none"> Continued budgetary support by Governments of St. Lucia and St. Vincent. 																																								
<p>Outputs:</p> <ol style="list-style-type: none"> Rehabilitation of selected roads in St. Lucia and St. Vincent. Improved road maintenance capability in St. Lucia and St. Vincent. 	<p>Magnitude of Outputs by 1985:</p> <ol style="list-style-type: none"> Approximately 12 miles of roads in St. Vincent rehabilitated. Approximately 6.5 miles of roads in St. Lucia rehabilitated. Approximately 60 person months of technical assistance provided 20 pieces of road equipment purchased. 	<ul style="list-style-type: none"> Ministry of Communications and Works reports. Field inspections. Project Manager reports. Project evaluation. 	<p>Assumptions for achieving outputs:</p> <ul style="list-style-type: none"> Adequate pool of construction laborers and skilled personnel are available. Materials and equipment will be available within time and cost limits. 																																								
<p>Inputs:</p> <ol style="list-style-type: none"> Road Construction Equipment Construction Management Short-term Tech. Assist. Personnel, office support Inflation, evaluation <p>TOTAL</p>	<p>Implementation Target (Type and Quantity) All Years: (\$000)</p> <table border="1"> <thead> <tr> <th></th> <th>AID</th> <th>GOVL</th> <th>GOBY</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>1. Road Construction</td> <td>3,772</td> <td>-</td> <td>-</td> <td>3,772</td> </tr> <tr> <td>2. Equipment</td> <td>805</td> <td>-</td> <td>205</td> <td>1,010</td> </tr> <tr> <td>3. Construction Management</td> <td>628</td> <td>340</td> <td>-</td> <td>1,148</td> </tr> <tr> <td>4. Short-term Tech. Assist.</td> <td>132</td> <td>-</td> <td>-</td> <td>132</td> </tr> <tr> <td>5. Personnel, office support</td> <td>73</td> <td>260</td> <td>260</td> <td>593</td> </tr> <tr> <td>6. Inflation, evaluation</td> <td>28.0</td> <td>-</td> <td>-</td> <td>28.0</td> </tr> <tr> <td>TOTAL</td> <td>7,650</td> <td>800</td> <td>465</td> <td>8,915</td> </tr> </tbody> </table>		AID	GOVL	GOBY	TOTAL	1. Road Construction	3,772	-	-	3,772	2. Equipment	805	-	205	1,010	3. Construction Management	628	340	-	1,148	4. Short-term Tech. Assist.	132	-	-	132	5. Personnel, office support	73	260	260	593	6. Inflation, evaluation	28.0	-	-	28.0	TOTAL	7,650	800	465	8,915	<ul style="list-style-type: none"> USAID disbursement records Ministry of Communications and Works records. 	<p>Assumptions for providing inputs:</p> <ul style="list-style-type: none"> AID funds available as planned. Governments of St. Lucia and St. Vincent provide adequate budget support.
	AID	GOVL	GOBY	TOTAL																																							
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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
 AGENCY FOR INTERNATIONAL DEVELOPMENT
 WASHINGTON D C 20523

82-
 LAC/DR-IEE-27

ENVIRONMENTAL THRESHOLD DECISION

<u>Project Location</u>	St. Vincent, St. Lucia and Antigua
<u>Project Title and Number</u>	Productive Infrastructure Rehabilitation Program - St. Vincent, St. Lucia and Antigua 530-0082
<u>Funding</u>	\$5.2 million
<u>Life of Project</u>	24 months
<u>IEE Prepared by</u>	Brinley D. Selliah
<u>Recommended Threshold Decision</u>	Negative Determination
<u>Bureau Threshold Decision</u>	Concurrence with recommendation
<u>Action</u>	Copy to William Wheeler, Director KDO/C Copy to Brinley Selliah, KDO/C Copy to Larry Armstrong, LAC/DR Copy to IEE file

James G. Hester Date 6/29/82

JAMES G. HESTER
 Environmental Officer
 Bureau for Latin America
 and the Caribbean

Economic Cost Benefit Analysis

A. Methodology

Cost-benefit analyses were carried out on two primary roads in St. Vincent and St. Lucia, two feeder road segments (which are considered representative of the secondary roads to be rehabilitated), and a major trunk road. For the most part, a 20 year pay out period was used on the major trunk roads, while on the feeder roads a 15 year pay out period was considered more appropriate. Since real rates of return were calculated, all costs and benefits are quoted in 1982 U.S. dollars.

1. Benefits

Benefits from the road rehabilitation program were computed in two main areas--user costs savings and economic production gains. The road program will produce other benefits, including improvement in the government's finances, and social benefits such as better access to schools, more prompt medical and emergency services, greater accessibility to civic events, and improved living conditions. However, these are less important in economic terms and more difficult to quantify and will be excluded from economic analysis.

a. User Savings

User savings consist of the reduction in operating costs of vehicles as a result of the rehabilitation of the road. Operating cost savings depend primarily on the current state of the road and volume and make-up of traffic. Data used to calculate vehicle cost savings were taken from the TRRL Supplementary Report 527, prepared by Hide and Keith in 1979 for St. Vincent under the auspices of the U.K. Transport and Road Research Laboratory. The following savings in vehicle operating costs results from road rehabilitation are based on the assumption that surface roughness is reduced from 7,000 mm/km to 4,000 mm/km.

i) auto-light pick up	\$.081 per mile
ii) mini-bus (van)	\$.093 per mile
iii) truck	\$.093 per mile

These estimates were also used in cost-benefit analyses from St. Lucia, which has a similar economy.

b. Production Gains

Both countries have been incurring substantial losses from spoilage of bananas transported over their roads and in some instances, the disrepair has caused farmers to fail to even market their produce. Hence, total agricultural output should increase with the rehabilitation of the roads. As a conservative estimate of these production gains, the value of banana spoilage arising from the poor state of the roads was used. In those

- 2 -

instances where economic feasibility was justified on high user cost savings alone, production savings were not calculated.

c. Salvage Value

At the end of the pay out period, all the road segments that have been rehabilitated will have a salvage value. We are projecting the salvage value at 10 percent of initial construction costs.

2. Costs

With the exception of labor, economic costs of the road rehabilitation work are identical to financial costs. If the labor used on the project were drawn from the ranks of the unemployed and under employed, equating the financial costs of labor with economic costs would significantly overstate economic costs. Currently, St. Lucia's unemployment rate ranges between 15-25 percent while in St. Vincent the rate is 11 percent, which suggest that the economic costs of using labor are sharply lower than financial costs. As a percent of total costs, labor costs are roughly 35 percent. To be on the conservative side, it was assumed that half the labor would be drawn away from the ranks of the unemployed and underemployed. Consequently, half the labor costs were deducted from financial costs to derive economic costs.

In addition to labor, other rehabilitation costs include equipment, materials, construction management assistance provided to the MCWs to enable them to carry out the project-financed road rehabilitation, and host country operating expenses incurred in actually doing the work. Equipment costs for the rehabilitation program include three categories: (a) equipment which will be rented during the construction period; (b) equipment provided by USAID directly; and (c) in the case of St. Vincent only, the equipment provided by the host country for work on the project. Of the items appearing in the summary cost estimates of the Financial Analysis, the equipment that will be rented is included as a component of the item--"construction costs". The item--"equipment"--included equipment that USAID is providing under the project. However, the entire portion should not be included as a cost of rehabilitation since the equipment will have substantial salvage value after the actual road rehabilitation program is completed. To calculate that portion which should be allocated as rehabilitation expenditures, equipment rental rates were computed. The third category--equipment provided by the host country--can be found in the summary cost estimates as a St. Vincent counterpart contribution.

Maintenance costs were obtained from the two countries' governments and are based on past experience.

The following formula was used to calculate the economic costs of construction:

65% of financial costs for equipment and materials +
 $\frac{1}{2}$ x 35% of financial costs for labor + construction management + operating
expenses. This total was pro-rated according to road mileage.

Example: Vieux Fort - Soufriere Road (St. Lucia):

Financial cost (See Annex H)	\$1,301,500
Construction Management (See Summary Cost Estimate)	790,000
Operating Expenses	284,000
Equipment + Materials (.65 x 1,301,500)	845,975
Labor ($\frac{1}{2}$ x .35 x 1,301,500)	227,762
Construction Management + Operating Expenses $\frac{(790,000 + 284,000) \times 21}{65.7}$	343,287
Total	\$1,417,024

Spread over two years
 $\frac{1,417,024}{2} = \$708,512$

B. Road Segments**St. Lucia: Choc-Babonneau-Marquis Road****Costs**

The construction costs for the Choc-Babonneau-Marquis Road include rehabilitation of the 3.8 mile section between Babonneau and Marquis while the 3.7 mile section between Babonneau and Choc will be resurfaced only. The total economic cost is estimated to be \$393,496. Annual maintenance costs for drainage and patching are estimated to be \$58,927. In addition to this work, every seven years the road will require a greater surface treatment input which would increase the total maintenance cost to \$172,960 in that year.

Benefits

The traffic counts taken on June 24 and 25--week days--reveal an average daily traffic of 560. This figure was adjusted downward to reflect lower weekend traffic. Effectively the ADT base after adjustment becomes 528. A simple linear traffic growth function is conservatively estimated at 5 percent per year over the period. The bulk of the traffic increase will occur as a result of regional growth. Generated and diverted traffic are assumed to be negligible. The traffic count indicates that approximately 40 percent of the vehicles are cars-pick-ups and 60 percent are trucks and buses.

A rate of return of 18 percent was calculated. While including a salvage value calculated at 10 percent of the economic construction costs, the rate excludes any production savings arising from the reduction of losses in banana and other agricultural production from the road rehabilitation.

ST. LUCIA
CHOC-BABONNEAU MARQUIS ROAD:
ECONOMIC DATA

<u>Years</u>	<u>Average Daily Traffic</u>	<u>Economic Costs (US\$)</u>		<u>Economic Benefits (US\$)</u>	<u>Net Benefits</u>
		<u>Construction</u>	<u>Maintenance</u>	<u>User Cost Savings</u>	
1983	528	196,748*	- -	- -	-196,748
1984	554	196,748*	- -	- -	-196,748
1985	582		58,927	127,409	+68,482
1986	611		58,927	133,779	+74,852
1987	642		58,927	140,468	+81,541
1988	674		58,927	147,492	+88,565
1989	708		58,927	154,866	+95,939
1990	743		58,927	162,610	+103,683
1991	780		172,960	170,740	-2,220
1992	819		58,927	179,277	+120,350
1993	860		58,927	188,241	+129,314
1994	903		58,927	197,653	+138,726
1995	948		58,927	207,536	+148,609
1996	996		58,927	217,912	+158,985
1997	1,045		58,927	228,808	
Salvage Value				39,350)	+209,231

Economic rate of return: 18 percent

*Because of our treatment of labor, financial costs would be greater.

ST. LUCIA: ROSEAU-VANARD ROAD

Costs

The economic construction cost for the rehabilitation of the Roseau-Vanard Road is estimated at \$166,147. Annual maintenance costs for drainage and patching are estimated to be \$16,928. Every seven years in addition to these costs the road will require a surface treatment which would increase the total annual maintenance costs to \$51,888.

Benefits

Like the Choc-Babonneau-Marquis Road, per mile savings in motor vehicle operating costs arising from road rehabilitation are derived from the TRRL study. The traffic counts taken on June 24 and 25, 1982 reveal an ADT of 180. Traffic growth is conservatively estimated at 5 percent per year. Sixty-six percent of the vehicles are cars-light pick-ups and the remainder are trucks-buses. As a measure of production gains, reductions in banana spoilage were used. The reduction in losses from spoilage amount to 7 percent of banana production in the vicinity of the road, roughly 444,057 lbs or \$32,900 annually. A salvage value calculated at 10% of the economic construction costs has been included in the analysis.

A rate of return of 13 percent was computed.

ST. LUCIA
ROSEAU-VANARD ROAD: ECONOMIC DATA

<u>Years</u>	<u>Average Daily Traffic</u>	<u>Economic Costs</u> (US\$)		<u>Economic Benefits</u> (US\$)		<u>Net Benefits</u>
		<u>Construc- tion</u>	<u>Mainten- ance</u>	<u>User Cost Savings</u>	<u>Produc- tion Savings</u>	
1983	180	84,386*	-	-	-	-84,386
1984	189	84,386*	-	-	-	-84,387
1985	198		16,928	12,883	32,892	+28,847
1986	208		16,928	13,527	32,892	+29,491
1987	218		16,928	14,205	32,892	+30,169
1988	229		16,928	14,914	32,892	+30,878
1989	241		16,928	15,659	32,892	+31,623
1990	253		16,928	16,442	32,892	+32,406
1991	265		51,888	17,264	32,892	-1,732
1992	279		16,928	18,128	32,892	+34,092
1993	293		16,928	19,034	32,892	+34,998
1994	308		16,928	19,986	32,892	+35,950
1995	323		16,928	20,985	32,892	+36,949
1996	339		16,928	22,034	32,892	+37,998
1997	356		16,928	23,136	32,892)	
Salvage Value					16,877)	+55,977

Economic rate of return: 13 percent

* Because of our treatment of labor, financial costs would be greater.

ST. LUCIA: VIEUX FORT-SOUFRIERE ROAD

Costs

The economic construction cost for the rehabilitation of the 21 mile long Vieux Fort-Soufriere Road is \$1,417,024. Annual maintenance costs for drainage and patching are estimated to be \$231,840. Every seven years in addition to these costs, the road will require a surface treatment which would increase the total annual maintenance costs to \$710,640.

Benefits

Like the Choc-Babonneau-Marquis and Roseau-Vanard Roads, per mile savings in motor vehicle operating costs arising from road rehabilitation are derived from the TRRL study. The average daily traffic is estimated at 1,000 vehicles per day. Traffic growth is conservatively projected at 5 percent per year. We assume that 60 percent of the vehicles are cars light pick-ups and the remainder are trucks buses. Generated and diverted traffic are assumed to be negligible.

A rate of return of 28 percent was computed. This includes a salvage value calculated at 10% of the economic construction costs, but excludes any production savings arising from the reduction of losses in banana and other agricultural production from the road rehabilitation.

ST. LUCIA

VIEUX FORT-SOUFRIERE ROAD:
ECONOMIC DATA

YEAR	TRAFFIC	Economic Costs (US\$)		Economic Benefits (US\$)	
		CONSTRUCTION	MAINTENANCE	USER COST SAVINGS	NET BENEFIT
1983	1,000	708,512*	-	-	-708,512
1984	1,050	708,512*	-	-	-708,512
1985	1,102		231,840	624,555	+392,715
1986	1,158		231,840	655,783	+423,943
1987	1,216		231,840	688,572	+456,732
1988	1,276		231,840	721,001	+491,161
1989	1,340		231,840	759,151	+527,311
1990	1,407		231,840	797,109	+565,269
1991	1,477		210,640	836,964	+126,324
1992	1,551		231,840	878,812	+646,972
1993	1,629		231,840	922,752	+690,912
1994	1,710		231,840	968,891	+737,051
1995	1,796		231,840	1,017,335	+785,495
1996	1,886		231,840	1,068,202	+836,362
1997	1,980		231,840	1,121,612	
Salvage Value				141,702)	+1,031,474

Economic rate of return = 28%

*Because of our treatment

ST. VINCENT: VIGIE HIGHWAY AND
MESOPOTAMIA ROAD

Costs

The economic construction costs of rehabilitating the Vigie Highway and Mesopotamia Road are estimated to be \$1,057,290 and \$562,247, respectively. Annual maintenance costs for the 18 foot Vigie Highway for drainage and patching are estimated to be \$62,280; for the 12 foot Mesopotamia Road \$27,680. Every seven years, in addition to these costs, the roads will require a surface treatment which would increase the total annual maintenance costs to \$154,260 for the Vigie Highway and \$68,560 for the Mesopotamia road.

Benefits

As in the case of St. Lucia, per mile reductions in motor vehicle operating costs arising from road rehabilitation were derived from the TRRL study. Based upon field observations, the Vigie Highway carries approximately 1,670 vehicle ADT load, while the figure for the Mesopotamia Road is 1,600. For each segment, traffic growth is conservatively estimated at 3 percent per year. Information on traffic composition is not available. Hence, it is assumed for both roads that 60 percent of the vehicles are trucks, buses, and mini-vans while 40 percent are cars and light pick-ups.

It also is expected that the road rehabilitation work would yield production savings. Banana spoilage losses will be reduced and production stimulated. While estimates of banana spoilage losses range as high as 12 percent of overall banana production, it is expected that rehabilitation of the Vigie Highway and Mesopotamia Road to have only a modest impact. Most of the spoilage losses occur between the fields and boxing stations on feeder roads which are in serious disrepair.

Nonetheless, some losses do occur because of the current disrepair of the Vigie Highway and Mesopotamia Road. These losses are estimated at 1.5 percent of the bananas transported over the road segments. Roughly, 50 million pounds of bananas are transported yearly over the Vigie Highway; almost 22 million pounds on the Mesopotamia Road. Valuing the losses at the price to the grower-- 7 cents per pound, we obtain estimates of production savings of \$ 55,800 per year for the Vigie Highway and \$24,100 per year for the Mesopotamia Road. These estimates are conservative; they exclude the positive impact that the road rehabilitation work would have on production of bananas and other crops.

A rate of return of 28 percent was calculated for the Vigie Highway while a return of 33 percent was computed for the Mesopotamia Road.

ST. VINCENT

VIGIE HIGHWAY: ECONOMIC DATA

<u>Years</u>	<u>Average Daily Traffic</u>	<u>Economic Costs</u>		<u>Economic Benefits</u>		
		<u>(US\$)</u>		<u>(US\$)</u>		
		<u>Construc- tion</u>	<u>Mainten- ance</u>	<u>User Costs Savings</u>	<u>Production Savings</u>	<u>Net Benefits</u>
1983	1,670	528,645*	-	-	-	-528,645
1984	1,720	528,645*	-	-	-	-528,645
1985	1,772		62,280	322,384	55,800	+315,904
1986	1,825		62,280	332,055	55,800	+325,575
1987	1,880		62,280	342,017	55,800	+335,537
1988	1,936		62,280	352,277	55,800	+345,797
1989	1,994		62,280	362,846	55,800	+356,366
1990	2,054		62,280	373,711	55,800	+367,251
1991	2,116		154,260	384,943	55,800	+286,483
1992	2,179		62,280	396,491	55,800	+390,011
1993	2,244		62,280	408,387	55,800	+401,907
1994	2,312		62,280	420,638	55,800	+414,158
1995	2,381		62,280	433,257	55,800	+426,777
1996	2,452		62,280	446,255	55,800	+439,775
1997	2,526		62,280	459,642	55,800	+453,162
1998	2,602		154,260	473,432	55,800	+174,972
1999	2,680		62,280	487,635	55,800	+481,155
2000	2,760		62,280	502,263	55,800	+495,783
2001	2,841		62,280	517,332	55,800	+510,852
2002	2,928		62,280	532,852	55,800	
Salvage Value					105,729	+632,101

*Economic rate of return 28 percent

*Because of cost treatment of labor, financial cost would be greater.

ST. VINCENTMESOPOTAMIA ROAD: ECONOMIC DATA

<u>Years</u>	<u>Average Daily Traffic</u>	<u>Economic Costs</u>		<u>Economic Benefits</u>		
		<u>(US\$)</u>		<u>(US\$)</u>		
		<u>Construc- tion</u>	<u>Mainten- ance</u>	<u>User Costs Savings</u>	<u>Production Savings</u>	<u>Net Benefits</u>
1983	1,600	281,123*	-	-	-	-281,123
1984	1,648	281,124*	-	-	-	-281,124
1985	1,697		27,680	205,914	24,100	+202,334
1986	1,748		27,680	212,091	24,100	+208,511
1987	1,801		27,680	218,454	24,100	+214,874
1988	1,855		27,680	225,008	24,100	+221,428
1989	1,910		27,680	231,758	24,100	+228,178
1990	1,986		27,680	238,710	24,100	+235,130
1991	2,027		68,560	245,872	24,100	+201,412
1992	2,088		27,680	253,248	24,100	+249,668
1993	2,150		27,680	260,847	24,100	+257,267
1994	2,215		27,680	268,671	24,100	+265,091
1995	2,281		27,680	276,731	24,100	+273,151
1996	2,350		27,680	285,032	24,100	+281,452
1997	2,420		27,680	293,584	24,100	+290,004
1998	2,493		68,560	302,391	24,100	+257,931
1999	2,568		27,680	311,463	24,100	+307,883
2000	2,645		27,680	320,807	24,100	+317,227
2001	2,724		27,680	330,431	24,100	+326,851
2002	2,806		27,680	340,344	24,100	
Salvage Value					56,224	+392,988

Economic rate of return: In excess of 33 percent

*Because of our treatment of labor, financial cost would be greater.

() **5C(2) PROJECT CHECKLIST**

Listed below are statutory criteria applicable generally to projects under the FAA and project criteria applicable to individual funding sources: Development Assistance (with a subcategory for criteria applicable only to loans); and Economic Support Funds.

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

A. GENERAL CRITERIA FOR PROJECT

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

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

A Congressional Notification has been forwarded to Congress.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,00, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Yes.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? No further legislative action is required.
4. FAA Sec. 611(b); FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? N/A.
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? Yes.
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. This is a regional Project.

7. FAA Sec. 601(a).
Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

The Project will rehabilitate key sections of the countries' national road sections and, as such, will directly support a,b,d and e.

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8. FAA Sec. 601(b).
Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

U.S. goods and services will be used in the Project as appropriate

9. FAA Sec. 612(b), 636(h);
PY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

The host country is providing staff, equipment and related support for the Project.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?
11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?
12. FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?
13. FAA 118(c) and (d). Does the project take into account the impact on the environment and natural resources? If the project or program will significantly affect the global commons or the U.S. environment, has an environmental impact statement been prepared? If the project or program will significantly affect the environment of a foreign country, has an environmental assessment been prepared? Does the

No.

Yes.

N/A.

N/A.

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

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

N/A.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

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

N/A

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?

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

N/A.

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

N/A.

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

N/A.

e. FAA Sec. 110(b).
Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"?

N/A

f. FAA Sec. 122(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?

N/A

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

N/A

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b).
Information and conclusion on capacity of

N/A

the country to repay the loan, at a reasonable rate of interest.

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

N/A

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

N/A

3. Project Criteria Solely for Economic Support Fund

- a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 1027
- b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?
- c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance

Yes.

No.

No.

of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?

- d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? N/A

ANNEX HST. LUCIAExhibit 1PRIORITY OF ROADS PROPOSED FOR REHABILITATION

	<u>MILES</u>	<u>ESTIMATED COST (\$)</u>
<u>Group No. 1 (High Priority)*</u>		
<u>Feeder Roads:</u>		
1. Choc - Barbanneau	3.7	73,000
2. Nagere - Boquis	2.7	212,000
3. La Croix - Odsan	3.0	194,500
4. Roseau - Vanard	2.3	159,000
5. Trois Freres	1.6	97,000
6. La Borne	1.5	174,500
7. Thomazo	1.5	94,000
8. Belle Plain - Morne Bonin	1.8	119,000
9. La Ressource - Dernier Riviere	1.0	78,000
10. Des Rameaux - Nagere Link	0.7	60,500
11. Mongiraud - Monchy	2.4	149,500
12. Volet - Mahaut	3.0	159,500
13. Savanne George - Delcer	3.2	302,000
14. Fond St. Jacques - Migny	3.3	181,000
15. Canaries Valley	2.0	281,500
16. Grand Riviere - Morne Panache	2.0	254,500
<u>Primary Roads:</u>		
1. Castries - Dennery	9.0	423,000
2. Vieux Fort - Soufriere	21.0	1,301,500
TOTAL	65.7	4,314,000
<u>Group No.2 (Medium Priority)</u>		
1. St. Joseph - Pillet	2.5	234,500
2. Dennery - Vieux Fort	18.5	588,500
3. Forestiere - Genseau	2.0	173,800
4. Barbanneau - Marquis	3.8	208,100
5. Millet - Venus	1.6	135,600
6. Aux Lyon	2.1	124,300
7. Deux Bronches - Basil	1.0	139,000
8. Diamond - Esperance	2.0	116,600
9. Gadette	0.7	41,100
TOTAL	34.2	1,761,500
<u>Group No. 3 (Low Priority)</u>		
1. Monier - Grand Riviere	1.0	46,900
2. Genseau - Tirocher - Victoria	2.0	137,400
3. Richford - Grande Ravine	2.1	84,300
4. Ravine Noel	2.2	145,300
5. Le Blanc	1.2	117,000
6. Chateau Beloire	1.2	112,000
7. Bocage Girard	1.3	64,000
TOTAL	11.0	706,900
TOTAL OF ALL ROAD SEGMENTS	110.9 miles	6,782,400

*Cost estimates for Group 1 include deduction for value of AID - financed equipment

ANNEX H

Exhibit 1

CONSTRUCTION COST ESTIMATESST. LUCIAUS\$A. Feeder Roads

1. Nagere - Boguis (2.7 miles)	
Preliminaries 1)	2,222
Bush clearing and drainage	1,256
Scarification	7,822
Lay & compact 4" base material	39,111
Prime & surfacing	78,222
Inflation 2)	12,863
Job site overhead 3)	21,224
0.7 Miles from Chaubourg	<u>59,630</u>
	222,350
Less value of AID financed equipment	<u>-10,800</u>
	TOTAL
	211,550
2. Mongiraud - Monchy (2.4 miles)	
Preliminaries	5,926
Cutlassing and redigging drains	2,356
Rectifying surface	62,578
Prime and surfacing dressing	54,756
Inflation	12,561
Job site overhead	<u>20,726</u>
	<u>158,903</u>
	<u>-9,600</u>
	TOTAL
	149,303
3. La Croix - Odsan (3.0 miles)	
Preliminaries	2,778
Bushing and drainage	1,472
Clearing slides and reducing verges	3,333
Scarification of base	5,221
Lay and compact new base	31,328
Pre-mix patching	26,106
Prime and double surface dressing	92,873
Inflation	16,311
Job site overhead	<u>26,913</u>
	206,335
	<u>-12,000</u>
	TOTAL
	194,335

-
1. Preliminaries or setting up costs, include the construction of site offices, huts, kitchen facility or any building necessary to store equipment or otherwise support job-site construction; the installation of fuel tanks and purchase of small tools.
 2. An inflation factor of 10% has been added to all estimates.
 3. Job site overhead of 15% has been included in all estimates.
 4. The value of AID financed equipment, based on local rental rates, has been subtracted from all estimates.

ANNEX H

Exhibit 1

4. Roseau - Vanard (2.3 miles)	
Preliminaries	2,222
Bushings and reinstatement of drains	2,259
Patching with premix	128,096
Inflation	13,258
Job site overhead	21,875
	<u>167,710</u>
	<u>-9,200</u>
	158,510
5. Canaries Valley Road (2.0 miles)	
Preliminaries	6,481
Clear vegetation and top soil	8,683
Earthwork	40,337
Base work	59,303
Drainage and culverts	15,126
Masonry headwalls	29,630
Prime and surfacing	69,619
Inflation	22,917
Job site overhead	37,098
	<u>289,194</u>
	<u>-8,000</u>
	281,194
	TOTAL
6. Grande Riviere - Morne Penache (2.0 miles)	
Preliminaries	3,704
Bushings and grubbing	2,222
Excavation	37,132
Re-dig side drains	5,867
Install culverts and masonry headwalls	29,630
Base work	59,176
Prime and surface dressing	69,619
Inflation	20,735
Job site overhead	34,213
	<u>262,298</u>
	<u>-8,000</u>
	254,298
	TOTAL
7. Trois Freres (1.6 miles)	
Preliminaries	1,852
Bushings	1,296
Excavation	13,902
Re-dig side drains	4,804
Base work	21,381
Masonry headwalls	8,519
Prime and surface dressing	29,630
Inflation	8,127
Job site overhead	13,410
	<u>102,921</u>
	<u>-6,400</u>
	96,521
	TOTAL

ANNEX H

Exhibit 1

8. La Resource - Derniere (1.0 miles)	
Preliminaries	1,852
Bushing and drainage	2,222
Base work	27,333
Prime and surface	33,333
Inflation	6,474
Job site overhead	10,682
	<u>81,896</u>
	<u>- 4,000</u>
	<u>77,896</u>
	TOTAL
9. La Borne Road (1.25 miles)	
Preliminaries	3,704
Cutlassing and earthwork	42,484
Drains, culverts and masonry headwalls	11,500
Base work	40,567
Prime and surface dressing	43,511
Inflation	14,177
Job site overhead	23,391
	<u>179,334</u>
	<u>- 5,000</u>
	<u>174,334</u>
	TOTAL
10. Volet - Mahaut (3.0 miles)	
Preliminaries	5,556
Cutlassing and excavation	7,822
Re-dig drains	4,400
Raising 200 ft. of flooded roadway	12,128
Patching potholes	36,667
Prime and surface dressing	68,444
Inflation	13,501
Job site overhead	22,778
	<u>171,296</u>
	<u>-12,000</u>
	<u>159,296</u>
	TOTAL
11. Desrameau - Nagere Link (0.7 mile)	
Preliminaries	2,222
Clearing and grubbing	3,010
Earthwork	2,667
Drains and culverts	1,511
Base work	13,004
Prime and surface dressing	27,378
Inflation	4,981
Job site overhead	8,219
	<u>62,992</u>
	<u>- 2,800</u>
	<u>60,192</u>
	TOTAL

Exhibit 1

12. Savanne George - Delcer (3.2 miles)	
Preliminaries	5,556
Bushing	2,222
Drain and culvert rehabilitation	45,849
Scarification	33,417
Lay and compact base	83,542
Prime and surface dressing	77,972
Inflation	24,856
Job site overhead	<u>41,012</u>
	314,426
	<u>-12,800</u>
	TOTAL 301,626
13. Belle Plain - Morne Bonin (1.8 miles)	
Preliminaries	3,148
Clearing and grubbing	5,867
Re-dig drains	3,697
Scarification	4,889
Lay and compact base	24,444
Patching potholes	9,778
Prime and surface dressing	47,911
Inflation	9,973
Job site overhead	<u>16,456</u>
	126,163
	<u>- 7,200</u>
	TOTAL 118,963
14. Fond St. Jacques - Migny (3.3 miles)	
Preliminaries	5,556
Clearing and grubbing	4,302
Clear drains	4,840
Patching	48,400
Surfacing	90,356
Inflation	15,345
Job site overhead	<u>25,320</u>
	194,119
	<u>- 13,200</u>
	TOTAL 180,919
15. Thomazo Road (1.5 miles)	
Preliminaries	2,778
Clearing and grubbing	3,911
Re-dig drains	2,200
Patching	18,333
Bridge repair	17,556
Surfacing	34,222
Inflation	7,900
Job site overhead	<u>13,035</u>
	99,935
	<u>- 6,000</u>
	93,935

ANNEX H

Exhibit 1

B. Primary Roads

1. East Coast : Castries - Dennery Segment (9.0 miles)

Completion of gabion wall at Basse - de l'isle slip	140,100
Patching	61,600
Surface dressing	187,733
Repainting Lines	14,060
Inflation and job site overhead	<u>55,507</u>
	459,000
	<u>-36,000</u>
TOTAL	423,000

2. West Coast Road: Vieux Fort - Soufriere (21 miles)

Cutlassing and drainage	13,191
Patching with premix	308,000
Complete diversion to Covine Bridge	14,815
Complete Laborie by-pass	101,852
Surface dressing	657,067
Inflation	109,493
Job site overhead	<u>180,663</u>
	1,385,081
	<u>- 84,000</u>
TOTAL	1,301,081

ANNEX H

Exhibit 2

CONSTRUCTION COST ESTIMATESST. VINCENT

	<u>US\$</u>
1. <u>Vigie Highway</u> (width 20 feet) 6 miles at \$118,000 per mile	708,800
Police Station Bridge	120,370
DaCosta Bridge	23,000
Mesopotamia Bridge	<u>30,000</u>
Sub-Total	882,170
2. <u>Mesopotamia - New Prospect Road</u> - 4.0 miles	
Mesopotamia to Montreal section (width 20 feet) 0.5 mile at \$118,000 per mile	59,000
Montreal to Mile 6 section (width 12 feet) 1.1 miles at \$79,600 per mile	87,560
Mile 6 to New Prospect section (width 8 feet) 2.4 miles at \$61,800 per mile	148,320
Hopewell Bridge	<u>120,370</u>
Sub-Total	415,250
3. <u>Layou Hill - Mt. Wynne</u>	
2.0 miles at \$79,600 per mile	159,200
TOTAL	<u>1,456,620</u> *****

Road Rehabilitation costs total \$1,162,880
 Bridge Rehabilitation costs total 293,740

Note: Cost estimates include 10% for inflation plus 10% for job site overhead.

CONSTRUCTION COST ESTIMATES*

BILLS OF QUANTITIES

FOR

UPGRADING 1 MILE OF 12 FOOT WIDE ROAD

(ST. VINCENT)

ITEM	QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	COST
1	7040	Sq. Yard	Cutlassing and Cleaning	.40	\$ 2,816
2	900	Cubic Yard	Excavation	2.90	2,610
3	1760	Linear Yard	Re-Establish Side Drains	1.20	2,112
4	7040	Sq. Yard	Grading	.40	2,816
5	350	Linear Yard	P.C.C. Drains	20.00	7,000
6	4	Sets	2 ft. Conc. Culverts	800.00	3,200
7	775	Cubic Yard	Base Gravel (4"thick)	20.00	15,500
8	7040	Sq. Yard	Prime Coat	1.60	11,264
9	7040	Sq. Yard	Double Surface Dressing	2.90	20,416
10	200	Cubic Yard	Rubble Masonary Wall	49.00	9,800
11	3520	Linear Yard	Verging (Shoulder to Drain)	.37	1,304
			Inflation (10%)		7,862
					\$86,700
			Value of equipment donated by AID and GOSV.		-7,100
			TOTAL		\$ 79,600

Average Cost for:

8' Road = \$ 61,800
16' Road = \$ 97,600
20' Road = \$118,000

These estimates take into account quantities adjusted for varying widths

*These estimates include 10% for job site overhead, and 10% for inflation.

ROAD SELECTION FORMULA

(St. Vincent)

$$\frac{(B + S) + \frac{VPD}{1000} + \frac{Ban./Prod.}{10}}{2.5} = \text{Priority Points}$$

B = Base Condition (Satisfactory = 1; Fair = 1.5;
Poor = 2)

S = Surface Condition, (Satisfactory = 1; Fair = 1.5;
Poor = 2)

VPD = Vehicles per day

Ban./Prod. = Banana Production in millions of pounds per year
(Bananas were used as a productivity indicator
because they are St. Vincent's major crop and
foreign exchange earner).

Applying this formula, the Vigie Highway received 4 points, the Mesopotamia-New Prospect road 3, and the other roads ranged between 1 and 2 points.

VALUE OF EQUIPMENT CONTRIBUTIONS

For one mile of 12 foot wide road

1. St. Vincent: AID-Financed Equipment

Bitumen Distributor (56-40) 5.92x8x5 2.7	\$ 236.80
Pedestrian Rollers (3) 1.85x3x8x20	888.00
Concrete Dumpers (4) 1.48x4x8x20	947.20
Mechanical Broom 1.50x8x10	120.00
Vibratory Roller 3.70x8x20	592.00
	<u>\$ 2784.00</u>

GOSV Contribution - Equipment

Motor Grader 19x8x10	1520.00
D-6 Tractor 20x8x10	1600.00
Barber Green Paver 15x8x10	1200.00
	<u>\$ 4320.00</u>
TOTAL = \$ 7104/mile	<u>\$ 4320.00</u>

2. St. Lucia: AID-Financed Equipment

Bitumen Distributors (2 No) 7.03x2x8x5 18 2.7x2	562.40
Vibratory Roller (SW) 16.66x8x10	1332.80
Tractor Loader 3.70x8x10	296.00
Vibratory Roller (RW) 16.66x8x10	1331.80
Pedestrian Vibratory Roller (2 No) 2.96x2x8x10	473.60
	<u>\$ 3997.60</u>
or \$4000/mile	<u>\$ 3997.60</u>

Note: The rates set against equipment contributed by AID reflect ownership costs only.

DRAFT SCOPE OF WORK FOR PROJECT MANAGERA. Objective

The Project Manager will provide the overall management and coordination of activities required for implementation of the Productive Infrastructure Rehabilitation Project.

B. Productive Infrastructure Rehabilitation Project

RDO/C will provide the Project Manager with general guidance in his work in assisting the Governments of St. Lucia and St. Vincent to implement the Project. The purpose of the Project is to increase productivity in St. Vincent and St. Lucia, particularly in their agricultural sectors, and to provide dependable access by road from productive areas to major population centers and ports. To assist the governments in achieving this objective, the Project will provide assistance in rehabilitation of primary and feeder roads, or sections thereof, which are the key to economic productivity in each country. The Project will also provide equipment and the long-term and short-term technical assistance necessary to carry out road rehabilitation activities.

Project activities shall be implemented through the Ministry of Communication and Works in each country and administered by the MCW designee in coordination with the Project Manager.

C. Role of the Project Manager (PM) - 30 months

The Project Manager will be a senior professional engineer with at least 15 years of experience in the administration of highway programs including transportation planning, budgeting and the development of annual road maintenance programs. His experience should include work in the LDCs. The Project Manager's duties and responsibilities will include:

(1) coordinate overall project implementation in both St. Vincent and St. Lucia. (A full-time Construction Manager will be separately contracted for work in St. Vincent, and the Project Manager will be responsible for ensuring consistency of project activities in both countries);

(2) provide technical assistance to the Minister of MCW or his designee in the administration of project-financed road rehabilitation activities in each country;

(3) coordinate the procurement of equipment and commodities funded by the Project;

(4) assist in the identification of short-term technical assistance needs and resources;

(5) develop a plan and schedule for road rehabilitation activities under the St. Lucia Grant Agreement for the Project;

- 2 -

(6) certify that the cost of Fixed Amount Reimbursement (FAR) road rehabilitation work is reasonable and accurate;

(7) certify that the work is satisfactorily completed; and

(8) keep RDO/C continuously informed of project progress and problems, and assist the MCW in the preparation of quarterly reports and other documents required for project implementation.

The Project Manager will be based in St. Lucia, but will spend up to 40 percent of his time in St. Vincent to assure overall project coordination.

D. Role of the Interim Project Manager (IPM) - 2 months

In order to assist the Government of St. Lucia to begin road rehabilitation work as soon as possible, RDO/C will provide an Interim Project Manager soon after the Grant is signed. He will carry out the duties of the Project Manager as described above, until the long-term Project Manager is available.

E. General

The Project Manager's contract will provide for necessary intra-island transportation and travel between St. Vincent and St. Lucia. The contract will include office support in St. Lucia, and some equipment necessary to carry out soils and materials tests in the Government laboratory (estimated at approximately US\$10,000).

DRAFT SCOPE OF WORK FOR THE CONSTRUCTION MANAGERA. Objective

The Construction Manager (CM) will provide technical assistance required for implementation of the Productive Infrastructure Rehabilitation Project in St. Vincent.

B. Productive Infrastructure Rehabilitation Project - St. Vincent

The Project Manager will provide the Construction Manager with general guidance in his work in assisting the Government of St. Vincent to implement the Project. The purpose of the Project is to increase productivity in St. Vincent, particularly in the agricultural sector, and to provide dependable access by road from productive areas to major population centers and ports. To assist the government in achieving this objective, the Project will provide assistance in rehabilitation of primary and feeder roads, or sections thereof, which are the key to economic productivity in St. Vincent. The Project will also provide equipment and the long-term and short-term technical assistance necessary to carry out road rehabilitation activities.

Project activities shall be implemented through the Ministry of Communication and Works and administered by the MCW designee in coordination with the Construction Manager.

C. The Role of the Construction Manager (24 months)

The Construction Manager will be a registered Engineer with a degree in Engineering and at least ten years of experience in highway construction. He will be located in St. Vincent and will work with the Chief Engineer, Ministry of Communication and Works, in the administration and implementation of road rehabilitation activities under the Project. Rehabilitation work consists of base course and sub-base repair, improved drainage and road surfacing or resurfacing with some minor bridge repair work. This work will be done by force account using the MCW staff, Government equipment and necessary day laborers. The Fixed Amount Reimbursement (FAR) method of payment will be used. Specifically the Construction Manager will:

- (1) develop a plan and schedule for road rehabilitation activities under the project;
- (2) certify that the cost of FAR rehabilitation work is reasonable and accurate;
- (3) certify that the work is satisfactorily completed;
- (4) coordinate all necessary resources for each road and road segment selected for rehabilitation;
- (5) provide over all supervision of road rehabilitation;

(6) assist the MCW field engineer in carrying out inspection quality controls measures;

(7) supervise a part-time accountant to assure accurate records for cost accountability;

(8) assist in the preparation of periodic progress reports and other documents required for project implementation; and

(9) provide general support to the Project Manager as required.

D. General

The Construction Manager will provide a secretary, part time accountant, equipment and supplies as needed.

DRAFT SCOPE OF WORK FOR THE EQUIPMENT SPECIALISTA. Objective

The Equipment Specialist will provide all technical assistance required for procurement of equipment under the Productive Infrastructure Rehabilitation Project.

B. Productive Infrastructure Rehabilitation Project

RDO/C will provide the contractor with general guidance in his work in assisting the Government of St. Lucia and St. Vincent to implement the Project. The purpose of the Project is to increase productivity in St. Vincent and St. Lucia, particularly in the agricultural sector, and to provide dependable access by road from productive areas to major population centers and ports. To assist the governments in achieving this objective, the Project will provide assistance in rehabilitation of primary and feeder roads, or sections thereof, which are the key to economic productivity in each country. The Project will also provide equipment and the long-term and short-term technical assistance necessary to carry out road rehabilitation activities.

Project activities shall be implemented through the Ministry of Communication and Works in each country and administered by the MCW designee in coordination with the Project Manager.

C. Role of the Equipment Specialist (4 weeks)

The contractor will provide the MCW with the technical assistance and support necessary to procure the road building equipment. Technical assistance was provided earlier by RDO/C to assist the Governments in preparing Invitations for Bids (IFB). Sealed bids for the equipment will be received by the DR/Engineer Office in AID/W. The contractor will proceed to St. Lucia and St. Vincent by way of AID/W, where he will pick up the sealed bids and hand carry them to the respective governments. The contractor will then proceed to work with both Governments as follows:

(1) sit as a non-voting member of pre-arranged selection committees made up of Government representatives to nominate suppliers;

(2) assist the committees with the rating of bids in accordance with the conditions of the IFBs;

(3) assist the Governments in the preparation of a letter, prepared in accordance with the terms of the Grant Agreement, requesting RDO/C approval of the suppliers nominated by the committees;

(4) prepare letters from the Governments to all suppliers who submitted IFBs, informing them as to whether they were or were not successful;

(5) assist RDO/C in a review of the letter, described in paragraph 3 above; and

(6) assist RDO/C in the preparation of messages to the successful bidders with regard to the terms of payment for approval suppliers.

D. General

Office space and secretarial assistance will be provided by the respective Governments. Other support as necessary will be provided by the contractors.

DRAFT TERMS OF REFERENCE FOR SHORT-TERM TECHNICAL ASSISTANCE

Both the Government of St. Lucia and St. Vincent require assistance in the preparation of planning documents to address annual and long-term needs for road maintenance and rehabilitation and general transportation problems. This will include an assessment of the cost effectiveness of maintaining a government office staffed with the necessary professional and support staff as opposed to contracting for the services of transport planning specialists.

To assist the host country governments in increasing their capacity to carry out road maintenance programs, six months of short-term expertise will be provided in each country in various areas of transport planning, which will be identified by the Project Manager in coordination with the Ministry of Planning and Ministry of Communication and Works officials. This will include assistance in conducting road surveys and inventories, road classification and traffic counts, and such techniques and data collection methods as needed to establish annual road maintenance programs and provide an information base for long-term national road planning. Existing road transport data, reports and information will be reviewed; new data generated from project activities analyzed, and the findings together with recommendations included in a final road transport assessment. The report will include planning recommendations in the areas of road transportation and maintenance and also identify areas where further study is required. Issues such as road design, construction, inspection and maintenance standards will also be considered.

The Project Manager will make his recommendations on the composition of the short-term technical assistance to RDO/C no later than six months after his arrival. RDO/C will then make arrangements to provide appropriate specialists with the approval of each Government.

ROAD CLASSIFICATION

St. Vincent

ROAD	Annual Banana Production x 10 ⁶ lbs	Vehicles per day	STRUCTURAL ADEQUACY				SERVICE		SAFETY		
			Drainage	Base (Foundation)	Bridges Culverts	Surface	Alignment	Bridges Culverts	Sight Distance	Surface	Widths
Vigie Highway	50.2	1670	Fair	Satisfactory	2 Bridges in Poor Condition	Fair	Fair	Fair	Satisfactory	Fair	Poor
Mesopotamia-New Prospect	21.7	1600	Poor	Poor	Fair	Poor	Poor	Poor	Poor	Poor	Poor
Layou to Richmond	1.73	1600	Satisfactory	Satisfactory	Satisfactory	Fair	Poor	Satisfactory	Poor	Fair	Poor
Vermont Highway	1.54	200	Poor	Fair	Satisfactory	Poor	Satisfactory	Satisfactory	Fair	Poor	Fair
Vermont-Dalaway	0.20	150	Poor	Fair	Satisfactory	Poor	Satisfactory	Satisfactory	Fair	Poor	Fair
Hermitage	0.01	200	Poor	Poor	Satisfactory	Poor	Satisfactory	Satisfactory	Fair	Poor	Fair

Assessment Indicators used:

- Good
- Satisfactory
- Fair
- Poor

The road standards used in the assessment apply to rural areas in a developing country.
The average maximum traffic speed allowed for is 30 p.p.h.

ROAD CLASSIFICATION

Sierra Leone

ROAD	Annual Banana Production $\times 10^6$ lbs	Vehicles per day	STRUCTURAL ADEQUACY				SERVICE			SAFETY	
			Drainage	Base (Foundation)	Bridges Culverts	Surface	Alignment	Bridges Culverts	Sight Distance	Surface	Widths
La Ressource - Derniere Riviere	1 . 38	200	Poor	Satisfactory	Fair	Poor	Satisfactory	Fair	Satisfac- tory	Fair	Fair
Des Barreux - Nagere Link	0 . 60	80	Poor	Satisfactory	Satisfac- tory	Poor	Good	Fair	Good	Poor	Good
Mongiraud - Monchy	1 . 56	180	Satisfactory	Good	Satisfac- tory	Fair	Fair	Satisfactory	Fair	Fair	Satisfac- tory
Volat - Mahant	2 . 34	180	Fair	Satisfactory	Fair	Fair	Satisfactory	Fair	Satisfac- tory	Fair	Fair
Savanne George - Delcor	.09(pota- toes) .02(pea- nuts)	70	Fair	Good	Fair	Poor	Fair	Fair	Fair	Poor	Fair
Fond St. Jacques - Migry	.86 + citrus	150	Fair	Good	Satisfac- tory	Poor	Satisfactory	Satisfactory	Satisfac- tory	Fair	Good

Assessment Indicators used: - Good
- Satisfactory
- Fair
- Poor

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ROAD CLASSIFICATION

St. Lucia

ROAD	Annual Banana Production x 10 ⁶ lbs	Vehicles per day	STRUCTURAL ADEQUACY				SERVICE		SAFETY		
			Drainage	Base (Foundation)	Bridges Culverts	Surface	Alignment	Bridges Culverts	Sight Distance	Surface	Widths
Choc - Babonneau	15.84	500	Fair	Good	Good	Satisfactory	Good	Good	Good	Satisfactory	Good
Nagere - Boquis	1.34	200	Fair	Fair	Satisfactory	Poor	Good	Satisfactory	Good	Poor	Good
La Croix - Odson	2.76	220	Poor	Good	Satisfactory	Poor	Good	Poor	Good	Poor	Good
Roseau - Vanard	6.87	180	Fair	Good	Satisfactory	Poor	Good	Fair	Good	Poor	Good
Trois - Freres	2.96	70	Poor	Poor	Poor	Poor	Satisfactory	Satisfactory	Satisfactory	Poor	Satisfactory
La Borne	.18	70	Poor	Poor	Poor	Poor	Satisfactory	Satisfactory	Satisfactory	Poor	Poor
Thomaso	1.00	70	Satisfactory	Good	Poor	Fair	Good	Poor	Good	Satisfactory	Satisfactory
Belle Plain - None Bocin	.63	200	Poor	Satisfactory	Satisfactory	Poor	Fair	Fair	Fair	Poor	Fair

Assessment Indicators used:

- Good
- Satisfactory
- Fair
- Poor

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The average maximum traffic speed allowed for is 30 m.p.h.

ROAD CLASSIFICATION

St. Lucia

ROAD	Annual Production x 10 ⁶ lbs	Vehicles per day	STRUCTURAL ADEQUACY				SERVICE			SAFETY	
			Drainage	Base (Foundation)	Bridges Culverts	Surface	Alignment	Bridges Culverts	Sight Distance	Surface	Widths
Guarles Valley	.04	50	Poor	Fair	Fair	Poor	Satisfactory	Fair	Satisfactory	Poor	Poor
Grand Riviere - Morne Parache	3.12	160	Poor	Poor	Poor	Poor	Satisfactory	Poor	Satisfactory	Poor	Satisfactory
Castries - Demery	35.12	2300	Fair	Good	Good	Fair	Good	Fair	Good	Fair	Good
View Fort - Soufriere	3.6 + 3.1 copra + 6.59 general produce	1000	Poor	Satisfactory	Fair	Poor	Satisfactory	Fair	Fair	Poor	Good

Assessment Indicators used:

- Good
- Satisfactory
- Fair
- Poor

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