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DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

CAPITAL ASSISTANCE PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

LIBERIA - RURAL ACCESS ROADS - PHASE II

669-22-312-116
669-H-019

AID-DLC/P-1041

UNCLASSIFIED

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AGENCY FOR INTERNATIONAL DEVELOPMENT
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AID-DLC/P-1041

June 14, 1972

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Liberia - Rural Access Roads - Phase II

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed $3,400,000 to the Government of the Republic of Liberia to assist in financing the services for the construction of two all-weather rural access roads (Sagleipie-Gbahn-Kahnple-Saniquellie and Pleebo-Barclayville).

Please advise us as early as possible but in no event later than close of business on Thursday, June 22, 1972, if you have a basic policy issue arising out of this proposal.

Rachel R. Agee
Secretary
Development Loan Committee

Attachments:
Summary and Recommendations
Project Analysis
ANNEXES A-L

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AID-DLC/P-1041
June 14, 1972

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SUMMARY AND RECOMMENDATIONS

1. Borrower: The Borrower will be the Government of Liberia (GOL).

2. Amount of Loan: $3.4 million.

3. Terms of Loan: This will be a loan for 40 years with a grace period of 10 years. Interest will be at a rate of 2% during the grace period on disbursed amounts and 3% during the remaining 30 years. Repayment is in U.S. dollars.

4. Total Cost of Project: $3,775,000

AID Contribution	:	$3,400,000
GOL Contribution	:	$ 375,000

5. Description of Project: This project consists of the construction of two all-weather rural access roads (Sagleipie-Gbahn-Kahnple-Saniquellie and Plebo-Barclayville) and the services of an advisor to the Ministry of Public Works and Utilities to assist in the construction supervision of these roads.

6. Purpose of Project: To provide relatively heavy rural population and agricultural areas with increased accessibility to markets which will provide a stimulus for increased agricultural production.

7. Background of Project: In 1966, the GOL requested AID assistance with its program of rural road construction. AID financed a study of the roads requested to determine the potential economic benefits and an order of priority of these roads which was completed in 1967. A loan agreement was signed in 1968 for two of these roads for which the design work and cost estimates had been completed. A contract was signed with a Liberian contractor for their construction. One of these roads (Kolahun-Kamatahun) has been completed and the other (Zwedru-Ziatown) is scheduled for completion in August 1972. Field surveys, preliminary design and cost estimates have now been completed on the two roads under discussion and financing for these roads has been requested by the Ministries of Planning and Economic Affairs and Finance.

8. Export-Import Bank Interest: Ex-Im clearance obtained.

9. Views of AID and U.S. Mission: The Loan is recommended by the Embassy in Monrovia, USAID/Liberia and the West Africa Regional Capital Development Office (WARCDO).

10. Statutory Criteria: The Loan will meet all statutory criteria. See Annex I.

11. Issues: None.

12. Recommendation: Authorization of a Loan to the Government of Liberia in the amount of $3,400,000 in accordance with the terms and conditions set forth in the draft loan authorization in Annex J.

CAPITAL ASSISTANCE COMMITTEE MEMBERS:

Loan Officer and Chairman . . . . Peter J. Bloom, WARCDO
Engineers . . . . Walter A. McDonnell, WARCDO
. . . . Howard V. Guiot, USAID/Liberia
Counsel . . . . John W. Roxborough, WARCDO

I. INTRODUCTION

A. Project Description

The project shall consist of the construction of two all-weather rural access roads located in different areas of Liberia for the primary purpose of increasing the accessibility of relatively heavy rural population and agricultural centers to major markets, which will provide a stimulus for increased agricultural production. The two roads are:

1. Sagleipie-Gbahn-Kahnple-Saniquellie (55.7 miles) in the north-central part of Liberia, and

2. Plebo-Barclayville (47.6 miles) in the southeast part of the country. (See maps, Annex A.)

The project will also include the services of an advisor to the Ministry of Public Works and Utilities to assist in the construction supervision of these roads.

B. Relationship to A.I.D. Program

The A.I.D. assistance program to Liberia conforms closely to the Government's priorities and objectives. The Government has indicated its determination to increase the diffusion of economic benefits to reach a greater number of Liberia's rural population through integrated rural development programs. The USAID has responded to this priority through its agricultural program development project which will be reinforced by the proposed rural access road loan project. This assistance, in support of one of the Government's major objectives, is expected to increase the traditional farmer's economic opportunities through increased agricultural production, greater mobility and easier access to marketing, and eventually, his participation in the affairs of his country.

The proposed project is also fully consistent with the Liberian Program Review conclusions of the National Security Council Interdepartmental Group for Africa which recommended that AID should "continue efforts to find more effective ways of promoting rural development - agriculture, rural roads, rural education". (See Liberia FY 1972 CFS, Page 6.)

C. Borrower

The Borrower will be the Government of the Republic of Liberia (GOL). The implementing agency will be the Ministry of Public Works and Utilities (MPW&U). AID has assisted this Ministry since its formation in 1952. Six engineers from the United States Bureau of Public Roads were assigned to the MPW&U from 1952 until 1961 under an AID grant-financed contract. In December 1962, AID contracted with the J.G. White Engineering Company to furnish overall assistance to the MPW&U including assistance on the latter's program of road construction and maintenance. Those services were provided until 1968. Under an AID OPEX arrangement with the GOL, an equipment maintenance advisor and construction advisor have been providing further assistance to the Ministry since early 1970. Both these advisors, who have recently finished their contracts, assisted on the two rural access roads currently being constructed under an existing AID loan. It is intended that the construction advisor will return to assist the Ministry on the two additional roads being proposed for AID financing under this loan.

D. <u>Project History and Background</u>

During the 14 years between 1952 and 1966 the GOL concentrated on expanding and improving Liberia's gravely deficient primary and secondary road system. Because of limited funds, little could be done to provide the rural access roads needed as well to realize the full development potential of the primary and secondary road networks. By 1966, however, many of the planned primary and secondary roads were either completed or were being constructed. The GOL then decided to move ahead with its program of rural road construction.

In the spring of 1966, the GOL submitted an application to AID for assistance in financing the construction of a number of miles of rural access roads. This was shortly supplemented by a list of nine specific roads from which the roads to be constructed were to be chosen.

While several studies previously had been undertaken in the transportation sector of Liberia, these studies provided only slight discussion of the probable economic and social benefits of the proposed rural access roads. Therefore, AID decided to obtain the services of a qualified consultant who would evaluate each of the proposed roads to establish which of the roads were of highest priority.

Dr. William Stanley, an economist with considerable experience with transport problems in Liberia was chosen to do the study. Dr. Stanley submitted his final report on July 7, 1967.[1] His report recommended that six of the nine proposed roads should be given the highest priority. After reviewing the study, the GOL recommended that five of these six highest priority roads should be included under an AID-financed construction program. These five roads were:

1. Kolahun to Kamatahun
2. Gbanh to Kahnple
3. Zwedru to Ziatown
4. Plebo to Barclayville
5. Bopalu to Belle Yella

1 Final Report on Selected Economic and Social Benefits to be Derived from the Construction of Nine Separate Lengths of Rural Access Roads in Liberia.

At that time the MPW&U had completed the field surveys, preliminary design and cost estimates for two of the roads on the list, the Kolahun-Kamatahun and Zwedru-Ziatown roads. Field surveys had not yet been completed on the remaining roads. Therefore, it was decided to consider only the two roads for which preliminary design and cost estimates had been completed for a FY 1968 loan with consideration of the other roads for a separate loan upon completion by the MPW&U of the necessary engineering design work. On July 12, 1968, a loan in the amount of $975,000 was authorized to finace the construction of the Kolahun-Kamatahun and Zwedru-Ziatown roads.

A contract was signed for the construction of these two roads with a Liberian contractor on May 7, 1970. The Kolahun-Kamatahun road was successfully completed on time in August 1971 and the Zwedru-Ziatown road is scheduled for completion in August 1972, although it may be somewhat behind schedule.

The MPW&U has now completed the field surveys, preliminary design and cost estimates of the Plebo-Barclayville road and the Sagleipie-Gbahn-Kahnple-Saniquellie road. This latter road includes the Gbahn-Kahnple section, the original road included in the GOL's list and studied in the Stanley report, but extends it 10 miles to Sagleipie and 12 miles to Saniquellie. This provides important additional access to other population and agricultural centers and ties into the primary road system. In an Aide-Memoire on U.S. Government assistance to Liberia, dated March 14, 1972, by the Ministry of Planning and Economic Affairs, a request was included for U.S. financing of several rural roads including the two presently under consideration. These are the only two for which sufficient design work has been completed to undertake financing at this time. In May 1972, a specific request was received from the Ministry of Finance for U.S. assistance in financing these two roads and for the services of an advisor to assist in their construction supervision.

II. ENGINEERING ANALYSIS

A. Description of the Roads

1. Sagleipie-Gbahn-Kahnple-Saniquellie

New road construction is required from Gbahn to Kahnple. There is an existing dry weather track for four-wheel drive vehicles in dry weather only, between Sagleipie and Gbahn and between Kahnple and Saniquellie. The proposed road traverses a typically tropical high rainfall area with no great topographical obstacles, although the portion between Gbahn and Kahnple is in dense forest and will require fairly extensive clearing and grubbing. Drainage problems will be practically non-existent with few culverts and only small bridges. The total distance from Sagleipie to Saniquellie is 55.7 miles.

2. Plebo-Barclayville

Sections of brushed trails (brush cut 2 to 3 feet on either side of a foot path) will be used for access between the two villages during construction. This road goes through some fairly open areas not far from the coast. However, because of its proximity to the coast and consequent drainage terminations, drainage costs will be high as is the case in all coastal roads. The total distance of 47.6 miles will be new construction, with a ferry river crossing proposed at Barclayville.

3. General

The roads are designed in accordance with the MPW & U standards applicable to rural roads. The routes will follow existing trails and foot paths to the maximum extent in order to reduce right-of-way, clearing and excavation costs. Drainage structures will consist of ditches, corrugated metal pipe culverts and bridges. Bridges will be one-way, 10 feet wide and designed for AASHO H-20 loading. The roadway itself will be 20 feet wide with a 6 inch roadway compacted surface course of select material. See Annexes B and C.

B. Cost Estimates

Preliminary plans for this project have been completed by the MPW & U to a point where reasonably firm estimates have been made. Final plans, specifications and other IFB documents as well as final cost estimates will be forwarded by the MPW & U when completed and will be reviewed and approved by WARCDO.

D. Technical Feasibility and Soundness

The economic and technical justification of the project is based on information contained in a report entitled "Selected Economic and Social Benefits to be Derived from the Construction of Nine Separate Lengths of Rural Access Roads in Liberia", and on information obtained as a result of the first "Two Rural Access Roads" project. The preliminary plans and cost estimates prepared by the MPW&U for this project follow the standards established for the first AID Rural Access Roads project and are considered adequate for the preparation of final plans and "Invitation for Bid" documents. The preliminary designs that have been prepared for these two roads are technically sound, the cost estimates reasonably firm and the engineering requirements of Section 611 of the Foreign Assistance Act of 1961, as amended, have been met.

E. Project Maintenance

The MPW&U maintains all the roads in Liberia and operates on a budget established yearly. However, allowable budget amounts have been so inadequate, very minimal maintenance is accomplished. Heavy equipment is in short supply and repairs and maintenance of this equipment has been minimal. As a result, present maintenance is performed on a priority basis using mostly hand labor, especially on dirt roads, filling in potholes and ruts and keeping drainage structures operable.

In order to evaluate the need for maintenance assistance, a Liberian Highway Organization and Maintenance Study was made by the Sauti Overseas Anstalt Consultants through a contract with the International Bank for Reconstruction and Development. A draft final report was completed in late October 1971 which is now being revised for final publication. Recommendations in this report and the Stanley, Inc. report on port access roads have provided enough information to envision a tentative highway plan for 1973-78 which would involve expenditures of about U.S. $50 million of which about U.S. $30 million would be foreign exchange. The recommendations on maintenance and rehabilitation programs cover organization, administration, operations, technical assistance, training, personnel and equipment requirements, budget allowances, procurement and many other facets of these operations.

The World Bank, Federal Republic of Germany, African Development Bank and AID have indicated interest in financing part of this program. It is anticipated that sufficient resources and training will be provided to enable MPW&U to maintain the road system in a satisfactory manner.

F. Implementation Plan

The implementation schedule for the construction of the two roads is as follows:

The preliminary estimates concerning the total costs for both roads have been reviewed by WARCDO engineers. They have concluded that the roads can be constructed within the total estimated amount of $3,775,000. Estimates were made on the basis that Liberian and Code 941 countries' sources would be used for all goods and services in connection with the project. The estimated costs per mile on these roads are considerably higher than the estimated on the previous rural access roads because of natural year to year inflation as well as the fact that the first two roads were considerably underestimated. This has been revealed during the implementation phase, since certain items were left out of the estimates and the local contractor required more time to accomplish certain items than was originally contemplated, since the old estimate was based on an American contractor's performance. See Annex D for detailed cost estimates of the project.

C. Construction Program

The MPW & U proposes to undertake the construction of the two roads simultaneously at the beginning of 1973.

The MPW & U expects to have the final plans, specifications and contract documents ready for A.I.D. approval within 30 days after the approval of the loan. Bids would be called for within 90 days thereafter. A bid analysis and the award of the construction contract would follow within 60 days after bid openings. Allowing 60 days for contractor mobilization, construction could be started on or about March 1, 1973.

The MPW & U will supervise construction using its own staff of field personnel similar to the supervisory services provided on the first two rural roads project. On that project, the MPW & U utilized the services of a U.S. construction engineer, from the Colorado State Highway Department, as an advisior to the MPW & U.

On this project, the MPW & U plans to contract for similar services with a U.S. construction engineer whose tenure will continue for the full construction period.

Loan Authorized	June	1972
Loan Agreement Signed	July	1972
Final Design, IFB, Cost Estimates Completed	August	1972
Final Design, Cost Estimates Approved	October	1972
Advertise for Bids	October	1972
Bid Opening	December	1972
Bid Award	January	1973
Contract Signed	February	1973
Begin Construction	March	1973
Construction Completed	March	1976
Final Inspection and Certificate of Acceptance	April	1976

III. ECONOMIC ANALYSIS

A. Role of Rural Development in the Liberian Economy

The Liberian economy is presently overwhelmingly dominated by the "enclave" sectors--iron ore, logging and rubber. These sectors have large foreign equity interests and are almost wholly foreign managed. While substantial benefits accrue to the country from these enterprises, the lives of the predominant part of the population are only marginally affected. Promoting rural development would bring development to the sector which encompasses the majority of the population and would help in the diversification of exports which are currently dominated by iron ore, rubber and logging. It will also help in reducing the migration to urban areas, and hence forestall the development of a serious urban unemployment problem which now exists in many developing countries. Rural development can also expand the market in Liberia which is presently a constraint on any significant manufacturing expansion.

Given Liberia's soil, climate, and terrain, there seems to be a favorable potential for rural development. These conditions give Liberian agriculture a comparative advantage in tree crops, such as rubber, palm oil, cocoa, coffee and coconut. Production of these crops is labor intensive and suitable to small holder type agricultural practicies. There are a number of present constraints to expansion of this sector which need to be addressed, including the development of a feeder road system.

B. Benefits to the Liberian Economy from the Construction of Rural Access Roads

Highway benefit studies and the supporting body of research in the field have, for the most part, been made in connection with improvements of existing routes. Rural road investment in developing countries is notoriously difficult to justify quantitatively by these traditional methods of analysis of larger road projects such as the net present value or the internal rate of return methods. Some indications of the potential development of a specific area can be given by an examination of population and patterns of agriculture. To this extent one can evaluate the possibility of generated traffic; i.e., new output which would not take place if the road were not built or improved. This method of analysis was undertaken by Dr. Stanley in his report on the new roads proposed by the GOL for financing and shall be discussed more specifically in Section IIID below. Anticipated benefits from rural access or "feeder" roads, however, can further be expressed in a descriptive and qualitative fashion and show the substantial impact that such roads can have in developing the economy of Liberia.

The immediate impact that a new rural access road has on the economy of a rural area is to reduce greatly the cost of transporting that amount of commodities which is currently being head-loaded to and from local markets. The cost of head-loading in Liberia has been computed in a study[1] to be $1.39 per ton per mile. (This figure assumes an average of 60 pounds, rate of travel of three mph and a wage rate of $1.00 per day.) In contrast, the same study estimates the cost of transporting general cargo by truck on rural roads at $.20 per ton per mile. This represents an 85% reduction in transport cost. If data were available on the number of tons per miles of merchandise currently being head-loaded to and from the local markets, one could compute the immediate benefit (in these terms) to an economy from constructing access roads.

However, the benefits from reduced transport costs of the existing quantities of goods being transported would by no means provide the primary justification for constructing a rural access road. It is the increased production which the road helps to generate that is the main criterion. Before access roads are constructed in a rural area, the growing or harvesting of crops is limited by the amount of produce that the available labor force can head-load from the area of cultivation to the nearest market during the short span of time between crop maturity and crop spoilage. Because of inadequate transport and poor storage, production is restricted to only a small surplus over the needs of the village. By constructing an access road into a relatively heavily populated although isolated rural area, the main impediment to increased

1 Study of Roads and Harbors for Development of Southeast Liberia, report submitted by Battelle Memorial Institute of Columbus, Ohio, to A.I.D. on August 25, 1966.

agricultural production and, therefore, to increased real incomes is removed. The extension of the market should create an incentive for the affected villages to bring idle land into production and where possible to cultivate more intensively the land already under cultivation. In addition, the time previously spent for head carry to existing markets which range up to one full day, and sometimes more, in each direction can be substantially reduced by motor transport and devoted to increased cultivation.

Production could be further increased by introducing into the affected areas better tools, fertilizer, insecticides, pesticides, fungicides, and improved methods of cultivation. The completion of the proposed roads would provide better access to the area for the initiation of such improvements. This can be done mainly by extension workers who are now able to travel through areas where previously they could not because of the absence of roads.

Additional markets and business activity also result from the construction of access roads. Markets spring up where none existed before because of production increases over and above subsistence needs which can be sold and because of the accessibility to centers of population. With the increase of money supply in the local economy and also because of the increased ease of travelling, and of reaching the population, there are incentives for the establishment of small businesses.

Access roads are likely to bring about various welfare, social and political benefits. For example, health benefits may be generated because doctors or mobile medical units will be able to travel into and patients evacuated from previously inaccessible areas. By linking once isolated villages with each other and with Monrovia, Buchanan, and Harper, the proposed access roads may encourage greater trade and, therefore, greater specialization and division of labor. The roads also will stimulate political unification and tend to upgrade educational levels by permitting government officials and teachers to have greater contact with the rural population.

Thus, access roads can be shown to play an important role in developing countries. This is being increasingly recognized and there are a number of projects involving feeder roads in West Africa, such as in Mali and Upper Volta being financed by the World Bank. And the World Bank has stated in its Sector Working Paper on Transportation, January, 1972 that within the road transport lending program for the next five years, feeder road development will be given greater emphasis.

C. Case Studies of Completed Rural Access Roads in Liberia

In 1969 and 1970, several surveys were made of completed rural access roads by students of Cuttington College, Liberia, to determine the impact of these roads on the economy of the area. These studies were financed by USAID/Liberia in cooperation with the Department of National Planning on roads financed jointly by AID and the GOL.

One of the roads studied in depth between December 1968-March 1969 was the Gbartala-Finutoli road, a distance of about 17 miles.[1] All the land directly adjacent to the road has been purchased. There has been an estimated 30% population increase in the area since road completion with a substantial amount of new house construction. Included in this is an increase in zinc roofed as opposed to thatch roof buildings. This was estimated to have grown from 5% to 30% of buildings along the road. Estimated cost for housing improvements in the area since road construction based on material and transportation is $10,000.

There are two markets along the road, one at Voliblai, a village nine miles from Gbartala and the other at Finutoli. The former market existed before road construction, but the latter, which had been closed since the 1930s due to emigration from the area, reopened upon completion of the road. Both markets were vigorous and all agricultural production was quickly sold with the exception of small quantities of cocoyams and cassava. Two sample counts were taken at the Voliblai market which showed an average value of agricultural products sold at $602. See Annex E for a breakdown of products and price. More than 90% of the buyers came from areas outside the Gbartala-Finutoli access road. Their means of transport is 100% by motor vehicle. Those markets show the important economic impact of the road in the area. The Voliblai market was estimated to have expanded by 75% in volume and the market at Finutoli is new. There has been a rise in prices of agricultural products from 100-175% since the completion of the road.

It was estimated that agricultural production in the area doubled with a shift to products that formerly could only be sold in small quantities because of the limitations imposed by headcarry. This is true of cassava, plaintains, bananas and cocoyams.

There are 11 stores in the area with 9 located along the access road. These 9 were established after road construction and are all owned by Liberians. The other two, which existed before the road, are in Gbartala and owned by Lebanese. It was estimated the average daily sales of the Liberian stores was $5.00 and the Lebanese $38.00.

A number of traffic counts were taken at Voliblai and Finutoli, both on market days and on other days. These surveys showed vehicle counts ranging from 42 to 60 vehicles per day for market days and dropping to about 20 vehicles on non-market days. See Annex F for vehicle types, quantity and number of passengers. The vehicle and passenger counts are another good indication of the substantial economic activity brought to the area by the road.

1 Final Road Survey Report, Gbartala to Finutoli, by Robert Ashew and Emenike Ifediora.

A similar survey was conducted for the Buchanan-Kabli rural access road between May and June 1970.[1] The results of the study of this 22-mile road showed similar patterns of growth and development as the Gbartala-Finutoli road. Prior to the road, agricultural production was limited by head-carry to Buchanan which could take several hours or days. Therefore, the tendency was to produce only a small margin above that needed for subsistence. It was estimated that since the opening of the road, agricultural production has increased from two to three times.

The same patterns of growth in housing improvements and small business as on the Gbartala-Finutoli road were noted. Fifteen small businesses were counted in the area with eleven owned by Liberians, all who came after the construction of the road. It was estimated that profit per annum for the Lebanese stores was $10,700 and close to $6,000 for the Liberian stores. Schools have developed along this route and the first health facility in the zone was built.

Traffic counts were taken at several locations along the route. The traffic at Bijon, the starting point of the Buchanan-Kabli access road, was shown to range from 66 to 87 vehicles per day. See Annex G for vehicle type, quantity and number of passengers. All this reflects a vigorous activity on the road.

The social/economic benefits of two completed rural access roads have been documented. It is anticipated that similar benefits will accrue from the construction of the Sagleipie-Gbahn-Kahnple-Saniquellie and Plebo-Barclayville roads, both located in relatively heavy population and agricultural producing centers.

D. Economic Appraisal of Proposed Roads

1. Introduction

Certain criteria were developed by Dr. Stanley in examining the nine road lengths to determine the potential for development. Zones of influence were established and the following general criteria were investigated: (1) density of population; (2) estimates of increased or decreased agricultural production; (3) reduced cost of transporting goods, both to the farmers and transporter where applicable; and (4) secondary benefits, particularly social, political, and health which would possibly accrue to the population within any predescribed zone of influence. The zone of influence was defined as that area whose boundaries are set at the maximum distance from the road that a person can travel in one day by foot. Although the type of terrain could limit the distance travelled in one day, a figure of 20 miles was considered an average distance.

1 A Study Report of the Buchanan-Kabli Rural Access Road, Emenike Ifediora, August 1970.

A weighted average was given to each road studied based on the following factors: agricultural production (basic foodstuff and export items); industrial production; availability of means of other transportation; cost of construction per mile; continuity factor (value to total road system); perishable food production; ferry factor; and administrative district. A priority rating was given for the roads based on the foregoing.

2. Sagleipie-Gbahn-Kahnple-Saniquellie Road

The estimated population residing in the zone of influence of this 56-mile road in north-central Liberia is 31,000 which makes it one of the most heavily populated areas of the roads under study. By contrast, the population of the Kolahun-Kamatahun and Zwedru-Ziatown roads (the two roads being constructed under an existing AID loan) are 11,000 and 6,000, respectively. It ranked first in the priority rating form in the Stanley survey based on the criteria as described above.

The construction of this road will result in direct access to the principal highway network at Sagleipie or to the northern leg of the highway system at Saniquellie. The position of Gbahn as an agricultural market center is firmly established and will surely be enhanced by the increased access to the areas lying in the zone of influence along the road. This is an area of relative abundance of palm kernels, coffee and cocoa, three of the major cash crops.

Thus, with this road serving a large population area, relatively rich in agricultural production, including potential cash crops, and directly leading into the primary road network, it is anticipated that substantial economic and social benefits to be derived from the construction of rural access roads, benefits described in general terms in Section IIIB above and as exemplified by the activity induced by the construction of the two roads described in Section IIIC, will accrue to the zone of influence of the Sagleipie-Gbahn-Kahnple-Saniquellie road.

3. Plebo-Barclayville Road

The Plebo-Barclayville road running 48 miles in southeast Liberia also runs through a heavily populated area and the zone of influence is estimated to contain about 30,000 inhabitants. It is ranked fifth in the priority rating form contained in the survey by Dr. Stanley although its rating is practically the same as the Zwedru-Ziatown road (third) and the Bopolu-Bella Yella road (fourth). The second ranked road is the Kolahun-Kamatahun road. Plebo is located on the main highway north of Harper and the road would provide needed access to and from the Kru Coast area which contains an important population, to Harper, a major city and a port.

Cocoa is an important cash crop in the area and production would be expanded with proper access to Harper. Harper is shown to be the leading port in Liberia for the export of cocoa and also exports a comparatively substantial amount of coffee coming from the area. There is also substantial potential for oil palm plantations in the area and investigation of such projects are underway.

As in the case of the Saniquellie-Sagleipie road, this is a relatively heavily populated area in Liberia, rich in agricultural potential and well suited to benefit from the construction of the road.

4. Benefit Cost Analysis

A benefit cost analysis was performed on the two sections of road. Based upon the results of this analysis, the IRR's for Sagleipie-Saniquellie and Plebo-Barclayville roads are 17.2% and 13.3%, respectively (see Annex J for a detailed description of the assumptions and methodology supporting these returns).

IV. FINANCIAL ANALYSIS

A. Financial Requirements

The financial requirements for this project, assuming that a U.S. or other Code 941 country firm carries out construction of the roads, are as follows:

	U.S. COSTS	LOCAL COSTS	TOTAL COSTS
Construction of Two Roads Including Contingencies	$2,306,500(70%)	$ 988,500(30%)	$3,295,000
Design and Supervisory Engineering	120,000	360,000	480,000
Total	$2,426,500	$1,348,500	$3,775,000

If, however, a local contractor carries out construction of the roads, the financial requirements are estimated as follows:

	U.S. COSTS	LOCAL COSTS	TOTAL COSTS
Construction of Two Roads Including Contingencies	$ 659,000(20%)	$2,636,000(80%)	$3,295,000
Design and Supervisory Engineering	120,000	360,000	480,000
Total	$ 779,000	$2,996,000	$3,775,000

B. Financial Plan

The financial plan assuming that a U.S. or other Code 941 country contractor will carry out the construction of the roads is as follows:

	U.S. COSTS	LOCAL COSTS	TOTAL COSTS
AID Loan	$2,426,500	$ 973,500	$3,400,000
GOL Contribution	———	375,000	375,000
Total	$2,426,500	$1,348,500	$3,775,000

If, however, a Liberian contractor carries out construction of the roads, the financial plan will be as follows:

	U.S. COSTS	LOCAL COSTS	TOTAL COSTS
AID Loan	$ 779,000	$2,621,000	$3,400,000
GOL Contribution	———	375,000	375,000
Total	$ 779,000	$2,996,000	$3,775,000

AID will finance all the U.S. costs of the project which include corrugated metal pipe, structural and reinforcing steel, U.S. contractors offshore costs and part of the salary of the U.S. construction engineer for the MPW&U.

AID will also finance between 72% and 87% of the local costs of the project. These will include the costs of Liberian equipment, materials and labor services required for the project plus some local expenditures for the U.S. advisor.

The GOL will finance between 13% and 28% of the local costs of the project. These will include the costs of the engineering design by the MPW&U as well as all salary and logistic costs of the Liberian engineering technicians who will supervise construction of the two roads and part of the salary of the U.S. construction engineer.

C. Other Sources of Financing

In the past, both the World Bank and the Government of the Republic of Germany have made loans to Liberia for primary road development along with A.I.D. At present, Germany is assisting the Ministry of Public Works and Utilities in training personnel in road maintenance with technicians situated at two localities in the interior.

The Bank has financed a highway organization and maintenance study by Sauti, an Italian consultant, which has just been recently completed. This study recommends a maintenance and rehabilitation program for a number of roads in Liberia and the Bank has expressed an interest in both the maintenance program and the construction of some of these roads. It is expected that the German assistance team will extend its program for maintenance training, which is scheduled for termination in October 1972. A.I.D. has also advised the GOL that it would consider a request for assistance in a maintenance program along with other donors.

Further assistance in road construction is anticipated from the African Development Bank for the Bomi Hills road and the United Kingdom has offered to finance the construction of the Totota-Ganta road.

D. Economic and Financial Status of the GOL and Repayment Prospects

The Liberian economy has grown at an average rate of about 4.0 percent in real and 7.0 percent in current GDP terms in the 1967-70 peri Most of this growth originated in the "enclave" sectors, iron ore, loggi and rubber. The enclave sectors accounted for 38 percent of monetary GD and 90 percent of merchandise exports in 1969. Iron ore exports benefit from the start-up of pelletized ore in 1968. Log production, two-thirds of which is exported, also increased substantially (from 18 million boar feet in 1967 to 70 million in 1970) stimulated by the near depletion of forest reserves in neighboring Ivory Coast and the completion of new roads. The contribution of rubber was stimulated by temporary increase in prices in most of 1969 and a sharp increase in output in 1970.

The other sector of Liberia's economy consists of small industries and commercial establishments and, in large part, of the subsistence type agriculture. There was very little growth in these areas over the past few years. This sector is not affected by the investments in foreign concessions other than through increases and decreases in construction activity causing a rising or falling level of employment. Public investment was dominated by infrastructure projects, such as roads, communication and power, with investment in agriculture but a small portion of the total. Thus, development outside the enclave sectors continues to lag.

Economic policies in the past several years focused on the implementation of the stabilization program started in 1963 in agreement with the IMF. Improvement in tax administration and enforcement and new tax measures introduced in 1967 and 1968, together with growth in the enclave sectors led to a remarkable improvement in the country's fiscal position. The surplus on current accounts amounted to about 25 percent of current revenues in 1969-1970 compared to about 14 percent in previous years. Nevertheless, Government finances continued to be strained by heavy debt service payments (mostly on debts incurred between 1958 and 1962) absorbing about 25 percent of current revenues.

The balance of payments outlook is relatively favorable. Total merchandise exports are projected to grow at about 5.5 percent and imports at an annual rate of 4.0 percent. The trade surplus will, however, be largely absorbed by factor payments abroad by the concessionaires.

Liberia's external debt service payments are projected to amount to about $19 million per year in the next three to five years. At this projected level, the debt service will absorb about 25% from prospective budgetary revenues in the 1972-76 period and about 12% of net export earnings.

There has been improvement in Liberia's domestic and external financing position which has strengthened its credit-worthiness and the reduction of IMF holdings of Liberian dollars has increased the country's ability to meet short-term liquidity problems. However, continued caution must be exercised in contracting new conventional debt in view of the heavy external debt burden on the budget. With the financial situation of the public sector being the main constraint, Liberia should obtain a substantial portion of external financing on concessionary terms.

The economy is basically sound and the general outlook over the longer term is favorable with expected increases in forest production and in the production and total value of natural rubber. There are a number of possibilities of expanded iron ore production under consideration and exploration is underway for offshore oil. If Liberia obtains a substantial portion of external financing on concessionary terms, as is expected, and improvements continue in tax administration and control of the annual budget, the prospects of Liberia repaying the loan are reasonable.

V. ECONOMIC EFFECTS OF THE LOAN

A. Impact on U.S. Economy

This loan does not conflict with any U.S. business interests. To the contrary, U.S. firms will be able to bid on $3.3 million in construction services.

B. Effect on Private Enterprises

The loan will finance a contract between the GOL and a private construction firm either from the U.S. or other Code 941 countries or a Liberian private firm. Construction materials likely will be procured from a private U.S. firm.

C. Impact on U.S. Balance of Payments

$3.3 million of potential U.S. construction services represent additional U.S. exports. If a Code 941 firm from a country other than the U.S. or a Liberian private firm performs the construction services, about $780,000 in construction materials and services will represent additional U.S. exports. U.S.-financed local costs will range from $974,000 to $2,621,000 depending on who is awarded the work. While this does have some effect on the balance of payments, Presidential policy has untied AID funds for Code 941 countries. Awarding contracts to host country contractors is in keeping with this policy of permitting developing countries to provide goods and services under AID financing.

ANNEXES

A - Map

B - Typical Cross Section

C - Design Standards

D - Cost Estimate

E - Gbartala-Finutoli Road - Market Prices

F - Gbartala-Finutoli Road - Traffic Counts

G - Buchanan-Kabli Road - Traffic Counts

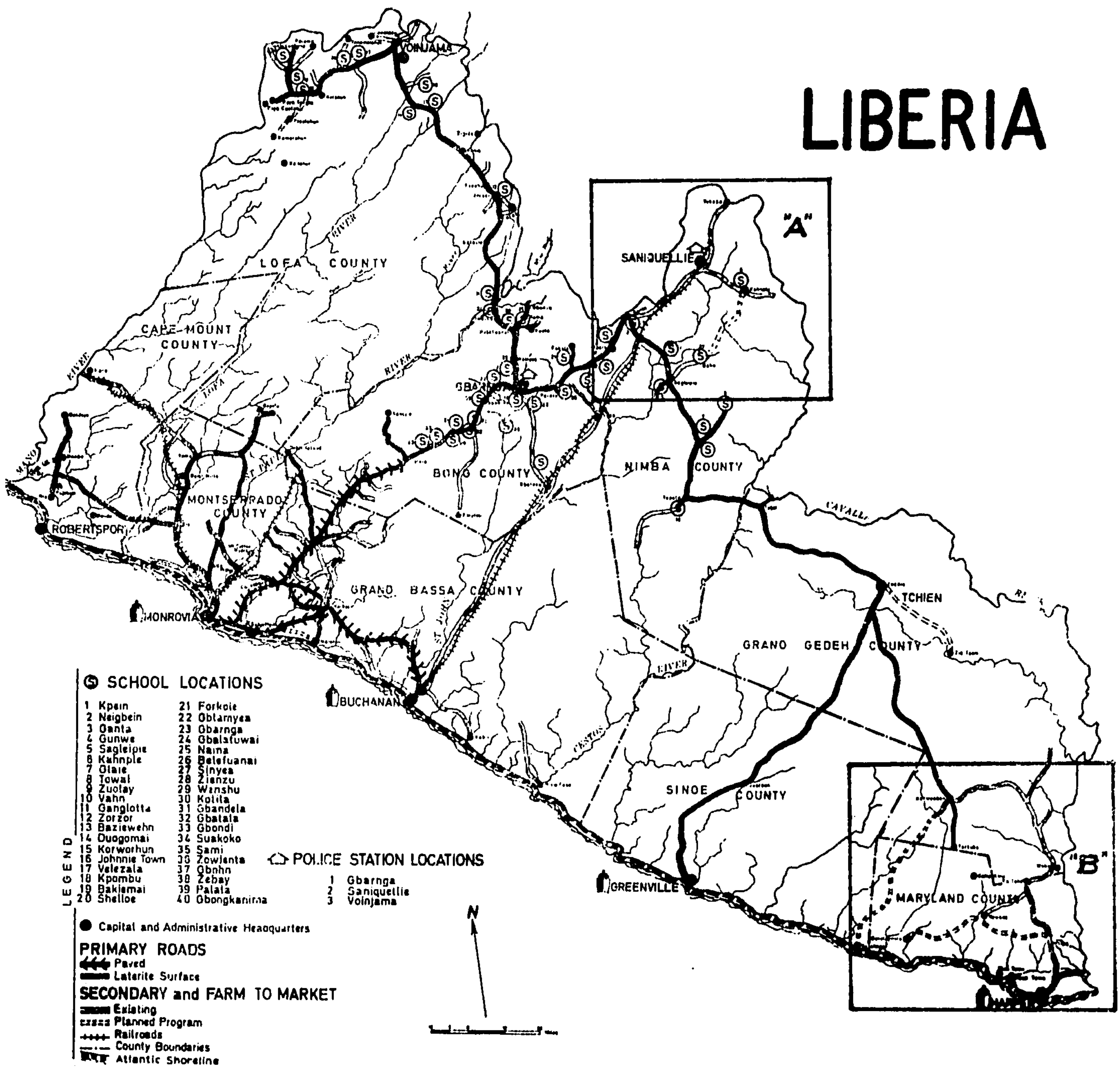
H - 611(e) Certification

I - Statutory Checklist

J - Project Analysis

K - Proposed Agricultural and Forestry Plan for 1972-76

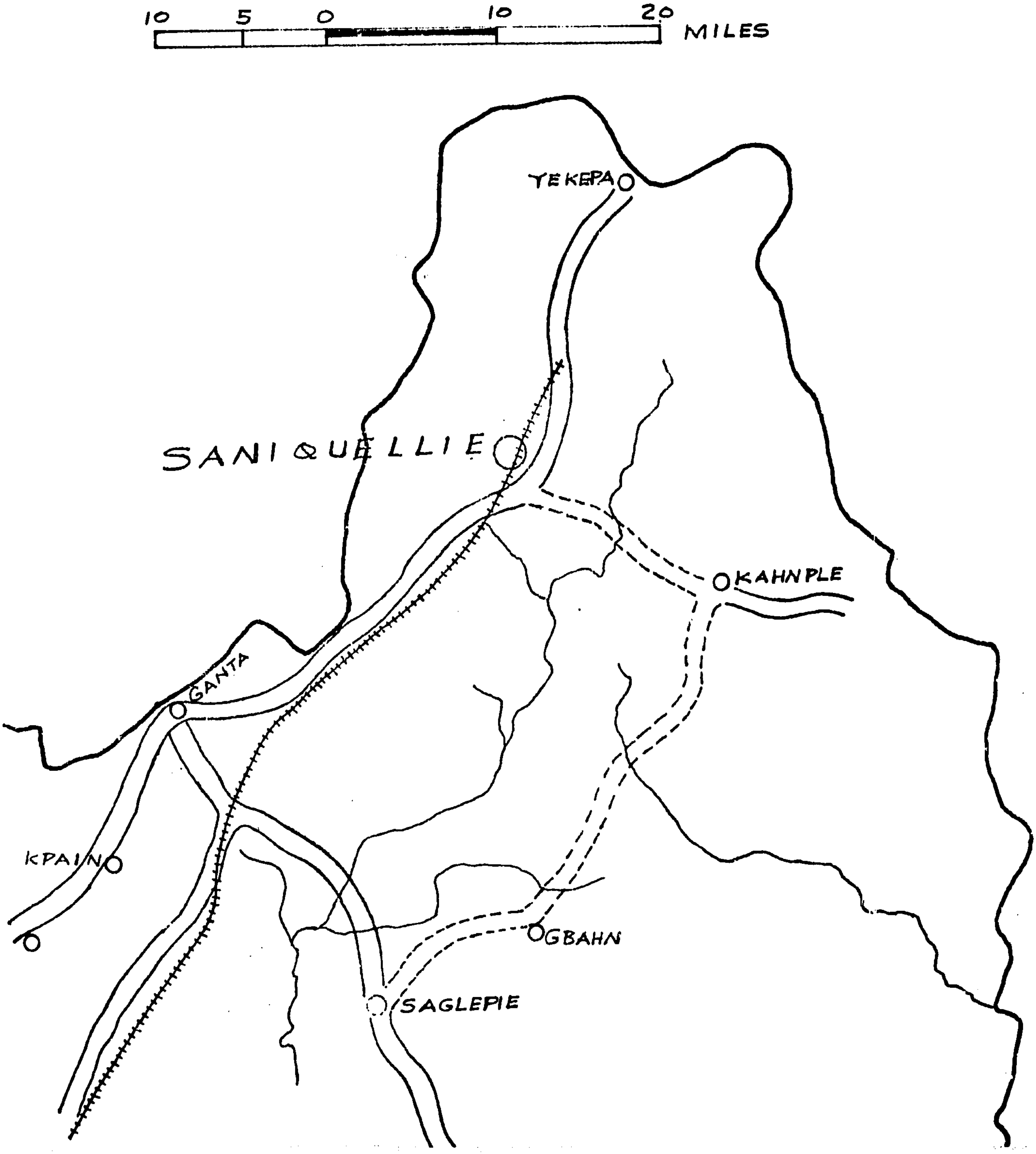
L - Draft Loan Authorization

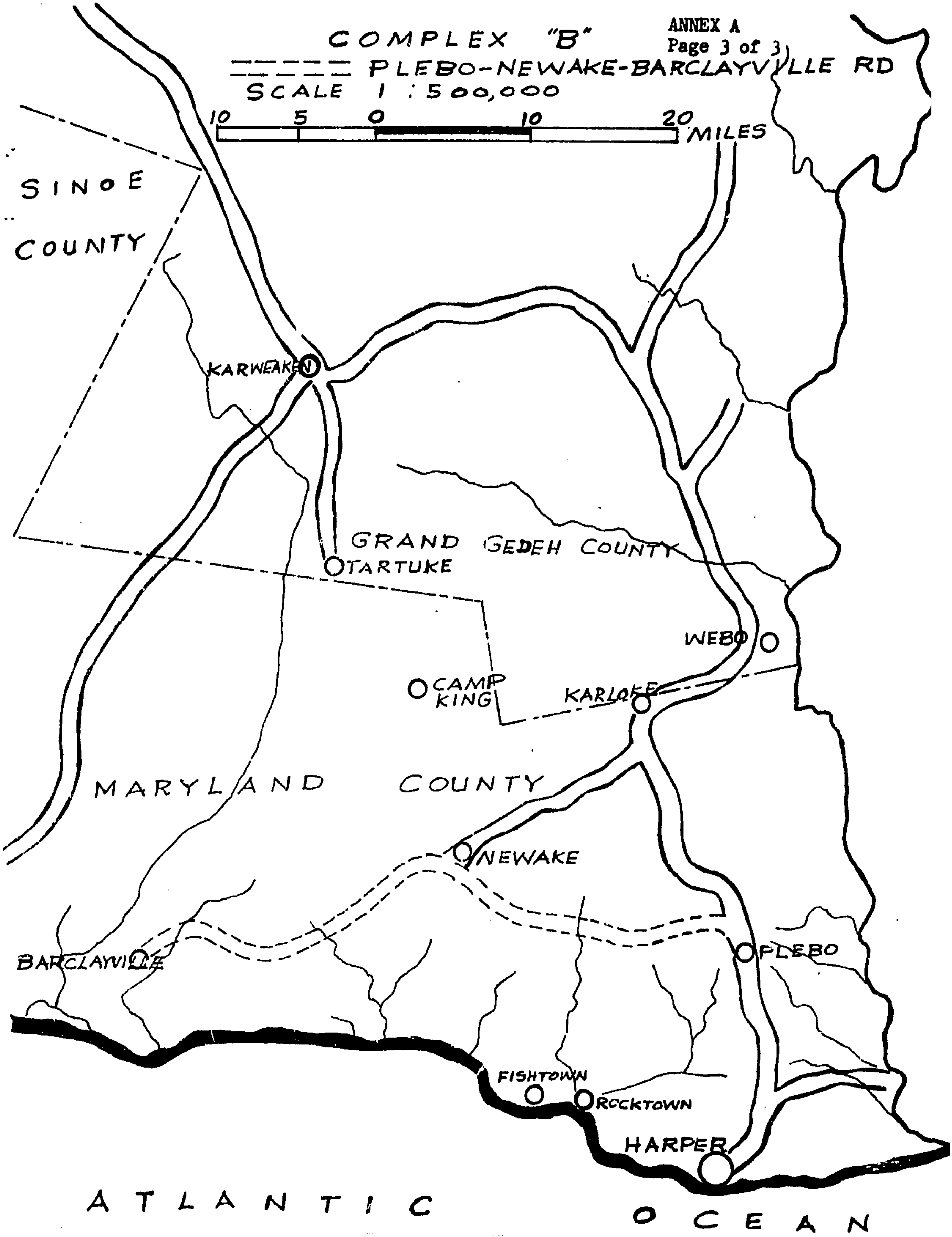

LIBERIA
"A"
"B"
VOINJAMA
SANIQUELLIE
GBARNGA
ROBERTSPORT
MONROVIA
BUCHANAN
GREENVILLE
TCHIEN
LOFA COUNTY
CAPE-MOUNT COUNTY
MONTSERRADO COUNTY
BONG COUNTY
NIMBA COUNTY
GRAND BASSA COUNTY
GRAND GEDEH COUNTY
SINOE COUNTY
MARYLAND COUNTY
LEGEND
SCHOOL LOCATIONS
1 Kpain
2 Neigbein
3 Ganta
4 Gunwe
5 Sagleipie
6 Kahnple
7 Glaie
8 Towai
9 Zuolay
10 Vahn
11 Ganglotta
12 Zorzor
13 Baziewehn
14 Duogomai
15 Korworhun
16 Johnnie Town
17 Velezala
18 Kpombu
19 Bakjemai
20 Shelloe
21 Forkoie
22 Oblamyea
23 Gbarnga
24 Gbalatuwai
25 Naina
26 Belefuanai
27 Sinyea
28 Zienzu
29 Wanshu
30 Kolita
31 Gbandela
32 Gbatala
33 Gbondi
34 Suakoko
35 Sami
36 Zowienta
37 Gbohn
38 Zebay
39 Palala
40 Gbongkanima
POLICE STATION LOCATIONS
1 Gbarnga
2 Saniquellie
3 Voinjama
Capital and Administrative Headquarters
PRIMARY ROADS
Paved
Laterite Surface
SECONDARY and FARM TO MARKET
Existing
Planned Program
Railroads
County Boundaries
Atlantic Shoreline
N

COMPLEX "A"

SAGLEIPIE - GBAHN - KAHNPLE - SANIQUELLIE ROAD

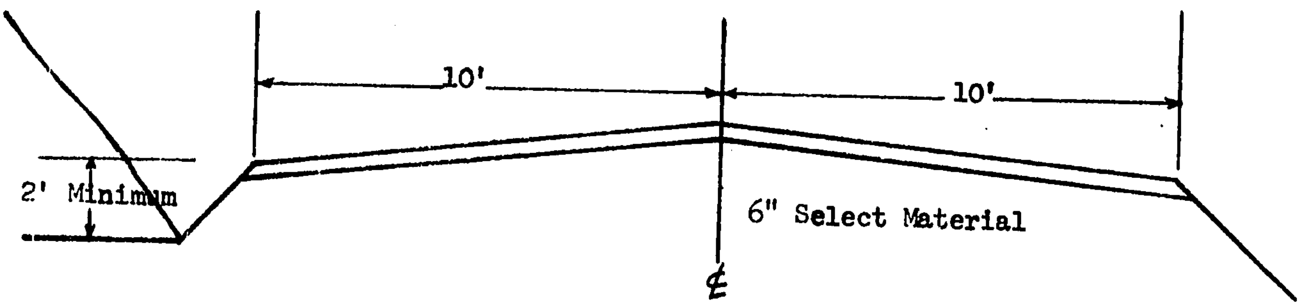
SCALE : 1 : 500,000




COMPLEX "B"
PLEBO-NEWAKE-BARCLAYVILLE RD
SCALE 1 : 500,000
10 5 0 10 20 MILES
SINOE COUNTY
KARWEAKEN
GRAND GEDEH COUNTY
TARTUKE
WEBO
CAMP KING
KARLOKE
MARYLAND COUNTY
NEWAKE
BARCLAYVILLE
PLEBO
FISHTOWN
ROCKTOWN
HARPER
ATLANTIC OCEAN

TYPICAL CROSS SECTION

20 Foot Wide Rural Road



NOTES:

Select Material only where necessary and directed.

Crown - 5% up to 7% grades
7% above 7% grades

HEIGHT (Ft.)	EMBANKMENT SLOPE	EARTHCUT SLOPE	ROCK CUT SLOPE
0-2	2:1	2:1	As
3-6	2:1	1:1	Nearly Vertical
Over 6	2:1	½:1	As Possible.

When field conditions indicate the need for slopes other than those indicated above, they shall be constructed as staked by the Engineer.

DESIGN STANDARDS

Design Criteria	Types of Terrain	
	Flat	Hilly
Speed	35 mph	25 mp
Maximum slope	6%	15%
Minimum Radius	None	None
Width of Road	20 ft	20 ft
Width of Bridges	10 ft	10 ft
Minimum Width, Cleared R/W	50 ft	50 ft
Design Loading	H-20	H-20
Surfacing	Selected Material	Selected Material
Drainage	GMP	GMP

The roads are designed to meet minimum requirements for all-weather type rural roads which can, with minimum reshaping and earth work, be later up-graded to higher classifications. Permanent type drainage structures, corrugated-galvanized metal pipe, bridges with concrete abutments and steel main girders and one ferry at the Barclayville river crossing also make up part of the design criteria.

A roadway of 20-foot width with side drainage ditches having a minimum depth of one foot below road edge is planned. Clearing of the roadway shall be 50 feet wide or five feet beyond the grading limits, whichever is greater. All trees over ten inches breast high diameter within 15 feet of the cut point or toe of fill shall be cut. Grubbing shall include removal of all tree stumps and roots to a depth of six inches below existing grade in fill areas or six inches below final grade in cut areas. The roadway shall be graded, crowned and ditched in accordance with the typical cross section shown in Annex B.

The roads are to be constructed with available material at the job site and no special surfacing is contemplated; except, in sections where the native soil is of such characteristics and quality that the road would become impassable for prolonged periods of time without some protective topping as indicated on the typical cross section. The Contractor shall locate acceptable select-material pits along the routes, as close to the new alignments as permissible. Payments to land owners for providing the select material source shall be negotiated and paid for by the MPW&U from its own budgetary resources.

COST ESTIMATE

A. Sagleipie-Gbahn-Kahnple-Saniquellie Road

	Item	Quantity	Unit Price($)	Amount($)
1.	Clearing & grubbing	340 AC	220.00	74,800
2.	Unclass. excavation	495,176 C.Y.	1.10	544,693
3.	Borrow excavation	75,000 C.Y.	1.10	82,500
4.	Overhaul-select surfacing	25,000 yds/m	.30	7,500
5.	Excavation-structure	6,000 c.y.	2.75	16,500
6.	Select surface material	108,924 C.Y.	1.50	163,386
7.	C.M. pipe installation			
	24" ø	3,529 L.F.	8.30	29,290
	30" ø	692 L.F.	10.25	7,093
	36" ø	3,984 L.F.	15.75	62,748
	48" ø	2,000 L.F.	20.25	40,500
	60" ø	1,598 L.F.	30.00	47,940
8.	Reinforced concrete class "A"	597 C.Y.	81.00	48,357
9.	Reinforced steel	49,722	.30	14,916
10.	Bridges	200 L.F.	450.00	90,000

Sub Total Construction Cost	1,230,245
Contingencies (20%)	276,049
Total Construction Cost	1,476,294
Design, Supervision 10%	147,629
Total Engineering and Construction	1,623,923
Say	1,625,000

B. Pleebo-Barclayville

	Item	Quantity	Unit price($)	Amount($)
1.	Clearing & grubbing	291 AC	220.00	64,020
2.	Unclass. excavation	423,700 C.Y.	1.10	466,070
3.	Borrow excavation	81,900 C.Y.	1.10	90,090
4.	Selected Surfacing Material	93,084 C.Y.	1.50	139,626
5.	Overhaul Select Surfacing	40,000 Yds/M	0.30	12,000
6.	Excavation-Structure	5,500 C.Y.	2.75	15,125
7.	C.M. pipe installation			
	24" ø	7,798 L.F.	8.30	64,723
	30" ø	38 L.F.	10.25	389
	36" ø	2,143 L.F.	15.75	33,752
	48" ø	1,257 L.F.	20.25	25,454
	60" ø	1,038 L.F.	30.00	31,140
8.	Reinforced Concrete Class "A"	212 C.Y.	81.00	17,172
9.	Reinforcing Steel	18,464	0.30	5,539
10.	Bridges	250 L.F.	450.00	112,500
11.	Bridges	350 L.F.	1,000.00	350,000
12.	Ferry & Ramps	1 EA	75,000.00	75,000

Sub Total Construction Cost	1,506,600
Contingencies (20%)	301,500
Total construction cost	1,808,100
Design & Supervision (10%)	180,800
Total Engineering & Construction Costs	1,989,000
Say	2,000,000

C. Technical Services Contract

1 EA. Construction Engineer - 3 yrs @ $50,000 = $150,000. Total yearly estimate includes basic salary, overseas differential, transportation, shipping, housing, utilities and other related logistical expenses.

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ANNEX E

GBARTALA-FINUTOLI ROAD

FOOD SALE AND PRICES AT VOLIBLAI MARKET

January 1969

Commodity	Quantity	Price	Total Value
Palm Oil	50 tons	$ 4.50 each	$ 225.00
Rice	40 bags	7.00	280.00
Palm Kernel	10 bags	7.00	70.00
Cocoyams	50 buckets	.50	25.00
Banana & Plaintain	70 bunches	.50	35.00
Estimated value of cassava, oranges, watermelon, pineapple, beans and potatoes -			20.00
Total			$ 655.00

February 1969

Commodity	Quantity	Price	Total Value
Palm Oil	52 tons	4.50	234.00
Rice 1/	10 bags	7.00	70.00
Palm Kernel	23 bags	7.00	161.00
Cocoyams	72 buckets	.50	36.00
Banana & Plaintain	44 bunches	.50	22.00
Estimated value of cassava, oranges, watermelon, pineapple, beans and potatoes -			25.00
Total			$ 548.00

The average value of the two-day market count is $602.00.

1/ The sharp fall in the number of bags of rice supplied in February was interpreted as a result of hoarding by producers in anticipation of higher prices. It is interesting to note that prices did not rise because of the lesser supply.

GBARTALA-FINUTOLI ROAD

TRAFFIC COUNTS

at Voliblai

Vehicle Type	January 22, 1970 (Market Day)		February 19, 1970 (Market Day)	
	Quantity	No. of Passengers	Quantity	No. of Passengers
Pick-ups	6	51	21	203
Taxis	18	98	30	148
Trucks	2	24	6	34
Money Buses	11	145	6	76
Official	4	10	2	6
Private	1	6	-	-
Total	42	334	65	467

at Finutoli

	February 9, 1970		February 10, 1970 (Market Day)	
Pick-ups	7	42	20	161
Taxis	11	41	16	99
Money Buses	-	-	9	87
Trucks	1	4	-	-
Private	1	5	-	-
Total	20	92	45	347

BUCHANAN-KABLI ROAD

TRAFFIC COUNTS

at Bijou

Week of May 3 to 9, 1970

Day	Type of Vehicle	No. of Vehicles	Passengers
May 7	Pickups	21	189
	Taxis	38	271
	Private Cars	7	25
	Trucks	21	108
	Total	87	593
May 8	Pickups	14	117
	Taxis	42	315
	Private Cars	5	11
	Trucks	17	85
	Total	78	528
May 9	Pickups	9	77
	Taxis	37	307
	Private Cars	8	21
	Trucks	12	93
	Total	66	498

AID-DLC/P-1041

ANNEX H

LIBERIA: RURAL ACCESS ROADS - PHASE II

CERTIFICATION PURSUANT TO SECTION 611(e) OF THE

FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

I, William C. Wild, Jr., Director of the U.S. A.I.D. Mission to Liberia, do hereby certify that in my judgment the Republic of Liberia will have the financial capability and the human resources capability to implement, maintain, and utilize effectively the subject capital assistance project.

This judgment is based on the facts, inter alia, that:

1. The Government has given a high priority to the construction of rural access roads as an essential element to the development of the agricultural sector.

2. The execution of a project involving the construction of two other rural access roads under an existing A.I.D. loan is being carried out in a satisfactory manner.

3. Past performance in maintaining and utilizing successfully capital assistance provided under other A.I.D. projects.

William C. Wild, Jr.

William C. Wild, Jr.

May 9 1972

Date

CHECKLIST OF STATUTORY CRITERIA
DEVELOPMENT LOAN FUND

I. COUNTRY PERFORMANCE

A. Progress Towards Country Goals

1. FAA Secs. 201(b)(5), 201(b)(7), 201(b)(8), 208. Discuss the extent to which the country is:

(a) Making appropriate efforts to increase food production and improve means for food storage and distribution.	The GOL is giving top priority in agricultural development in general and particularly self-sufficiency in rice. There are price support schemes, new milling and warehouse facilities. The purpose of the rural roads project is to increase the production and distribution of food.
(b) Creating a favorable climate for foreign and domestic private enterprise and investment.	Liberia has consistently recognized the importance of private enterprise. Foreign private investment is responsible for most of the economic development of the country. Encouragement is given to both foreign and domestic investment.
(c) Increasing the people's role in the developmental process	The emphasis on agricultural development, particularly in the interior and of feeder road systems are all aimed at increasing the role of the populace in the development process.
(d) Allocating expenditures to development rather than to unnecessary military purposes or intervention in other free countries' affairs.	The level of military expenditure is minimal (5.6% budget in 1970) and limited to that required to insure internal order and stability.
(e) Willing to contribute funds to the project or program.	See Sections II and IV for GOL contribution.

(f) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangement; and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.	The GOL has definitely improved its tax administration and enforcement and introduced new tax measures in recent years. Under the Tolbert administration there has been considerable freedom of the press. Private enterprise is encouraged both for national entrepreneurs and foreign investors.
(g) Responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	The GOL is attempting, through the building of a resource base by increasing export crops, through agricultural projects aimed at the village level, through a rural road structure, to effectuate economic and social reforms for the improvement of living standards.

B. Relations with the United States

1. FAA Sec. 620(c). Is the government indebted to any U.S. citizen for goods or services furnished or ordered where: (a) such citizen has exhausted available legal remedies, including arbitration, or (b) the debt is not denied or contested by the government, or (c) the indebtedness arises under such government's, or a predecessor's unconditional guarantee?	None to our knowledge.
2. FAA Sec. 620(d). If the loan is intended for construction or operation of any productive enterprise that will compete with U.S. enterprise, has the country agreed that it will establish appropriate procedures to prevent export to the U.S. of more than 20% of its enterprise's annual production during the life of the loan?	Not applicable.

3. <u>FAA Sec. 620(c)(1).</u> Has the country's government, or any agency or subdivision thereof, (a) nationalized or expropriated property owned by U.S. citizens or by any business entity not less than 50% beneficially owned by U.S. citizens, (b) taken steps to repudiate or nullify existing contracts or agreements with such citizens or entity, or (c) imposes or enforced discriminatory taxes or other exactions, or restrictives maintenance or operation conditions? If so, and more than six months has elapsed since such occurrence, identify the document indicating that the government, or appropriate agency or subdivision thereof, has taken appropriate steps to discharge its obligations under international law toward such citizen or entity? If less than six months has elapsed, what steps if any has it taken to discharge its obligations?

No.

4. <u>FAA Sec. 620(j).</u> Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property, and failed to take appropriate measures to prevent a recurrence and to provide adequate compensation for such damage or destruction?

No.

5. <u>FAA Sec. 620(l).</u> Has the government instituted an investment guaranty program under FAA Sec. 221(b)(1) for the specific risks of inconvertibility and expropriation or confiscation?

Yes.

6. <u>FAA Sec. 620(o): Fisherman's Protective Act of 1954, as amended, Section 5.</u> Has the country seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters? If, as a result of a seizure, the U.S.G. has made reimbursement under the provisions of the Fisherman's Protective Act and such amount has not been paid

No.

in full by the seizing country, identify the documentation which describes how the withholding of assistance under the FAA has been or will be accomplished.

7. FAA Sec. 620(q). Has the country been in default, during a period in excess of six months, in payment to the U.S. on any FAA loan? — No.

8. FAA Sec. 620(t). Have diplomatic relations between the country and the U.S. been severed? If so, have they been renewed? — No.

C. Relations with Other Nations and the U.N.

1. FAA Sec. 620(i). Has the country been officially represented at any international conference when that representation included planning activities involving insurrection or subversion directed against the U.S. or countries receiving U.S. assistance? — No.

2. FAA Secs. 620(a); 620(n). Has the country sold, furnished, or permitted ships or aircraft under its registry to carry to Cuba or North Viet-Nam items of economic, military, or other assistance? — No.

3. FAA Sec. 620(u); App. Sec. 108. What is the status of the country's U.N. dues, assessments, or other obligations? Does the loan agreement bar any use of funds to pay U.N. assessments, dues, or arrearages? — To the best of our knowledge Liberia is up to date on its U.N. dues, assessments, and other obligations. Yes, the loan agreement limits the use of loan funds for the specific project.

D. Military Situation

1. FAA Sec. 620(i). Has the country engaged in or prepared for aggressive military efforts directed against the U.S. or countries receiving U.S.assistance?

2. <u>FAA Sec. 620(s)</u>. What is (a) the percentage of the country's budget devoted to military purposes, and (b) the amount of the country's foreign exchange resources used to acquire military equipment? Is the country diverting U.S. development assistance or P.L. 480 sales to military expenditures? Is the country diverting its own resources to unnecessary military expenditures? Has the country spent money for sophisticated weapons systems?

(a) 5-6%.
(b) Minimal foreign exchange is spent on military equipment.
(c) No.
(d) No.
(e) No.

II. CONDITION OF THE LOAN

A. <u>General Soundness</u>

— Interest and Repayment

1. <u>FAA Secs. 201(d), 201(b)(2)</u>. Is the rate of interest excessive or unreasonable for the borrower? Are there reasonable prospects for repayment? What is the grace period interest rate; the following period interest rate? Is the rate of interest higher than the country's applicable legal rate of interest?

The rate of interest is not excessive or unreasonable. The grace period is 10 years at 2% interest and 3% interest during the remaining 30 years. The rate of interest is less than Liberia's applicable legal rate of interest.

— Financing

1. <u>FAA Sec. 201(b)(1)</u>. To what extent can financing on reasonable terms be obtained from other free-world sources, including private sources within the U.S.?

Financing from other free-world sources, including private sources within the U.S., is not available.

— Economic and Technical Soundness

1. <u>FAA Secs. 201(b)(2), 201(e)</u>. The activity's economic and technical soundness to undertake loan; does the loan application, together with information and assurances, indicate that funds will be used in an economically and technically sound manner?

Yes. See Sections [illegible] and [illegible] CAP.

2. FAA Sec. 611(a)(1). Have engineering, financial, and other plans necessary to carry out assistance, and a reasonably firm estimate of the cost of assistance to the U.S., been completed?

Yes. See Sections II and IV of CAP.

3. FAA Sec. 611(b); App. Sec. 101. If the loan or grant is for a water or related land-resource construction project or program, do plans include a cost-benefit computation? Does the project or program meet the relevant U.S. construction standards and criteria used in determining feasibility?

Not applicable.

4. FAA Sec. 611(c). If this is a Capital Assistance Project with U.S. financing in excess of $1 million, has the principal A.I.D. officer in the country certified as to the country's capability effectively to maintain and utilize the project?

Yes.

B. Relation to Achievement of Country and Regional Goals.

— Country Goals

1. FAA Secs. 207, 281(a). Describe this loan's relation to:

a. Institutions needed for a democratic society and to assure maximum participation on the part of the people in the task of economic development.

This project will open up rural areas and permit these areas away from the capital city to take an increasing role in the country's development.

b. Enabling the country to meet its food needs, both from its own resources and through development, with U.S. help, of infrastructure to support increased agricultural productivity.

This project directly meets these objectives. See Section III of CAP.

c. Meeting increasing need for trained manpower.

Design and construction work on these roads will help develop these special skills.

d. Developing programs to meet public health needs.	Not directly related, although it will increase the accessibility of these areas for health care.
e. Assisting other important economic, political, and social development activities, including industrial development; growth of free labor unions; cooperatives and voluntary agencies; improvement of transportation and communication systems; capabilities for planning and public administration; urban development; and modernization of existing laws.	Opening up rural areas, improved transportation and increased agricultural production are all important part of the objectives indicated.
2. FAA Sec. 201(b)(4). Describe the activity's consistency with and relationship to other development activities, and its contribution to realizable long-range objectives.	This project should lead to increased agricultural production, a priority long-term objective of the GOL.
3. FAA Sec. 201(b)(9). How will the activity to be financed contribute to the achievement of self-sustaining growth?	By increasing self-reliance in food production.
4. FAA Sec. 201([illegible]). If this is a project loan, describe how such project will promote the country's economic development, taking into account the country's human and material resource requirements and the relationship between ultimate objectives of the project and overall economic development.	See Section I [illegible] and III of CAP.
5. FAA Sec. 201(b)(3). In what ways does the activity give reasonable promise of contributing to development of economic resources, or to increase of productive capacities?	See Section III of CAP.

6. FAA Sec. 281(b). How does the program under which assistance is provided recognize the particular needs, desires, and capacities of the country's people; utilize the country's intellectual resources to encourage institutional development; and support civic education and training in skills required for effective participation in political processes.	Better transportation and opening up of rural areas will provide greater contact and exchange and permit the Government to be more responsive to the needs of the people.
7. FAA Sec. 601(a). How will this loan encourage the country's efforts to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions?	See Section III of CAP.
8. FAA Sec. 202(a). Indicate the amount of money under the loan which is: going directly to private enterprise; going to intermediate credit institutions or other borrowers for use by private enterprise; being used to finance imports from private sources; or otherwise being used to finance procurements from private sources.	The entire loan will be used to procure goods and services from private enterprise.
9. FAA Sec. 611(a)(2). What legislative action is required within the recipient country? What is the basis for a reasonable anticipation that such action will be completed in time to permit orderly accomplishment of purposes of loan?	None required.

Regional Goals

1. FAA Sec. 619. If this loan is assisting a newly independent country, to what extent do the circumstances permit such assistance to be furnished through multilateral organizations or plans?

Multilateral institutions are contributing to the transport and agricultural sectors. This project will complement these efforts.

2. FAA Sec. 209. If this loan is directed at a problem or an opportunity that is regional in nature, how does assistance under this loan encourage a regional development program? What multilateral assistance is presently being furnished to the country?

See Section III and IV of CAP.

C. Relation to U.S. Economy

-- Employment, Balance of Payments, Private Enterprise

1. FAA Secs. 201(b)(6); 102, Fifth. What are the possible effects of this loan on U.S. economy, with special reference to areas of substantial labor surplus? Describe the extent to which assistance is constituted of U.S. commodities and services, furnished in a manner consistent with improving the U.S. balance of payments position.

There is no special applicability in reference to areas of substantial labor resources. See Sections IV and V of CAP for other question.

2. FAA Secs. 612(b), 636(h). What steps have been taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. and local currencies contributed by the country are utilized to meet the cost of contractual and other services, and that U.S. foreign-owned currencies are utilized in lieu of dollars?

No U.S. foreign owned currencies available for project. The GOL will contribute to the project. See Section IV.

3. FAA Sec. 601(d); App. Sec. 109. If this loan is for a capital project, to what extent has the Agency encouraged utilization of engineering and professional services of U.S. firms and their affiliates? If the Loan is to be used to finance direct costs for construction, will any of the

The loan agreement restricts procurement of these services to Liberia and Code 941 countries, which includes the U.S.; Loan agreement contains standard AID clause in regard to third-country nationals.

contractors be persons other than qualified nationals of the country or qualified citizens of the U.S.? If so, has the required waiver been obtained?

4. FAA Sec. 608(a). Provide information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	The loan agreement contains the standard AID clause in this regard.
5. FAA Sec. 602. What efforts have been made to assist U.S. small business to participate equitably in the furnishing of commodities and services financed by this loan?	AID procedures will be followed to provide notice of intended procurement to U.S. small business.
6. FAA Sec. 621. If the loan provides technical assistance, how is private enterprise on a contract basis utilized? If the facilities of other Federal agencies will be utilized, in what ways are they particularly suitable; are they competitive with private enterprise (if so, explain); and how can they be made available without undue interferences with domestic programs?	Technical assistance will be provided on a contract basis. No other Federal agency involved.
7. FAA Sec. 611(c). If this loan involves a contract for construction that obligates in excess of $100,000, will it be on a competitive basis? If not, are there factors which make it impracticable?	All construction contracts will be let on a competitive basis.

— Procurement

1. FAA Sec. 602(a). Will commodity procurement be restricted to U.S. except as otherwise determined by the President?	Yes.

2. FAA Sec. 604(b). Will any part of this loan be used for bulk commodity procurement at adjusted prices higher than the market price prevailing in the U.S. at time of purchase?	No.
3. FAA Sec. 604(e). Will any part of this loan be used for procurement of any agricultural commodity or product thereof outside the U.S. when the domestic price of such commodity is less than parity?	No.

D. Other Requirements

1. FAA Sec. 201(b). Is the country among the 20 countries in which development loan funds may be used to make loans in this fiscal year?	Yes.
2. App. Sec. 106. Does the loan agreement provide, with respect to capital projects, for U.S. approval of contract terms and firms?	Yes.
3. FAA Sec. 620(k). If the loan is for construction of a productive enterprise, with respect to which the aggregate value of assistance to be furnished will exceed $100 million, what preparation has been made to obtain the express approval of the Congress?	Not applicable.
4. FAA Secs. 620(b), 620(f); App. Sec. 109(b). Has the President determined that the country is not dominated or controlled by the international Communist movement? If the country is a Communist country (including, but not limited to, the countries listed in FAA Sec. 620(f)) and the loan is intended for economic assistance, have the findings required by FAA Sec. 620(f) and App. Sec. 109(b) been made and reported to the Congress?	Yes.
5. FAA Sec. 620(h). What steps have been taken to insure that the loan will not be used in a manner which, contrary to the best interest of the United States, promotes or assists the foreign aid projects of the Communist-bloc countries?	The loan agreement contains the standard AID clause in this regard.

6. App. Sec. 110. Will any funds be used to finance procurement of iron and steel products for use in Viet-Nam other than as contemplated by Sec. 110?	No.
7. FAA Sec. 636(i). Will any part of this loan be used in financing non-U.S.-manufactured automobiles? If so, has the required waiver been obtained?	No.
8. FAA Secs. 620(a)(1) and (2), 620(p); App. Sec. 117. Will any assistance be furnished or funds made available to the government of Cuba or the United Arab Republic?	No.
9. FAA Sec. 620(g). Will any part of this loan be used to compensate owners for expropriated or nationalized property? If any assistance has been used for such purpose in the past, has appropriate reimbursement been made to the U.S. for sums diverted?	No. No such assistance has been used for this purpose.
10. FAA Sec. 201(f). If this is a project loan, what provisions have been made for appropriate participation by the recipient country's private enterprise.	Private construction firms in Liberia will be eligible to bid on the project.
11. App. Sec. 104. Does the loan agreement bar any use of funds to pay pensions, etc., for persons who are serving or who have served in the recipient country's armed forces?	Yes. The loan agreement limits the use of loan funds for the specific project.
12. MMA Sec. 901.b. Does the loan agreement also provide for compliance with U.S. shipping requirements, that at least 50% of the gross freight revenues of goods shipped under this loan must be earned by privately owned U.S.-flag commercial vessels to the extent such vessels are available at fair and reasonable rates for U.S.-flag vessels?	Yes.

13. FAA Sec. 481. Has the country failed to take adequate steps to prevent narcotic drugs from entering the U.S. unlawfully?

No, Liberia is cooperative with the U.S. and international organizations in the control of narcotics drugs.

14. FAA Sec. 605(e). Has there been compliance with restriction against procuring with A.I.D. funds agricultural commodities outside the U.S. when the domestic price of such commodity is less than parity?

No agricultural commodities will be procured with funds provided under this loan.

Project Analysis

The primary objective of the proposed project is to bring about an increase in the real wealth of the people in the project areas by improving and expanding the areas' rural road networks. This would thereby increase marketing opportunities, reduce transportation costs and improve access for public and private development activities. As the following analysis attempts to illustrate, financing the two roads will be in conformity with the proposition central to cost benefit analysis; namely, that the cost of the economic resources used for the construction and maintenance of the roads will yield economic benefits at least as high as they would yield if committed to alternative uses, based on the assumption that the opportunity cost of capital for public sector projects in Liberia is 10%.

The following quantification of the economic benefits which one can reasonably assume will result from the construction of the proposed access roads will be limited to:

(a) the reduction in the operating costs, discounted at 10%, of cars, pick-up and larger trucks moving commodities to and from the project areas, based on ADT counts contained in the Sauti Report.1/

(b) The net value of additional crops which will be produced and enter into commercial channels as a result of the construction of the two proposed roads.

I. General Methodology

A. Costs - The estimates of construction costs prepared by the MW&P were reviewed by A.I.D. engineers and found to be reasonable. Estimates of per mile maintenance cost for laterite roads were obtained from the Sauti report and, while low, are also considered reasonable. Maintenance costs over the twenty-years life of the road were calculated to be constant. Tables I and II present the calculations of the cost of constructing and maintaining the proposed roads, discounted to Net Present Worth.

B. User Savings - Since only the Sagleipie/Gbahn and Saniquellie/Kahnple sections of the proposed Sagleipie/Sanquellie roads are in existence, present user savings due to road improvement were limited to these sections. Calculations of savings for these sections were based on ADT counts (including projections) and vehicle operating cost figures

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1/ Liberian Road Maintenance Study being performed by the Italian consulting firm of Sauti under an IBRD financed contract.

contained in the Sauti report. The difference (decrease) in per unit vehicle operating costs per mile attributable to the project were assumed to be constant over the twenty-year life of the project. Table III contains the results of these calculations.

Since the Plebo/Barclayville road involves new construction for the total length, no present user savings could be calculated.

C. Generated Productivity - Based on (1) the results of the case studies performed on two recently completed A.I.D.-financed rural roads in Liberia, (2) information contained in the Stanley1/ and Sauti reports and numerous other reports available on Liberia and (3) past A.I.D. experience with the results of rural access road construction, it was conservatively assumed that agricultural productivity in the zone of influence of the proposed roads could be expected to increase by approximately 100% (3.5% per year compounded) over the twenty-year life of the proposed roads. In support of this conservative assumption, every effort was made to limit increased productivity to the level which could reasonably be expected to occur. Tables III and IV present the discounted values of the productivity generated over the twenty-year life of the project.

II. Assumptions

A. Productive Capacity of Soils - A review of a physical resource map indicates that the soils in the zones of influence are of fairly uniform quality and are at least comparable in productive capacity to average soils in the rest of Liberia.

B. Population - Population in the zones of influence is held steady throughout the twenty-year life of the project, in part because of the lack of consistent data regarding rural-to-urban population movements in Liberia. Although projections contained in the Sauti report indicate the population in rural areas will increase at a rate lower than the national average (1.5 vs. 2.5) and substantially lower than that in urban areas (5.0), due to urban migration it is likely that population in the rural areas will increase somewhat during the life of the project. Thus, by assuming this steady population, the assumption regarding production increases over the life of the project becomes more conservative, since additional people will likely be responsible for additional commercial crop production. Further, it seems reasonable to assume that the existence of new roads in the areas will slow somewhat the rate of the urban migration.

1/ Final Report on Selected Economic and Social Benefits to be Derived from the Construction of Nine Separate Lengths of Rural Access Roads in Liberia.

The primary reason for holding population constant is to avoid having to differentiate the growth of output which is related to the construction of the proposed access roads from that which is related to population increases.

Further, population figures are significant primarily because they provide a tool for quantifying an assumed doubling of agricultural production in the respective zones of influence; thus, the relationship between the population level and the level of output is an indirect one.

C. Agricultural Output in the Zones of Influence - Lacking specific data regarding the level and mix of agricultural output in the zones of influence, the only reasonable method of estimating gross production in these zones is on a per capita basis. In this context it is assumed that per capita output in the project area is at least equal to that of Liberia as a whole. Given that both proposed roads are located in relatively heavily populated areas, where a more sophisticated market system is likely to exist, this assumption is likely to be conservative.

The per capita agriculture production figure was arrived at in the following manner. Approximately 26% of Liberia's population is categorized as urban and, it is therefore assumed, not directly engaged in agricultural production. Thus the urban population was subtracted from the officially accepted population figure of 1,523,000. Further, in accordance with the official GOL Census Bureau practice, the rural population under ten-years of age was also subtracted from the total population. The figure thus arrived at (i.e. the total rural population over 10) was assumed to be the total population engaged in agricultural production. While further refinement of this figure is possible (e.g. further distinction between the rural population engaged in agricultural production and other types of production, etc.), it was considered unnecessary for purposes of this analysis. Based on the above criteria, a figure of 931,330 was arrived at for the total population engaged in agricultural production. This figure was then divided into the dollar value of Liberia's agricultural output for 1970 as broken down in IMF's most recent report on Liberia* The latter figure was arrived at by making several refinements on the gross output figure of $109.7 million:

First, the value of subsistence production was removed from the total figure, since the former figure is directly related to population growth and inversely related to the increased specialization and commercialization of agriculture which the construction of the proposed roads is designed to help achieve.

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*International Monetary Fund Report, Liberia: Recent Economic Developments, February 22, 1972

Second, the total value of rubber production was removed in determining per capita output for the Saniquellie-Sagleipie road since, according to the latest information available, less than 1% of total rubber acreage is located in Nimba county. However, since approximately 10% of total rubber acreage is located in Maryland county (within which Plebo-Barclayville road is located) a corresponding percentage of total Liberian-owned rubber production (non-concession) was included in the per capita production figure.

Third, since neither of the proposed roads was located in commercial timber areas, the value of timber was removed from the total figure.

Thus, the per capita production figure for the Saniquellie-Sagleipie zone was arrived at as follows:

Estimated 1970 total	Agricultural Production	\$109.7 million
	Subsistence Production	- 31.0
	Rubber Production	- 33.6
	Timber Production	- 5.8
	Total Other*	\$ 39.3 million

This figure was then divided by the agriculturally engaged population figure of 931,330, and a per capita production figure of \$40 was arrived at.

The per capita production figure for the Plebo-Barclayville zone was arrived at in exactly the same fashion, except that 10% of the estimated value of Liberian-owned rubber production was included. The per capita production figure thus arrived at was \$41.50.

In order to arrive at the estimated value of present production in the two zones of influence, their respective populations were reduced by the number of children under ten years of age, based on the national average (approximately 10%). The latter figure was then multiplied by the per capita output figure arrived at above for the respective zones.

The present output figures of \$1,116,000 and \$1,120,000 were arrived at for the Sagleipie-Saniquellie and Plebo-Barclayville zones, respectively. To calculate a net production figure, these values had to be reduced by the cost of the inputs of hired labor and capital required to produce them (land was assumed to be a free good). Since a breakdown of the various goods (except cash crops--coffee, cocoa and palm kernels--which amounted to less than 18% of the total) was not available, it was

*17.4% of OTHER includes the production of coffee, palm kernels and cocoa, in order of importance.

arbitrarily estimated that 25% of the total value of agricultural production was required to reach that output. This is estimated to be an adequate figure, since the majority of the total output-involved commodities for local consumption, such as rice, cassava, poultry, etc. do not normally involve large labor inputs in Liberia. The benefits arrived at using the reduced (net) production figures are presented in Tables V and VI.

In analyzing the above assumption regarding increased output in the zones of influence, it is important to note that the production of certain crops, especially rice, edible oils, and also meat, dairy products, and poultry are likely to become increasingly important as development occurs in Liberia. The importation of rice has, for example, caused a substantial drain on Liberian foreign exchange (1965-69) -- an average of $6.0 million annually.

In this context, self-sufficiency in rice production has become a major GOL goal as discussed in Annex L. Production of the above items will increasingly involve commercial enterprise and will therefore expand total agricultural production in the zones of influence.

The speed at which this monetization process takes will be materially influenced by the policies of the GOL. Based on the increased emphasis placed upon the development of the Agricultural Sector by the GOL as exemplified in the Department of Agriculture's Development Plan for the 1972-76 period, the monetization of certain of these crops is likely to occur at a more rapid pace in the near future. The construction of access roads is an important aspect of the GOL's overall efforts to increase agricultural production. We are confident that the project areas will receive adequate support under the 1972-76 Agricultural Development Plan.

D. Present Worth of Two Rural Access Roads - Based on the above assumptions and methodology, a benefit cost ratio of 1.95 and an internal rate of return of 17.2% were calculated for the Sagleipie/Saniquellie project. The calculations for the Plebo/Barclayville road indicated a benefit cost ratio of 1.35 and an internal rate of return of 13.37%. Tables VII through X present the calculations of the above figures.

In evaluating these ratios it is important to note that the figures are based on the most conservative evaluations and assumptions and therefore understate the actual benefits. For example, it is reasonable to expect that there will be a population increase in the areas served by the road. It is also reasonable to expect, given the emphasis being placed by the GOL on development in the agricultural sector, especially with respect to rice and cash tree crops, that substantial increases in the production of these crops will occur.

TABLE I

Present Value of Sagleipie - Saniquellie

Road Construction and Maintenance Costs

Construction Costs 1/	Maintenance Costs 2/	Present Worth at 10% 3/
500,000		454,550
600,000		495,840
500,000		375,650
	24,930	16,658
	24,930	15,134
	24,930	14,073
	24,930	12,794
	24,930	11,629
	24,930	10,560
	24,930	9,105
	24,930	8,738
	24,930	7,943
	24,930	7,222
	24,930	6,564
	24,930	5,968
	24,930	5,425
	24,930	4,931
	24,930	4,485
	24,930	4,076
	24,930	3,705
	24,930	3,368
	24,930	3,061
	24,930	2,785

1/ Present Worth of Construction Costs $1,325,680

2/ Present Worth of Maintenance Costs $158,584

3/ Present Worth of Costs $1,484,264

TABLE II

Present Value of Plebo-Barclayville Road

Construction and Maintenance Costs

Construction Costs 1/	Maintenance Costs 2/	Present Worth at 10% 3/
600,000		545,460
800,000		661,120
600,000		450,780
	21,300	14,547
	21,300	13,225
	21,300	12,024
	21,300	10,912
	21,300	9,363
	21,300	9,033
	21,300	8,211
	21,300	7,466
	21,300	6,786
	21,300	6,171
	21,300	5,608
	21,300	5,099
	21,300	4,635
	21,300	4,213
	21,300	3,832
	21,300	3,482
	21,300	3,165
	21,300	2,878
	21,300	2,616
	21,300	2,379

1/ Present Worth of Construction Costs $1,657,360

2/ Present Worth of Maintenance Costs $135,645

3/ Present Worth of Costs $1,793,005

TABLE III

Present Value of User Benefits from Reconstructing Road Between Saniquellie and Kahnple

ADT	Total No. Trips/Year	Total Benefits 1/	Present Worth at 10% 2/
40	12,000	38,880	29,211
41	12,300	39,852	27,219
42	12,600	40,824	25,348
43	12,900	41,796	23,594
44	13,200	42,768	21,949
45	13,500	43,740	20,405
46	13,800	44,712	18,962
47	14,100	45,684	17,226
48	14,400	46,656	16,353
49	14,700	47,628	15,174
50	15,000	48,600	14,079
51	15,300	49,572	13,052
52	15,600	50,544	12,100
53	15,900	51,516	11,210
54	16,200	52,488	10,382
55	16,500	53,460	9,617
56	16,800	54,432	8,900
57	17,100	55,404	8,233
58	17,400	56,376	7,616
59	17,700	57,348	7,042
60	18,000	58,320	6,514

1/ Total Benefits calculated as follows:

Trips/year X Vehicle Savings/Trip

Vehicle Savings/Trip = $3.24

This represents a vehicle savings per mile of $.162 (based on the improved quality of the road) times 20 miles per trip.

Cost/mile on poor laterite road.*	$ .30610
Cost/mile on good laterite road.	.14447
	$ .16177

2/ Present Worth of User Benefits $324,186

*Source: Liberian Road Maintenance Study being performed by the Italian consulting firm of Sauti under an IBRD financed contract.

TABLE IV

Present Value of User Benefits from Reconstruction of Road Between Sagleipie and Gbahn

ADT	X	Total No. Trips/Year	Total Benefits 1/	Present Worth at 10% 2/
30		10,950	6,570	4,936
31		11,115	6,669	4,555
32		11,680	7,008	4,351
33		12,045	7,227	4,080
34		12,410	7,446	3,821
35		12,775	7,665	3,576
36		13,140	7,884	3,344
37		13,505	8,103	3,124
38		13,870	8,322	2,917
39		14,235	8,541	2,721
40		14,600	8,760	2,538
41		14,965	8,979	2,364
42		15,330	9,198	2,202
43		15,695	9,417	2,049
44		16,060	9,636	1,906
45		16,425	9,855	1,773
46		16,790	10,074	1,647
47		17,155	10,293	1,530
48		17,520	10,512	1,420
49		17,885	10,731	1,318
50		18,250	10,950	1,223

1/ Total benefits were calculated as follows:

Trips/Year X Vehicle Savings/Trip

Vehicle Savings/Trip = $.60

This represents vehicle saving per mile of $.06 (based on the improved quality of the road) times 10 miles per trip.

Cost/mile on a fair laterite road.*	$ .21015
Cost/mile on a good laterite road.	.14447
	$ .06557

2/ Present Worth of User Benefits $57,395

*Source: Liberian Road Maintenance Study being performed by the Italian consulting firm of Sauti under an IBRD financed contract.

TABLE V

Present Value of Net Benefits Generated by the Construction/Improvement of Sagleipie-Saniquellie Road

Population in Zone of Influence	X	Increased Ag Production Per Capita 1/	=	Total Net Benefits 2/	Present Worth at 10 Percent 3/
27,900		1.50		31,388	21,438
27,900		3.00		62,775	38,977
27,900		5.00		104,625	59,061
27,900		7.50		156,937	80,540
27,900		10.50		219,712	102,496
27,900		14.00		292,995	124,259
27,900		18.00		376,650	145,199
27,900		22.50		470,812	165,020
27,900		26.50		554,512	176,668
27,900		30.00		627,750	181,859
27,900		33.00		690,525	181,815
27,900		35.00		736,560	176,333
27,900		37.00		774,225	168,471
27,900		37.50		784,687	155,211
27,900		38.00		795,150	143,048
27,900		38.50		805,615	131,718
27,900		39.00		816,075	121,268
27,900		39.50		826,537	111,665
27,900		39.75		831,768	102,141
27,900		40.00		837,000	93,493
		Totals		10,796,298	2,480,680

1/ Base year value of per capita agricultural output in the zone of influence calculated at $40 per person 10 years of age and above. Over 20 years it is assumed that this figure will increase by 100%.

2/ Gross output reduced by imputed costs of 25% as derived from aggregate figures contained in "Economic Survey Liberia 1970".

3/ Present Worth Discounted at 10 Percent $2,480,680

TABLE VI

Present Value of Net Benefits Generated by the Construction/Improvement of the Plebo-Barclayville Road

Population in Zone of Influence	X	Increased Ag Production $ Per Capita 1/	Total Net Benefits 2/	Present Worth at 10 Percent 3/
27,000		1.50	30,375	19,839
27,000		3.00	60,750	37,945
27,000		5.00	101,000	57,155
27,000		7.50	151,875	77,942
27,000		10.50	212,625	99,190
27,000		14.00	283,500	120,232
27,000		18.00	364,500	140,440
27,000		22.50	455,625	159,970
27,000		26.50	536,625	170,969
27,000		30.50	607,500	175,993
27,000		33.00	668,250	175,950
27,000		35.00	708,750	169,675
27,000		37.50	759,375	165,240
27,000		38.50	779,675	154,210
27,000		39.00	789,750	142,076
27,000		39.50	799,875	130,780
27,000		40.00	810,000	120,366
27,000		40.50	820,125	110,798
27,000		41.00	830,250	102,001
27,000		41.50	840,375	93,870
		Totals	10,610,800	2,424,641

1/ Base year value of per capita agricultural output in the zone of influence calculated at $41.50 per persons 10 years of age and above. Over 20 years it is assumed that this figure will increase by 100%.

2/ Gross output reduced by imputed cost of 25% as derived from aggregate figures contained in "Economic Survey of Liberia 1970".

3/ Present Worth Discounted at 10 percent $2,424,641

TABLE VII

Benefit Cost Ratio for Saniquellie-Sagleipie at Discount Rate of 10 Percent

TOTAL COST	TOTAL BENEFIT		
Present Worth at 10 Percent 1/	Present Worth at 10 Percent User Savings 2/	+ Net Generated Production 3/	Total 4/
454,550			
495,840			
375,650			
16,658	34,147		34,147
15,134	31,774	21,438	53,212
14,073	29,699	38,977	68,676
12,794	27,674	59,061	86,735
11,629	25,770	80,540	106,310
10,560	23,981	102,496	126,477
9,105	22,306	124,259	146,565
8,738	20,350	145,199	165,549
7,943	19,270	165,020	184,290
7,222	17,895	176,668	194,563
6,564	16,617	181,859	198,476
5,968	15,416	181,815	197,231
5,425	14,302	176,333	190,635
4,931	13,259	168,471	181,730
4,485	12,288	155,211	167,499
4,076	11,390	143,048	154,438
3,705	10,547	131,718	142,265
3,368	9,763	121,268	131,031
3,061	9,036	111,665	120,701
2,785	8,360	102,141	110,501
	7,737	93,493	101,230
Totals 1,484,264	381,581	2,480,680	$2,862,261

1/ From column 3 page 7.

2/ Sagleipie-Gbahn plus Saniquellie-Kahnple links user savings.

3/ From column 4 page 10.

4/ Column 2 + column 3

Benefit Cost Ratio $\frac{2,862,261}{1,487,264} = 1.92$

TABLE VIII

IRR Calculations Sagleipie-Saniquellie Road

Net Undiscounted Benefits		Net Benefits Discounted at 16%	Net Benefits Discounted at 18%
-500,000		-431,000	-423,750
-600,000		-445,860	-430,920
-454,550		-291,185	-276,639
52,979		29,160	27,327
85,677		40,790	37,449
128,718		52,826	47,677
182,221		64,470	57,199
246,187		75,087	65,486
320,661		84,334	72,309
405,507		91,928	77,492
500,860		97,868	81,089
585,751		98,699	80,365
660,180		95,858	76,779
724,146		90,663	71,328
771,372		83,231	64,409
810,228		75,351	57,364
821,881		65,915	49,313
833,595		57,597	42,344
845,191		50,373	36,428
856,842		44,042	31,275
868,495		38,474	26,834
874,917		33,422	22,923
881,340		28,991	19,566
	Totals	+131,034	-86,353

$$\text{IRR} = 16 + .02 \quad \frac{131,034}{131,034 + 86,353} =$$

$$= .16 + .02\ (.603)$$

$$= 17.2$$

TABLE IX

Benefit Cost Ratio For Plebo-Barclayville at Discount Rate of 10 Percent

	Total Cost Present Worth at 10 Percent 1/	Total Benefit Present Worth of Net Production Generated 2/
	545,460	
	661,120	
	450,780	
	14,547	19,839
	13,225	37,945
	12,024	57,155
	10,912	77,942
	9,363	99,190
	9,033	120,232
	8,211	140,440
	7,466	159,970
	6,786	170,969
	6,171	175,993
	5,608	175,950
	5,099	169,675
	4,635	165,240
	4,213	154,210
	3,832	142,076
	3,482	130,780
	3,165	120,366
	2,878	110,798
	2,616	102,001
	2,379	93,870
Totals	1,793,005	2,424,641

1/ From column 3 page 7

2/ From column 4 page 11

$$\text{Benefit Cost Ratio} = \frac{2,424,641}{1,793,005} = 1.35$$

TABLE X

IRR Calculations Plebo-Barclayville Road

Net Undiscounted Benefit	Net Benefits Discounted at 10%	Net Benefits Discounted at 15%
-600,000	-545,460	-521,760
-800,000	-661,120	-604,880
-600,000	-450,780	-394,500
9,075	5,292	5,189
39,450	24,720	19,615
79,700	45,131	34,563
130,575	67,030	49,082
191,325	89,827	62,544
262,200	111,199	74,543
343,200	132,229	84,839
434,325	152,504	93,337
515,325	164,183	96,314
586,200	169,822	98,258
646,950	170,342	91,414
687,450	164,576	84,488
738,075	160,605	78,900
758,375	149,997	70,449
768,450	138,244	63,091
778,575	127,298	54,734
788,700	117,201	48,190
798,825	107,920	42,418
808,950	99,385	37,391
819,075	91,491	32,927
Discounted Present Value	631,636	-298,854

$$IRR = .10 + .05 \quad \frac{631,636}{631,636 + 298,854}$$

$$= .10 + .03375$$

$$\doteq 13.3$$

Proposed agricultural and forestry plan for 1972-76

In recent years the Liberian authorities have been placing increasing emphasis on the development of the agricultural sector. The Department of Agriculture has proposed a plan for the development of agriculture and forestry for the 1972-76 period. The ultimate purpose of the plan is to covert the largely subsistence agricultural sector into a well-managed modern industry. A major objective of the proposed plan is the diversification of the agrarian sector. The Liberian economy has been dependent on a few commodities, the world market prices of which have fluctuated considerably and/or have been subject to a steady downward trend during the last decade or so. Diversification, by involving all the regions of the country would also ensure a more regionally widespread distribution of agricultural production and incomes.

In choosing the projects under the plan, emphasis has been placed on products which are import substitutes such as rice, meat, dairy products poultry, and processing of edible oils, or export possibilities, such as coffee, cocoa, palm oil, coconuts, rubber, and forestry products. Availability of labor and Liberian experience in the production of such crops have also been taken into consideration in establishing the priorities. The agricultural and forestry plan envisages a total expenditure of $23.9 million. Of the total, $10.3 million, or about 43 per cent, are for projects directly involving the production of agricultural produce, and $13.6 million, or about 57 per cent, for supporting services, such as research, land clearance and drainage, agricultural engineering and other extension services, credit and marketing (Table 8). By the end of the plan period some 95,000 additional acres are expected to be brought under cultivation which, when in full production, are estimated to increase the value of output (excluding forestry) by about $8.4 million.

Projects for the expansion of rice cultivation have been allocated about $6.5 million or 63 per cent of expenditure earmarked for projects, or 27 per cent of total planned expenditure. By the end of the plan period, it is hoped that some 45,000 additional acres would be brought under rice cultivation, production of which would be valued at some $6.0 million. The focus of this effort will be shifted from large-scale lowland cultivation to working with individual farmers with adequate land holding and water supply, irrespective of location. Accordingly, the plan has made provision for extending such farmers with engineering services for the clearance and preparation of land and other services, such as marketing, credit, and guidance in applying new techniques.

The plan envisages an expenditure of $1.2 million, or about 11 per cent of project expenditure, for the expansion of tree crops, such as rubber, coffee, cocoa, palm oil, coconuts, etc. As noted, Liberian rubber farms are generally inefficient compared to the concession farms on account of their size and lack of effective management. In order to ameliorate this situation, and pending the creation of a National Rubber Institute, which has been recently authorized by the Legislature, the plan envisages that almost one half of the funds assigned for expanded tree crop production will be used for improving the rubber advisory service. Personnel of the service would not only render technical advice on the cultivation of rubber but also on the proper management of farms.

The plan earmarks $0.4 million for the development of livestock, an activity which is virtually nonexistent at present. This amount is designed to initiate actions aimed at stimulating and assisting Liberian farmers to enter the cattle raising industry by providing technical assistance for the development of pasture lands, veterinary research and training, and breeding stock for distribution to farmers. It is estimated that some 15,000 head of cattle, valued at about $2.0 million, are now being imported annually.

On forestry development, the Plan stresses the importance of a systematic replanting of forest land with better and faster growing species and of controlling the harvesting of forest products. Accordingly, the plan envisages the replanting of some 29,700 acres of forest land with better and faster yielding species.

The plan provides for an outlay of $13.6 million on supporting services, consisting largely of provision of short-term and long-term credit, research, soil surveys, marketing, extension services, and a training center and other auxillary services. Some three quarters of these funds are to be provided to the Agricultural Credit Corporation (ACC) to enable it to extend long-term credit for land clearance and preparation, and short-term credit for the purchase of fertilizers, seeds, and certain engineering services. The ACC would initially pay, out of funds appropriated by the Government, the agencies which provide seraices and materials to the farmers and afterwards, collect the loans from users. The need for annual appropriation by the Government would eventually cease when the Corporation has accumulated out of repayments sufficient reserves to finance its operations. Research, which is allotted $1.6 million, is the next most important item, and will focus on developing, in collaboration with the University of Liberia, new technology and strains or adopting existing ones suited to Liberian conditions. Soil surveys are allotted $0.4 million. Provisions are also made for cooperative credit and marketing, an extension training center, and for the establishment of an Agricultural Engineering Corporation. The proposed Agricultural Engineering Corporation would provide services such as land clearing and preparation, installation of irrigation and drainage systems, construction of access roads, and planting and harvesting of crops.

Liberia: Summary of the Expenditures Under the Proposed Agricultural and Forestry Plan for 1972-76

(In thousands of dollars)

	1972	1973	1974	1975	1976	Total
Projects						
Rice production 1/	1,505	1,061	626	1,294	852	5,338
Tree crops production 2/	218	175	247	294	267	1,201
Livestock production	65	59	69	94	90	377
Forestry development	249	297	354	453	453	1,805
Wildlife conservation	51	58	121	118	118	466
Special projects	228	228	228	229	229	1,142
Subtotal	2,316	1,877	1,645	2,482	2,009	10,329
Supporting services						
Agricultural Credit Corporation	2,445	2,068	1,996	2,156	1,364	10,029
Economic planning and management	34	33	33	41	41	182
Research	327	296	289	313	397	1,622
Extension Training Center	65	54	53	57	63	292
Cooperative credit and marketing	82	66	82	76	76	382
Soil survey	102	54	103	78	88	425
Inland fisheries	19	31	38	49	57	194
Agricultural Engineering Corporation (Equity Funds)	400	--	--	--	--	400
Logistics	28	8	8	8	8	60
Subtotal	3,502	2,610	2,601	2,778	2,094	13,585
Grand total	5,818	4,487	4,247	5,260	4,103	23,915

Source: International Monetary Fund, Liberia Recent Economic Developments, February 22, 1972

1/ Excluding credit in kind which is amalgamated with Agricultural Credit Corporation below but including marketing.

2/ Including Rubber Advisory Service.

AID-DLC/P-1041/A **Draft**
ANNEX L

DRAFT LOAN AUTHORIZATION

CAPITAL ASSISTANCE LOAN AUTHORIZATION
Provided from: Development Loan Funds
Liberia: Rural Access Roads - Phase II

Pursuant to the authority vested in the Assistant Administrator for Africa of the Agency for International Development ("A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title I, the Development Loan Fund, to the Republic of Liberia ("Borrower") of not to exceed three million four hundred thousand dollars ($3,400,000) to assist in financing the services for the construction of two all-weather rural access roads (Sagleipie-Gbahn-Kahnple-Saniquellie and Pleebo-Barclayville), subject to the following terms and conditions:

1. Interest Rate and Terms of Repayment

The Borrower shall, in United States dollars:

(a) Repay the loan to A.I.D. within forty (40) years, including a grace period of not to exceed ten (10) years.

(b) Pay A.I.D. interest on the unrepaid principal and any interest accrued thereon at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

2. Other Terms and Conditions

(a) Goods and services financed under this loan shall have their source and origin in Liberia and/or in countries included in Code 941 of the A.I.D. Geographic Code Book.

(b) Such other terms and conditions as A.I.D. may deem advisable.

Assistant Administrator for Africa

Date

669-22-312-116
669-H-019
DLC/P.1041
Rural Roads

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

UNCLASSIFIED

August 22, 1972

MEMORANDUM FOR THE FILES

SUBJECT: Dollar Development Loan
Liberia - Rural Access Roads - Phase II

In accordance with Memorandum AID-DLC/P-1041/1 dated June 15, 1972, a telephone poll was concluded on June 23, 1972, confirming that there were no objections to the recommendations for authorization of a loan in an amount not to exceed $3,400,000 to the Government of the Republic of Liberia to assist in financing the services for the construction of two all-weather rural access roads (Sagleipie-Gbahn-Kahnple-Saniquellie and Pleebo-Barclayville).

The signed poll sheets indicating concurrence were received from State, Treasury, Eximbank and Commerce but have been mislaid. This memorandum is to officially confirm their concurrence.

Rachel R. Agee
Secretary
Development Loan Committee

Distribution:

AFR/CDF - 5 copies

UNCLASSIFIED

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

AID LOAN No. 669-H-019
Cap. Asst. Paper No. AID/DLC/P-1041
Project No.:669-22-312-116

CAPITAL ASSISTANCE LOAN AUTHORIZATION

Provided from: Development Loan Funds
Liberia: Rural Access Roads - Phase II

Pursuant to the authority vested in the Assistant Administrator for Africa of the Agency for International Development ("A.I.D.") by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan pursuant to Part I, Chapter 2, Title I, the Development Loan Fund, to the Republic of Liberia ("Borrower") of not to exceed Three Million Four Hundred Thousand dollars ($3,400,000) to assist in financing the foreign exchange and local currency costs of goods and services for the construction of two all-weather rural access roads (Sagleipie-Gbahn-Kahnple-Saniquellie and Pleebo-Barclayville), subject to the following terms and conditions:

1. Interest Rate and Terms of Repayment

The Borrower shall, in United States dollars:

(a) Repay the loan to A.I.D. within forty (40) years, including a grace period of not to exceed ten (10) years.

(b) Pay A.I.D. interest on the unrepaid principal and any interest accrued thereon at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

2. <u>Other Terms and Conditions</u>

(a) Goods and services financed under this loan shall be procured from Liberia and from countries included in Code 941 of the A.I.D. Geographic Code Book.

(b) Such other terms and conditions as A.I.D. may deem advisable.

Edward B. Hogan Acting
Assistant Administrator for Africa

June 23, 1972
Date