

AID 1020-25 (7-68)

PROJECT APPRAISAL REPORT (PAR)
(U-446) See M.O. 1026.1

SECURITY CLASSIFICATION: **UNCLASSIFIED**

001 PROJECT NUMBER: **6690071-4**

669-51-210-071

002 PAR: MO. DAY YR. 003 U.S. OBLIGATION SPAN: FY 64 Thru FY 72

004 PROJECT TITLE: **GEOLOGIC SURVEY AND APPRAISAL**

Reference Center Room 1656 HS 33f.
PD-AAC-074-A1

008 COOPERATING COUNTRY - REGION - AID/W OFFICE: **LIBERIA**

006 FUNDING TABLE

AID DOLLAR FINANCING-OBLIGATIONS (\$000)	TOTAL	CONTRACT (NON-ADD)	PERSONNEL SERVICES			PARTICIPANTS		COMMODITIES		OTHER COSTS	
			AID	PASA	CONTRACT	DIR. PASA	CONTRACT	DIR. PASA	CONTRACT	DIR. PASA	CONTRACT
CUMULATIVE NET THRU ACTUAL YEAR (FY 1970)	3586	34	Local & TCN 111	1656	24	185	0	390		1310	10
PROPOSED OPERATIONAL YEAR (FY 1971)	753			692				12		49	

CCC VALUE OF P.L. 480 COMMODITIES (\$000) → Thru Actual Year : Operational Year Program :

007 IMPLEMENTING AGENCY TABLE

If contractors or participating agencies are employed, enter the name and contract or PASA number of each in appropriate spaces below; in the case of voluntary agencies, enter name and registration number from M.O. 1551.1, Attachment A. Enter the appropriate descriptive code in columns b and c, using the coding guide provided below.

TYPE CODE b	TYPE CODE c	a. IMPLEMENTING AGENCY	TYPE CODE		d. CONTRACT/PASA/VOLAG NO.	e. LEAVE BLANK FOR AID/W-USE
			b.	c.		
1. U.S. CONTRACTOR	0. PARTICIPATING AGENCY					
2. LOCAL CONTRACTOR	1. UNIVERSITY					
3. THIRD COUNTRY CONTRACTOR	2. NON-PROFIT INSTITUTION	1. U.S. Geological Survey	4	0	PASA AFR-11-00	
4. PARTICIPATING AGENCY	3. ARCHITECTURAL & ENGINEERING	2. Lockwood, Kessler, and Bartlett	1	5	(Not Numbered)	
5. VOLUNTARY AGENCY	4. CONSTRUCTION					
6. OTHER	5. OTHER COMMERCIAL					
	6. INDIVIDUAL					
	7. OTHER					

PART I - PROJECT IMPACT

I-A. GENERAL NARRATIVE STATEMENT ON PROJECT EFFECTIVENESS, SIGNIFICANCE & EFFICIENCY.

This summary narrative should begin with a brief (one or two paragraph) statement of the principal events in the history of the project since the last PAR. Following this should come a concise narrative statement which evaluates the overall efficiency, effectiveness and significance of the project from the standpoint of:

- (1) overall performance and effectiveness of project implementation in achieving stated project targets;
- (2) the contribution to achievement of sector and goal plans,
- (3) anticipated results compared to costs, i.e., efficiency in resource utilization;
- (4) the continued relevance, importance and significance of the project to country development and/or the furtherance of U.S. objectives.

Include in the above outline, as necessary and appropriate, significant remedial actions undertaken or planned. The narrative can best be done after the rest of PART I is completed. It should integrate the partial analyses in I-B and I-C into an overall balanced appraisal of the project's impact. The narrative can refer to other sections of the PAR which are pertinent. If the evaluation in the previous PAR has not significantly changed, or if the project is too new to have achieved significant results, this Part should so state.

008 NARRATIVE FOR PART I-A (Continue on form AID 1020-25 I as necessary):

See PAR continuation sheet.

MISSION DIRECTOR APPROVAL → SIGNATURE: *[Signature]* DATE: *July 30, 1970*

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PAR CONTINUATION SHEET

This sheet is to be used for any Narrative Sections for which sufficient space has not been provided on the form. Identify each narrative by its Part and Section Designation

008 NARRATIVE FOR PART 1-A

Active U. S. participation in surveying and evaluating the mineral resources of Liberia was started late in 1963 (FY 1964 funding) under the terms of a Participating Agency Service Agreement (PASA) between the Agency for International Development and the United States Geological Survey (USGS). Prior to 1965, the U.S. effort involved financial support of participant training, the provision of limited commodities in support of the activities of the Liberian Geological Survey (LGS) under the Bureau of Natural Resources and Surveys (ENR&S) of the Government of Liberia (GOL), and the provision of two fulltime USGS advisors to the LGS. Under the terms of a revised Project Agreement entered into in April 1965 between the A.I.D. and the Government of Liberia, the project was expanded and the U.S. effort was intensified. Under this new concept, provision was made for a team of USGS specialists to work directly with LGS counterparts in the Geological Exploration and Resources Appraisal (GERA) program, and in the attendant technical and administrative activities essential to support that program. Concurrently, the USGS team continues to help establish a permanent capability within the LGS for carrying out future geological and mineral resources surveys.

An airborne geophysical and radiometric survey (a new activity not originally planned for the project) was contracted in FY 1968 by GOL with the assistance of an AID Development Loan based on a USGS feasibility study carried out in May-June 1966. The fundamental justification for this data is its use by LGS in the long-range investigation of Liberia's natural resources and as a unique tool in geologic mapping. A USGS geophysicist was assigned to the project in July 1968 to perform the necessary interpretive work in collaboration with the LGS staff geophysicist. A 25-mile offshore strip was included because of project studies of onshore sedimentary rocks and petroleum residues on Liberian beaches. The offshore data revealed possible oil structures and exploration by private companies is currently in progress. In FY 1967 it became apparent that the plan for 1:250,000 scale base map compilation by the Army Map Service (AMS) and the Liberian Cartographic Service could not be carried out in time to provide base maps for the GERA project. As a result, a second new facet of effort and activity was added to the project when USGS undertook compilation of 1:40,000 scale form-line base maps necessary to plot and compile the geologic map. With rapid and wide usage of the form-line maps taking place, the shaded relief compilation for the 1:250,000 scale series followed as a natural product from the form-line base sheets. Each of these new activities are obviously justified as part of the GERA project and each one multiplies the potential usefulness of the project and its products. However, the overall effort and support required for achievement of original objectives and the new goals has also been substantially increased.

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008 NARRATIVE FOR PART 1-A

Based on results as of 3/31/70 it is anticipated that the total results and advantages accruing to the Government of Liberia will fully justify the costs of the project. GOL has already received direct revenues for oil concessions that have repaid the entire cost (both direct cash contribution and loan cost) of the geophysical exploration. It also has received payment for concession rights to the barite deposit that was investigated under this program. It is anticipated that revenues will continue to be realized as interest in mineral development resulting from information provided by this project continues to stimulate the industry. In addition to the direct revenue benefit, additional benefits will be realized within Liberia as the activities of the companies carrying out further mineral exploration will stimulate the labor and business sectors in the country. Furthermore, these activities will provide (at no cost to Liberia) new information which may lead to further development. There can be little question as to the continued relevance, importance, and significance of this project to overall country development and to GOL and United States interests. Specifically, continuance of this project will produce the following products:

1. Provide a series of reconnaissance geologic and geophysical maps of Liberia which will serve as a basis of exploration for additional mineral deposits and provide fundamental data relevant to development of agricultural, water, and power resources and help indicate favorably situated transportation routes and other engineering aspects controlled all or in part by geology.
2. Provide an inventory of known mineral commodities and indicate possibilities for development of additional mineral resources.
3. Help make the Liberian Geological Survey a more effective organization than it formerly was to better enable it to carry out the responsibilities of geological exploration and mineral resources appraisal within Liberia after the project is completed June 30, 1972.
4. An attainable fourth major product from these investigative activities could be (through special arrangements) a published series of interim base maps vitally needed for planning and implementing both public and private sector development activities of many types (development of mineral, agricultural, hydroelectric, transportation, and even human resources).

Accomplishment of these anticipated results serve the GOL and United States in several ways:

1. The Geological Survey and Appraisal project will continue to be directly instrumental in increasing the viability of the Liberian economy by providing the basic data necessary to develop additional mineral commodities for export and local markets. Mineral commodities of low-value and limited extent are useful in the establishment of in-country small industries.

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008 NARRATIVE FOR PART 1-A

Private sector exploration based on project data or project generated data is currently under way for offshore petroleum, barite, clay, and kyanite. The resulting increased stability of the Liberian economy is in the best interest of the United States in Africa.

2. Other development assistance, country projects, programs, and expenditures (both public and private) have been made more effective by the availability of project-derived basic earth-science data and base and geologic maps. In many activities such as soil surveys, hydroelectric development, road construction, mineral development, health surveys, and city engineering the GERA project data is helpful and in some instances is absolutely essential.
3. Minerals developed within Liberia are potentially available for export to fill U.S. needs.

The project as originally established did not include the major activities in geophysics and base map compilation which have since claimed a significant amount of man-months with no added personnel. Indeed, many man years were withdrawn from the project during the 1969-70 field season through BALPA/OPRED staff reductions which considerably slowed scheduled work. These problems are currently under consideration by USGS, GOL, and USAID and adjustments will be made to either restructure or close-out the project in FY 1971.

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PART I-B - PROJECT EFFECTIVENESS

009

I-B-1 - OUTPUT REPORT AND FORECAST - (See detailed instructions)

1. CODE NO. AID/W USE ONLY	2. This section is designed to record progress toward the achievement of output target which was scheduled in the PIP, Part II. Where progress target is significantly greater or less than scheduled, describe reason the target.	Less	Normal	Greater	ACTUAL AND PLANNED OUTPUTS (ALL DATA CUMULATIVE)				
					3 ACTUAL CUM. TO DATE 3/31/70	4. AS OF PRIOR JUNE 30, 1969		5 PLANNED BY NEXT JUNE 30 1971	6 PROJECTED TOTAL FOR PROJECT LIFE
						a. PLANNED	b. ACTUAL		
	1. Production of multipurpose maps of Liberia (data and manuscript material: quadrangles @ 1:250,000 scale; single sheets @ 1:1 million scale):								
	A. Geological map of Liberia (10 quadrangles)								
	Data	X			40	47	30	60	100
	Manuscript	X			11	18	5	50	100
	B. Geophysical maps of Liberia								
	a. Magnetic map of Liberia (10 quads)								
	Data		X		100	100	100	100	100
	Manuscript		X		75	0	0	100	100
	b. Radiometric map of Liberia (10 quads)								
	Data		X		100	100	100	100	100
	Manuscript		X		75	0	0	100	100
	c. Gravity map of Liberia (one sheet)								
	Data		X		90	50	50	100	100
	Manuscript		X		75	5	5	100	100
	d. Tectonic map of Liberia (one sheet)								
	Data		X		75	25	25	100	100
	Manuscript		X		75	0	0	100	100
	* Data percentages indicated are relative to reconnaissance mapping requirements.								

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PART I-B - PROJECT EFFECTIVENESS

19

I-B-1 - OUTPUT REPORT AND FORECAST - (See detailed instructions)

CODE NO. AND/W USE ONLY	2. This section is designed to record progress toward the achievement of output target which was scheduled in the PIP, Part II. Where progress target is significantly greater or less than scheduled, describe reasons for the target.	LESS	NORMAL	GREATER	ACTUAL AND PLANNED OUTPUTS (ALL DATA CUMULATIVE)				
					3. % ACTUAL CUM. TO DATE (3/31/70)	4. % AS OF PRIOR JUNE 30, 1969		5. % PLANNED BY NEXT JUNE 30 1971	6. % PROJECTED TOTAL FOR PROJECT LIFE
						a. PLANNED	b. ACTUAL		
	C. Form-line base map of Liberia 1:40,000 scale 1:125,000 scale		X		65 18	54 28	54 10	100 50	100 100
	Comments: A. Geological mapping since beginning of project has been falling behind original schedules because: 1. Over-estimation of the rate at which systematic geologic mapping could be accomplished in terrain in a tropical environment. 2. Adequate base maps on which to compile final geological maps were not available until 1969 and 1970 field seasons for many areas and are still not available for 35% of the nation (eastern Liberia). 3. BALPA/OPRED cut out four critical field positions in 1969 and 1970 just as base maps and geophysical data became available to facilitate rapid progress in geologic mapping activities; prior to that time the project had not been fully staffed. 4. Three field seasons (1965-66-67) were required to train on-board counterparts for field production. 5. Unavoidable time spent on mineral studies. C. The 1:125,000 scale map compilation is behind estimated schedule due to the many unforeseen demands on the time of the cartographer who is compiling these maps. Among other things: 1. Many of the 1:40,000 scale maps that are the basis for the 1:125,000 scale maps were upgraded as new air photography became available, (initial compilation was made from 1952-53 photography), and 2. The project has produced more technical reports than originally estimated and each report requires cartographic work to complete the maps and other illustrations.								

PART I-B - PROJECT EFFECTIVENESS

009 I-B-1 - OUTPUT REPORT AND FORECAST - (See detailed instructions) (continuation)

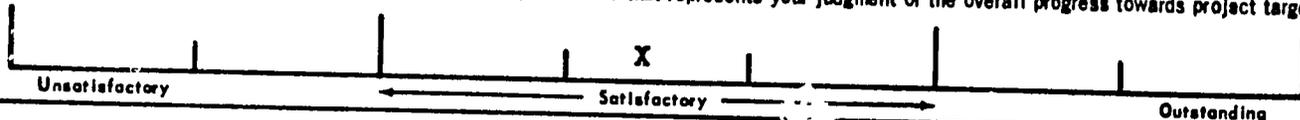
1. CODE NO. AID/W USE ONLY	2. This section is designed to record progress toward the achievement of e output target which was scheduled in the PIP, Part II. Where progres target is significantly greater or less than scheduled, describe reason the target.	Less	Normal	Greater	ACTUAL AND PLANNED OUTPUTS (ALL DATA CUMULATIVE)				
					3. ACTUAL CUM. TO DATE (3/31/70)	4. AS OF PRIOR JUNE 30, 1969		5. PLANNED BY NEXT JUNE 30 1971	6. PROJECTED TOTAL FOR PROJECT LIFE
						a. PLANNED	b. ACTUAL		
	<p>3. Liberian Geological Survey institutional development:</p> <ul style="list-style-type: none"> A. Increase in professional competence B. Improvements in executive management C. Improvements in organization, structure, and functions of LGS D. Improvements in LGS office and laboratory facilities E. Improvements in management of vehicles and field equipment <p>Comments:</p> <p>The matter of improvement under "institutional development" is relative. It can be stated for all these categories that marked improvement is discernable relative to the situation at commencement of the project. However, the question arises as to how much progress could reasonably be expected and to what extent this has been achieved. If the attainment of an approximation of the efficiency and productivity of an equivalent organization in North America or Europe were expected, then the progress would have to be rated less than normal. But, under the constraints imposed by the traditions of the culture and the attitudes prevalent towards achievement and quality, the improvement is considered reasonable.</p> <p>Regarding vehicles (item 3E), it is traditional in the GOL to award cars with unlimited use privileges to employees as a fringe benefit. When the vehicles are needed for the field, this practice hampers field work. The solution is to pay higher salaries, and put the vehicles in a pool for official use only. This change will have to be government-wide, and apparently overall civil service changes are in the offing which might solve this problem.</p>								

PART I-B - Continued

010

B 2 - OVERALL ACHIEVEMENT OF PROJECT TARGETS

Place an "X" within the bracket on the following seven-point scale that represents your judgment of the overall progress towards project targets:



PART I-C - PROJECT SIGNIFICANCE

011

C.1 - RELATION TO SECTOR AND PROGRAM GOALS (See detailed instructions M.O. 1026.1)

This section is designed to indicate the potential and actual impact of the project on relevant sector and program goals. List the goals in col. b and rate potential and actual project impact in cols. c and d.

a. CODE NO. (AID/W USE ONLY)	SCALE FOR COLUMN c: 3= Very Important; 2= Important; 1= Secondary Importance SCALE FOR COLUMN d: 3= Superior/Outstanding; 2= Adequate/Satisfactory/Good; 1= Unsatisfactory/Marginal	c. POTENTIAL IMPACT ON EACH GOAL IF PROJECT ACHIEVES TARGETS	d. ACTUAL IMPACT ON GOAL TO DATE RELATIVE TO PROGRESS EXPECTED AT THIS STAGE
b. SECTOR AND PROGRAM GOALS (LIST ONLY THOSE ON WHICH THE PROJECT HAS A SIGNIFICANT EFFECT)			
	(1) Increasing the economic viability of Liberia (increasing GNP by the development of new and additional mineral resources).	3	3
	(2) Improving the capability of government organization (development of a competent and efficient Liberian Geological Survey organization within the Bureau of Natural Resources and Surveys).	2	1
	(3) Developing the nation's earth science manpower potential (training of the staff of the Liberian Geological Survey within the Bureau of Natural Resources and Surveys).	2	1
	(4)		

For goals where column c. is rated 3 or 2 and column d. is rated 1, explain in the space for narrative. The narrative should also indicate the extent to which the potential impacts rated 3 or 2 in column c. are dependent on factors external to the achievement of the project targets, i.e., is there a substantial risk of the anticipated impact being forestalled by factors not involved in the achievement of project targets. If possible and relevant, it also would be useful to mention in the narrative your reading of any current indicators that longer-term purposes, beyond scheduled project targets, are likely or unlikely to be achieved. Each explanatory note must be identified by the number of the entry (col. b) to which it pertains.

012 NARRATIVE FOR PART I-C.1 (Continue on form AID 1020-25 1):

011(1)d.

The impact is rated 3 (outstanding) because it is rare that a project of this type has immediate impact on GNP. Release of GERA recommended/sponsored geophysical survey results and other reports have already stimulated mineral industry interest in:

- a. Exploration of the Liberian continental shelf for offshore hydrocarbons,
- b. Exploration of barite, clay, and other mineral deposits for commercial development possibilities.

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012 (NARRATIVE FOR PART 1-C.1

These activities have provided direct fee revenues to the GOL and to some extent resulted in use of local goods and services; thus benefiting in-country business and labor. If petroleum is eventually found in economically significant quantities, the revenues realized and the change in local cost of energy could radically change Liberia's economic future.

011(2)d.

Impact is rated 1 (marginal) because improvement progress relative to western standards is less than normal. Within the framework of existing traditions and general governmental conditions in Liberia (low salaries, lack of performance incentives) it is unlikely that other than marginal improvement can be achieved.

011(3)d.

Impact is rated 1 (marginal) because it has not proved possible under existing governmental conditions and working with a limited population having a limited educational background to develop the required number of technicians with adequate skills to meet the nation's earth science manpower needs.

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PART I-C - Continued

C.2 - GENERAL QUESTIONS

These questions concern developments since the prior PAR. For each question place "Y" for Yes, "N" for No, or "NA" for Not Applicable in the right hand column. For each question where "Y" is entered, explain briefly in the space below the table.	MARK IN THIS COL.
013 Have there been any significant, unusual or unanticipated results not covered so far in this PAR?	N
014 Have means, conditions or activities other than project measures had a substantial effect on project output or accomplishments?	Y
015 Have any problems arisen as the result of advice or action or major contributions to the project by another donor?	Y
016 If the answer to 014 or 015 is yes, or for any other reason, is the project now less necessary, unnecessary or subject to modification or earlier termination?	N
017 Have any important lessons, positive or negative, emerged which might have broad applicability?	Y
018 Has this project revealed any requirement for research or new technical aids on which AID/W should take the initiative?	N
019 Do any aspects of the project lend themselves to publicity in newspapers, magazines, television or films in the United States?	Y
020 Has there been a lack of effective cooperating country media coverage? (Make sure AID/W has copies of existing coverage.)	Y
021 NARRATIVE FOR PART I-C.2 Identify each explanatory note by the number of the entry to which it pertains. (Continue on form AID 1020-25 ; as necessary):	

Item 014: Have means, conditions or activities other than project measures had a substantial effect on project output or accomplishments?

Problems of inadequate budgetary support and inefficient administration within the counterpart organization have perhaps been minimal in comparison with many projects, but even so, significant delays in putting GOL geologists in the field have resulted from inoperative vehicles, lack of gas coupons, and/or lack of funds for per diem and field expenses. These delays are all caused primarily by the slowness of processing vouchers through GOL funding channels. In general, the disbursement of funds by GOL is tending to improve under influence of institutional development efforts.

Dilution of the LGS staff's reconnaissance mapping effort is explained in section 023(c) narrative portions.

Item 015: Have any problems arisen as the result of advice or action or major contributions to the project by another donor?

Lack of base maps and new aerial photography that was to be supplied by the Army Map Service-GOL Cartographic Service topographic mapping subactivity has significantly delayed production of reconnaissance geological maps.

Item 017: Have any important lessons, positive or negative, emerged which might have broad applicability?

- a. This project clearly confirms the usefulness of basic earth-science data in programs of assistance to developing countries. The experience and knowledge gained by the project geologists of the working environment "in the bush" has been of great value to a wide range of TDY, resident USAID, and private sector specialists. This benefit is in addition to the value of available reports and maps produced and the contribution of the project to increasing Liberia's GNP.

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- b. This project also has shown the problems that arise when traditions mitigate against rapid progress, efficiency, competence, and morale. These factors cannot be changed abruptly but hopefully will yield to example and subtle pressure.

Item 019: Do any aspects of the project lend themselves to publicity in newspapers, magazines, television or films in the United States?

American citizens of African descent and other American citizens who have become aware of the nature of the work being performed by Liberian geological Survey scientists and technicians and the assistance being given by USAID/USGS frequently comment that the American public and its citizens with African ancestry should be better informed on the personal, professional and organizational improvements now being achieved in this West African country.

Item 020: Has there been a lack of effective cooperating country media coverage? (Make sure AID/W has copies of existing coverage.)

There has been relatively little cooperating country media coverage of the GERA project activities. The story of the USGS/LGS geophysicists (Bromery-Behrendt/USGS and Wotorson/LGS) and associated personnel in establishing and interpreting the geophysical data which led to present offshore oil exploration efforts should be featured in Liberian press and TV media. This would contribute to the overall strengthening of the Bureau of Natural Resources and Surveys and its Geological Survey organization. Eventually the BNR&S should be raised to a department status because its work is functionally distinct and it is directly involved in raising Liberia's GNP.

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PART II - IMPLEMENTATION REPORT

II-A - STATUS OF SCHEDULE

022 A-1 - INDIVIDUAL ACTIONS (See detailed instructions M.O. 1026.1). This is a listing of major actions or steps which were scheduled for physical start or continuing implementation in the reporting period as reflected in the Project Implementation Plan, Part I.

(a) PIP ITEM NO.	MAJOR ACTIONS OR STEPS, CAUSES AND RESULTS OF DELAYS; REMEDIAL STEPS	(b) STATUS - PLACE AN "X" IN, ONE COLUMN		
		(1) BEHIND SCHEDULE	(2) ON SCHEDULE	(3) AHEAD OF SCHEDULE
1	Acquisition, construction, and refurbishing of physical facilities such as buildings, laboratories, equipment, field gear.		X	
2	Compilation of form-line base maps (1:40,000 scale) on which to plot geologic data.		X	
3	Systematic geologic field reconnaissance, investigations, and mapping.	X		
4	Mineral target identification stemming from observations made in course of systematic geologic field reconnaissance, investigations and mapping or by advanced reconnaissance.		X	
5	Detailed mineral target or mineral deposit investigation, mapping, sampling, analysis, followed by report and map preparation, processing and GOL/USGS release to public.			X
6	Justification and accomplishment of airborne geophysical survey including all ID, COL, and contractor negotiations to advise on certification of acceptance.		X	
7	Interpretation of geophysical data and associated geological studies in support of GOL negotiations and issuance of offshore oil exploration permits.		X	
8	Final 2-year (FY 1971-72) series of geological investigations and mapping activities utilizing all geophysical data, newly acquired air photos, infra red photography, Miller and LAMCO geologic data and restructured staff and field plan as judged necessary on basis past 5 field season experience.		X	
9	Geophysical compilation, cartographic preparation, editorial processing and GOL/USAID-USGS approval of geophysical map and report products.		X	

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PART II - IMPLEMENTATION REPORT

II-A - STATUS OF SCHEDULE

022 A-1 - INDIVIDUAL ACTIONS (See detailed instructions M.O. 1026.1). This is a listing of major actions or steps which were scheduled for physical start or continuing implementation in the reporting period as reflected in the Project Implementation Plan, Part I.

(a) PIP ITEM NO.	MAJOR ACTIONS OR STEPS; CAUSES AND RESULTS OF DELAYS; REMEDIAL STEPS	(b) STATUS - PLACE AN "X" IN, ONE COLUMN		
		(1) BEHIND SCHEDULE	(2) ON SCHEDULE	(3) AHEAD OF SCHEDULE
10	Geological compilation, cartographic preparation, editorial processing and GOL/USAID-USGS approval of geological map and report products (1:125,000 scale).	X		
11	Accumulation of economic geology data and preparation of a national mineral resource evaluation as a guide to future mineral exploration.		X	
12	GOL/USAID-USGS review of project progress and work status as of April 1971 to determine whether or not an extension is necessary for completion of work.		X	
13	Completion of Participant Training and institutional development activities.	X		
14	Final publication or release by other means of all project end products, including: <ol style="list-style-type: none"> 1. Geological Map of Liberia, scale 1:250,000 2. Geophysical maps - <ol style="list-style-type: none"> a. Magnetic Map of Liberia, scale 1:250,000 b. Radiometric Map of Liberia, scale 1:250,000 c. Gravity Map of Liberia, scale 1:1 million d. Tectonic Map of Liberia, scale 1:1 million 3. Minerals evaluation report (national) 4. Institutional development analysis (IGS) 5. Over 100 scientific, technical or economic reports and maps related to project and country development program goals and objectives. 		X	

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022(a)

3. As indicated previously (1-13.009.2A) reconnaissance geologic mapping is behind schedule because of several factors, most important of which is lack of manpower applied to the mapping objective (lack of both USGS and LGS staff and time spent on mineral studies and other activities) and the former lack of necessary base map working materials.

Production of maps based on available field data, cartographic facilities and field personnel is proceeding satisfactorily. However, reductions in both LGS and USGS field personnel during 1969-70 field season sharply arrested the acquisition of data and compilation of the systematic geologic map series as originally scheduled. Remedial steps are currently being taken by GOL, USAID, and USGS to insure a full field and laboratory staff for the remaining two field seasons of the 7-year project. All planned adjustments will become effective in FY 1971.

The PIP to be prepared will reflect scheduling based on project experience and project manpower availability.

10. Geological compilation is behind schedule for same reasons as listed in item 3 above and the same remedial steps are being taken. In addition the standard of mapping has been revised to allow some of the remote difficult areas to be shown as "unmapped" on the final quadrangle maps. This is the standard reconnaissance mapping practice that has been followed in nearly every country and is the logical approach in the present program.

13. Completion of originally planned Participant Training is behind schedule because of lack of suitably qualified candidates. The original schedule (supplement to E-1, FY 1966 CAP) provided for training of:

12	new B.S. geologists,
2	mining engineers, and
4	advanced level candidates
<u>18</u>	total

As of the current date, there has been participant training undertaken by:

6	new B.S. geologists
2	mining engineers, and
2	advanced level candidates

B.S. candidates (if they were available) sent away now for participant training would not complete their training in time to participate in the practical aspects of in-service training within the GERA project. However, tentative provisions should be made for sending abroad unusually promising candidates as/when they are recognized/developed.

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PART II - Continued

023

II-A.2 - OVERALL TIMELINESS

In general, project implementation is (place an "X" in one block):

BLOCK (c). If marked, place an "X" in any of the blocks one thru eight that apply. This is limited to key aspects of implementation, e.g., timely delivery of commodities, return of participants to assume their project responsibilities, cooperating country funding, arrival of technicians

(a) On schedule	
(b) Ahead of schedule	
(c) Behind schedule	
(1) AID/W Program Approval	X
(2) Implementing Agency (Contractor/Participating Agency/Voluntary Agency)	
(3) Technicians (loss of field staff by BALPA reduction)	X
(4) Participants	
(5) Commodities (non-FFF)	
(6) Cooperating Country	
(7) Commodities (FFF)	
(8) Other (specify). (availability of base maps)	X

II-B - RESOURCE INPUTS

This section appraises the effectiveness of U.S. resource inputs. There follow illustrative lists of factors, grouped under Implementing Agency, Participant Training and Commodities, that might influence the effectiveness of each of these types of project resources. In the blocks after only those factors which significantly affect project accomplishments, write the letter P if effect is positive or satisfactory, or the letter N if effect is negative or less than satisfactory.

1. FACTORS-IMPLEMENTING AGENCY (Contract Participating Agency/Voluntary Agency)

024 IF NO IMPLEMENTING AGENCY IN THIS PROJECT. PLACE AN "X" IN THIS BLOCK		032 Quality, comprehensiveness and candor of required reports	P
025 Adequacy of technical knowledge	P	033 Promptness of required reports	N
026 Understanding of project purposes	P	034 Adherence to work schedule	P
027 Project planning and management	P	035 Working relations with Americans	P
028 Ability to adapt technical knowledge to local situation	P	036 Working relations with cooperating country nationals	P
029 Effective use of participant training element	P	037 Adaptation to local working and living environment	P
030 Ability to train and utilize local staff	N	038 Home office backstopping and substantive interest	P
031 Adherence to AID administrative and other requirements	P	039 Timely recruiting of qualified technicians	N
		040 Other (describe):	

2. FACTORS-PARTICIPANT TRAINING

041 IF NO PARTICIPANT ELEMENT IN PROJECT. PLACE AN "X" IN THIS BLOCK		TRAINING UTILIZATION AND FOLLOW UP	
PREDEPARTURE		052 Appropriateness of original selection	P
042 English language ability	P	053 Relevance of training for present project purposes	P
043 Availability of host country funding	P	054 Appropriateness of post-training placement	P
044 Host country operational considerations (e.g., selection procedures)	P	055 Utility of training regardless of changes in project	P
045 Technical/professional qualifications	N	056 Ability to get meritorious ideas accepted by supervisors	P
046 Quality of technical orientation	P	057 Adequacy of performance	N
047 Quality of general orientation	P	058 Continuance on project	P
048 Participants' collaboration in planning content of program	P	059 Availability of necessary facilities and equipment	P
049 Collaboration by participants' supervisors in planning training	P	060 Mission or contractor follow-up activity	P
050 Participants' availability for training	N	061 Other (describe):	
051 Other (describe):			

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PART II-B - Continued

3. FACTORS-COMMODITIES

PLACE AN "X" IN APPROPRIATE BLOCK	002 FFF	003 NON-FFF	X	004 NO COMMODITY ELEMENT			
						072 Control measures against damage and deterioration in shipment.	P
065 Timeliness of AID/W program approval (i.e., PIO/C, Transfer Authorization).					P	073 Control measures against deterioration in storage.	P
066 Quality of commodities, adherence to specifications, marking.					N	074 Readiness and availability of facilities.	P
067 Timeliness in procurement or reconditioning.					N	075 Appropriateness of use of commodities.	N
068 Timeliness of shipment to port of entry.					N	076 Maintenance and spares support.	P
069 Adequacy of port and inland storage facilities.					P	077 Adequacy of property records, accounting and controls.	N
070 Timeliness of shipment from port to site.					P	078 Other (Describe):	
071 Control measures against loss and theft.					P		

Indicate in a concise narrative statement (under the heading a. Overall Implementation Performance, below) your summary appraisal of the status of project implementation, covering both significant achievements and problem areas. This should include any comments about the adequacy of provision of direct hire technicians as well as an overall appraisal of the comments provided under the three headings (b, c & d) which follow. For projects which include a dollar input for generation of local currency to meet local cost requirements, indicate the status of that input (see Detailed Instructions).

Discuss separately (under separate headings b, c & d) the status of Implementing Agency Actions, Participants and Commodities. Where above listed factors are causing significant problems (marked N), describe briefly in the appropriate narrative section: (1) the cause and source of the problem, (2) the consequences of not correcting it, and (3) what corrective action has been taken, called for, or planned by the Mission. Identify each factor discussed by its number.

079 NARRATIVE FOR PART II-B: (After narrative section a. Overall Implementation Performance, below, follow, on form AID 1020-25 I a., needed, with the following narrative section headings: b. Implementing Agency, c. Participants, d. Commodities. List all narrative section headings in order. For any headings which are not applicable, mark them as such and follow immediately below with the next narrative section heading.)

a. Overall Implementation Performance.

Overall implementation project performance has been generally good considering the inherent difficulties in establishing and maintaining scheduled earth-science activities paced by the necessity of remaining reasonably in-phase with counterpart professional and institutional development. It is generally recognized that private industry expenditures and commitments for further exploration that have resulted from GERA products released to date to the public or otherwise utilized in country development projects far exceed the total cost of the entire cooperative AID/IGS-USGS project from its commencement through its originally programmed termination in 1972.

b. Implementing Agency (USGS)

The PASA with the U.S. Geological Survey has proved effective in implementing this exceptionally broad scope earth-science project which has remained flexible and responsive to Liberia's needs in this field. Difficulties in training local staff have been generally as expected (meaning results less than satisfactory by western standards). The project has been slow in furnishing required USAID documentation but prompt in producing scientific and technical reports and maps which have in effect amortized the total cost of the 7-year operation. The overall implementation performance of USGS has been satisfactory with the exception of recruitment performance for field season 1969-70. The causes and effects of this are discussed under Item 039 below.

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Part II - A and B

Item 030: Ability to train and utilize local staff:

Training and utilization of professional and subprofessional level staff is generally adequate in the course of field work activities, but is less effective in terms of the many necessary office and laboratory functions. This is mainly the result of poor attendance of the LGS technicians because of "outside job" demands on their time as indicated under Item 104 in following section.

Item 033: Promptness of required reports (administrative)

The project leadership has been generally late in submission of USAID required documents. This has, on occasion, caused the Public Works Division some difficulty in maintaining clear administrative support to the project. Currently these problems are being studied and adjusted to mutual satisfaction.

Item 039: Timely recruiting of qualified technicians

The original staffing schedule as established in 1965 for the 7-year project has not been adequately met since BALPA II cuts became effective. These cuts alone (four positions, including OPRED losses) however, were not the sole cause. USGS/W was thereafter unable to effect a satisfactory "supplement" UNDP subcontract under the U.N. Mineral Survey project in Liberia (UNDP seeking a further U.S. contribution). In addition, the severe domestic program personnel ceilings imposed on USGS/W temporarily prevented diversion of domestic staff to overseas work. Accompanying this was the associated ban on hiring on Excepted Appointment.

Prior to BALPA/OPRED (1969-70 field season), recruiting had filled only 56% of the scheduled field positions. This was deliberate in part because it required from 1965 to 1968 to compile adequate form-line base maps on which to plot the field geology. Prior to 1968-69 field season staff members were hand-picked to establish background data (national geological reconnaissance; geophysical justification; mineral commodity data; rock age determinations) and build the required indigenous organization to enable a degree of efficiency when the base maps and other similar tools and support were available to get the geological mapping done.

For a 5-month period prior to May 1969 the project was fully staffed and had adequate base maps for the first time. BALPA II, followed by OPRED arrested the progress which had become otherwise possible.

Currently (May 1970) the GOL, USAID, and USGS are endeavoring to restore project strength for the final 2-year period (FY 1971-72) of the 7-year project.

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Despite these serious setbacks the original project objectives are still valid providing personnel restoration, plus some added TDY and Washington, D.C. (USGS) services (including some State-side personnel assignments) are approved by AID for FY-1971-72.

c. Participants

As of the close of FY 1970 a total of ten ENR&S men will have completed or will be near completion of in-service and academic training in the United States during the course of the GIRA project. It is anticipated that the eleventh participant will be the LGS Chief Geologist to enable that officer to take an executive/operational management course of instruction similar to the one so effectively completed by the Deputy Director, ENR&S.

The only serious failure experienced among the project sponsored participants involved the placement of a student in an untenable "big school" situation contrary to project recommendations. The student could not acclimate to the pace of instruction and lack of close advisory help.

Item 045: Technical/professional qualifications:

There are no earth-science courses taught in the local college level institutions; therefore, potential participants have to be screened and selected upon academic and technical qualifications exhibited in other fields. Predeparture activities in the GOL technical organization are subprofessional assistant-type assignments that can not adequately prepare (or evaluate) participants for academic geological training. Not all candidates selected proved to be good material for U.S. academic institutions. Some that were adequate in Liberian institutions did poorly in large U.S. institutions but did improve when transferred to small colleges. The limited educational background provided by schools in Liberia proved a major handicap to almost all participants.

Item 050: Participants' availability for training:

As indicated under item 045 above, selection of participants is based primarily on qualifications exhibited in other fields. Availability of highly qualified participant candidates is extremely limited because of the few scientifically oriented students and the fact that these few are not familiar in any way with the geological sciences. There are constructive developments underway to increase the student (and public) awareness of the geological sciences by visits of professional staff members in high schools and colleges, lecturing about geology in geography and physical science classes, and by participating in panel discussions and other presentations on radio and television. As a result of these activities, there is a larger selection of better qualified participant candidates gradually becoming available.

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Item 057:

Adequacy of performance has been rated N (less than satisfactory) because the returned participant quickly falls prey to the various inadequacies inherent in the existing system. These inadequacies are discussed relative to the role of the cooperative country in Part II (particularly low pay and lack of other work incentives, under 086 and 104, and less than satisfactory maintenance of vehicles and other equipment).

d. Commodities:

While commodities are not a major budget item in the project (less than 6%), they do comprise the basic tools and supplies required for successful implementation of the technical work. Overall the project has adjusted to procurement lag time by modifying the personnel schedule, obtaining critical items through USGS backstopping, or using technicians ingenuity to improvise or otherwise achieve the immediate needs.

Procurement of technical items through African American Purchasing Center has been particularly unsatisfactory because of nonadherence to specifications and subsequent failure to make necessary adjustments in a timely manner. In one case there was complete refusal to take responsibility for their arbitrary action in failing to procure a copy camera meeting specifications for base and geological map processing. Specific comments relative to commodities are made under relevant item numbers below.

Item 066: Quality of commodities, adherence to specifications:

Technical equipment and supplies procured through PIO/C channels have at times not met ordering specifications. As a result some needed items suitable for project requirements have not been received for as much as 2 years after procurement documentation was initiated. Such delays have been costly not only in terms of funds, but also in terms of man effort needlessly spent and loss of production capability for which the commodity was required.

Item 067: Timeliness in procurement or reconditioning:

This item has been marked less than satisfactory. Delays in receiving project commodities on PIO/C documentation have been of concern to the project since inception. Materials procured through Project Support Loan (PSL) funds (AID Loan 669-H-015) have been exceptionally slow. PSL procurement lag time of more than one year makes scheduling of supply needs for laboratory operations especially difficult inasmuch as many items have a limited shelf life, and receiving and maintaining a large supply is not practical.

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As indicated under Item 066, commodities meeting project requirements have been delayed as much as 2 years, delays caused in part by paper work processing lag time and in part because materials that did not meet ordering specifications were shipped and ultimately had to be reordered. Procurement of specialized items through PASA backstopping has generally been timely and especially of recent months, very rapid and effective. However, PASA overhead charges significantly increase identifiable procurement costs.

Item 068: Timeliness of shipping to port of entry:

Shipping has been reasonably good by surface, but small, single parcel items sent by surface are frequently reported short-landed. For physical security reasons, small weight, high-value scientific instruments are normally shipped by AIR FREIGHT. Receipt of such shipments has frequently taken longer than surface because of air traffic problems via available American carrier.

Item 075: Appropriateness of use of commodities:

While appropriateness of use of commodities has in general been good, there has been a problem of use of vehicles issued by grant-in-aid to the counterpart organization. These vehicles are assigned to individual GOL employees and are routinely used by those individuals for both official and personal purposes. The inordinate use of the vehicles frequently renders them inoperative for field operations. Attempts to limit use of the GOL vehicles to official activities have been unsuccessful and will undoubtedly remain so until basic inequities in the GOL system are rectified. Among the most obvious basic problems are the low salaries paid GOL personnel. It is frankly stated that the use of official vehicles for private gain is necessary to enable the GOL employees to make a living for their families. There are no employee benefits whatsoever.

Item 077: Adequacy of property records, accounting, and controls:

Maintenance of adequate organization records showing receipt, identification marking, issuance, and use of materials has been difficult to establish but is now operable. Losses because of misappropriation have been negligible in terms of dollar value.

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PART III - ROLE OF THE COOPERATING COUNTRY

The following list of illustrative items are to be considered by the evaluator. In the block after only those items which significantly affect project effectiveness, write the letter P if the effect of the item is positive or satisfactory, or the letter N if the effect of the item is negative or less than satisfactory.

SPECIFIC OPERATIONAL FACTORS:	
080 Coordination and cooperation within and between ministries.	P
081 Coordination and cooperation of LDC gov't. with public and private institutions and private enterprise.	P
082 Availability of reliable data for project planning, control and evaluation.	P
083 Competence and/or continuity in executive leadership of project.	N
084 Host country project funding.	N
085 Legislative changes relevant to project purposes.	P
086 Existence and adequacy of a project-related LDC organization.	N
087 Resolution of procedural and bureaucratic problems.	N
088 Availability of LDC physical resource inputs and/or supporting services and facilities.	N
089 Maintenance of facilities and equipment.	N
090 Resolution of tribal, class or caste problems.	P
091 Receptivity to change and innovation.	P
092 Political conditions specific to project.	
093 Capacity to transform ideas into actions, i.e., ability to implement project plans.	N
094 Intent and/or capacity to sustain and expand the impact of the project after U.S. inputs are terminated.	N
095 Extent of LDC efforts to widen the dissemination of project benefits and services.	P
096 Utilization of trained manpower (e.g., participants, counterpart technicians) in project operations.	P
097 Enforcement of relevant procedures (e.g., newly established tax collection and audit system).	
098 Other:	
HOST COUNTRY COUNTERPART TECHNICIAN FACTORS:	
099 Level of technical education and/or technical experience.	N
100 Planning and management skills.	N
101 Amount of technician man years available.	N
102 Continuity of staff.	P
103 Willingness to work in rural areas.	P
104 Pay and allowances.	N
105 Other:	

In the space below for narrative provide a succinct discussion and overall appraisal of the quality of country performance related to this project, particularly over the past year. Consider important trends and prospects. See Detailed Instructions for an illustrative list of considerations to be covered.

For only those items marked N include brief statements covering the nature of the problem, its impact on the achievement of project targets (i.e., its importance) and the nature and cost of corrective action taken or planned. Identify each explanatory note.

106 NARRATIVE FOR PART III (Continue on form AID 1020-25 1);

As shown in the above tabulation, the roll of the host country has been satisfactory in most respects where project influence can be effective in institutional and operational improvements. The items rated as less than satisfactory mainly involve basic governmental and environmental problems or defects beyond the power of the GOL agency (or the project) to correct.

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Item 082: Availability of reliable data for project planning, control, and evaluation:

Geologically speaking, Liberia is one of the least known areas of the world. If sufficient reliable data were available, there would not be a "reconnaissance mapping" target objective and efforts would be primarily directed toward evaluation of target areas of known mineralization. In initial planning stages of the project there was so little valid data available that planning documents had to be prepared on the basis of assertions of the host government, experience factor estimates, and professionally logical assumptions. In general the initial planning documents reflected data interpreted optimistically and the possible effects of adverse factors were under-estimated. In a project where results can not be readily qualified and where counterpart involvement and enthusiasm must be generated, such a course of positive-optimistic programming must be undertaken until adequate data are available for planning control and evaluation. With the results of the geophysical survey now in hand and applicable technical operational experience in the host government now available, the project is in a position where its future course can be relatively reliably programmed to meet reasonable target objectives.

Item 083: Competence and/or continuity in executive leadership of project:

The item has been rated N (less than satisfactory). Improvement in management/administration at BNR&S level was realized as a result of applicable participant training undertaken by the Deputy Director. Comparable or greater benefits to the project could be anticipated if the Chief Geologist of the Liberian Geological Survey were to undertake a similar course to complement his technical competence with more effective leadership.

Item 084: Host country project funding:

This item is rated N (less than satisfactory) because of the time lag and difficulty experienced in realizing expenditure of funds budgeted and allocated for the Liberian Geological Survey. Overall the project has received good funding support within the BNR&S, Dept. of Planning, and the Bureau of the Budget. The difficulty appears to be mainly within Department of Treasury.

Item 086: Existence and adequacy of a project-related organization:

While there has been a Liberian Geological Survey (LGS) as a part of the Bureau of Natural Resources and Surveys (BNR&S) since the creation of the autonomous BNR&S, a little more than 10 years ago (February 1959), the LGS organization has been understaffed and poorly equipped to undertake the responsibilities assigned to it. One of the major target objectives of the project is to help establish an effective LGS capable of meeting the extensive responsibilities normally carried by a central government geological service. Major LGS inadequacy problems are discussed below.

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Work incentives: In the existing system there are no effective work incentives. Recognition by authorship in published documents is the only incentive that can be actively "promoted" within the project. Recognition of geology and geologists is a public relations matter which has been largely ignored by local communications media (see item 021).

Low number of professional level personnel: LGS operational staffing has not been maintained at anticipated levels because of professional personnel participating in additional training activities (Wotorson, 2 years as AID participant; Baker, 9 months as UN participant) and junior employee participants not completing their academic programs as rapidly as initially scheduled. While comprising a negative factor relative to input on mapping activities, the personnel are being upgraded positively relative to the institutional building objective. Participants are now beginning to return to take their place in the GERA project activities.

Low number of middle-level technicians: There is a great deal of work to be done in technical organizations that requires skills and accuracy standards of middle-level technicians and office assistants. There is little middle-level capability available in underpopulated Liberia because persons able to get enough education to reach an intermediate status are commonly carried into a semi-professional or professional status even though they are not really qualified. This results in a significant manpower gap between the unskilled or meagerly skilled personnel and those who are considered in professional or semi-professional status. It also results in production of inferior work that is supposed to be of professional caliber. The LGS is handicapped by lack of necessary middle-level personnel. As a result, professional level staff (both LGS and USGS) have to either perform many subprofessional functions themselves or else spend an inordinate amount of time upgrading grossly deficient middle-level work actually performed by personnel very ill-equipped to do it.

In order to build the organization's middle-level strength, the USGS staff has encouraged hiring of high school and college level personnel who show promise of middle-level capability with appropriate in-service training.

Skills and Standards: Capability in basic observational, recording, and interpretational skills was initially poorly developed through most of the LGS professional staff. Correspondingly, functional skills of the subprofessional staff were also nonexistent or distinctly substandard. The USGS staff has addressed the problems of improving skills and standards by in-service training and jointly establishing with the LGS, standards to be met by all products of the GERA project. While there will always be room for improvement of skills and standards,

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good progress has been made in most spheres where suitable personnel resources have been available. Upgrading skills and standards continues as new personnel become available and new phases of project activities have to be undertaken.

Administration: A potentially competent LGS administrative assistant was finally assigned to the project in July 1969. It is anticipated that with help and training he will be able to handle much of the routine administrative load of the joint project. A short TDY assignment of a specialist in Administration for technical organizations is considered highly desirable to provide an administrative manual applicable to the entire BNR&S organization. Procedural portions that have already been drafted specifically for LGS would be adapted to the broader scope of the Bureau.

Item 087: Resolution of procedural and bureaucratic problems:

This item is less than satisfactory, particularly at Bureau level, but generally has little direct effect upon the project. Because of basic project duties, help of USGS Administrative Officers at Bureau level has necessarily been limited to assistance on specific and timely problems. With the aggressive administration of the Deputy Director it is likely that the TDY administrative assistance suggested above (in 086) would be very effective. The Chief Geologist of LGS should undertake the same course of training that was completed by the Deputy Director of BNR&S.

Item 088: Availability of GOL physical resource inputs and/or supporting services and facilities:

The problem of inadequate physical resources such as vehicles, equipment, supplies, etc. has been addressed by USAID initially through grant funding and more recently through project support loans for procurement of the necessary physical resources. Services and facilities provided by the GOL have in general improved through the life of the project and now reasonably meet expectations.

A major problem of the BNR&S that was to be addressed in the original concept of the overall mapping project was a building to hold offices and work space for all the various survey activities of the BNR&S in one central, unified location. While a building itself will not result in greater accomplishment on the part of the BNR&S, it would make management thereof easier and more likely to be productive (the BNR&S feels strongly that the building was promised to them and that USAID reneged thereon).

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Item 089: Maintenance of facilities and equipment:

Rated less than satisfactory because of problems having the LGS vehicles maintained and operable when required for field work. The BNR&S has no motor pool facilities and therefore has to have all repairs and maintenance done commercially. Proforma vouchers for repairs frequently take several weeks to be approved through the Treasury Department and during that time a vehicle is immobilized unless the individual has sufficient funds in hand that he can advance the required amount. The garages will not work on a vehicle unless the estimated cost is paid in advance. Maintenance funds allocated in the GOL budget for the LGS are larger than other agencies, but are still inadequate to cover the requirements for 4-wheel drive units that accumulate the mileage that is regularly put on LGS vehicles.

Item 093: Capacity to transform ideas into actions: i.e., ability to implement project plans:

This item has been rated N (less than satisfactory) because this is one of the major deficiencies addressed by the institutional development objectives of the GERA project. Although distinct gains have been made during the course of the GERA project and many actions are implemented independently by the LGS/BNR&S, the actual achievement frequently falls far short of anticipated (and possible) results.

Item 094: Intent and/or capacity to sustain and expand the impact of the project after U.S. inputs are terminated:

- a. There is no question that the physical map and report products of the GERA project will continue to be used until such time as they are replaced by newer, more complete data. Even then it is expected that the GERA products will comprise the foundation data that will be added to from time to time and place to place and that by additions and specific interpretations that new benefits will be reaped therefrom forevermore.
- b. At this time it can still not be said for certain what exactly will become of the LGS organization when U.S. inputs are terminated. Unless major changes are accomplished in the civil service system, there will inevitably be some organizational back sliding. However, it is unlikely that the LGS will go all the way back to pre-GERA conditions. Depending upon the strength of leadership involved and the general character of the mineral industry in Liberia, it is likely that following a brief attempt to maintain momentum, things will slide back somewhat, then following an indefinite period of stabilization and recovery, the organization will commence its own internal growth based on need, recognition of value, and dedication of a small competent staff.

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The above is based on carrying the project to successful completion of scheduled work. Termination at this point in the project would result in almost total loss of all input to date, because it is just now at the point where the resources are available so that effective work can be accomplished and work systems stabilized.

Item 099: Level of technical education and/or technical experience:

While all professional level LGS staff members have graduated in geology from recognized institutions, technical experience is necessary to enable them to satisfactorily meet professional production requirements. The institutional building phase of the project is designed to give the LGS staff members the practical experience in geological survey activities necessary for them to accomplish LGS responsibilities. It is planned that all returning participants have the practical benefits of working in counterpart positions prior to attempting independent activities. The need for in-service training of professional and middle level technicians is also discussed under Item 086.

Item 100: Planning and management skills:

The problems of planning and managing technical activities are being addressed by the GERA project as necessary operational activities are planned and undertaken to accomplishment. This is part of the continuing effort of institution building.

Item 101: Amount of technician man-years available:

The GOL has assigned the services of all the qualified Liberian geologists that are available in the country. As indicated under Item 086 the anticipated personnel level has not been realized because of employees being sent abroad as participant trainees and participants subsequently not completing their programs as rapidly as initially scheduled. In addition the Senior Geologists are required by GOL to perform a wide diversification of duties not directly related to the specific project objectives. These activities range from hydrogeology to topside advisory services. Often, therefore, the most capable men are simply not available.

The low number of middle-level technicians has been discussed previously under Item 086. As indicated therein, the project has encouraged hiring of educationally qualified persons and giving them suitable in-service training as part of the institutional development program.

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Item 104: Pay and allowances:

Pay and allowances for LGS (and BIR&S) staff positions are grossly substandard relative to what Liberian technicians would be paid by the mining companies if they could be hired (see Item 102 above). With existing substandard pay scales, all staff members must hold outside jobs, engage in promotion of outside financial interests or otherwise gain additional monies to realize a living income. As a result of the GOL austerity budget, low pay scales, and lack of incentive towards future improvement, absenteeism and non-interest are perpetual operational problems that can not be fully overcome within the project until changes are achieved in the fundamental government personnel system. Comparatively speaking, the LGS staff, in general, makes a substantial field input and thereby achieves greater productivity than most GOL organizations.

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PART IV - PROGRAMMING IMPLICATIONS

IV-A - EFFECT ON PURPOSE AND DESIGN

Indicate in a brief narrative whether the Mission experience to date with this project and/or changing country circumstances call for some adjustment in project purposes or design, and why, and the approximate cost implications. Cover any of the following considerations or others that may be relevant. (See Detailed Instructions for additional illustrative considerations.) Relevant experience or country situations that were described earlier can simply be referenced. The spelling out of specific changes should be left to the appropriate programming documents, but a brief indication of the type of change contemplated should be given here to clarify the need for change. For example, changes might be indicated if they would:

1. better achieve program/project purposes;
2. address more critical or higher priority purposes within a goal plan;
3. produce desired results at less cost;
4. give more assurance of lasting institutional development upon U.S. withdrawal.

107 NARRATIVE FOR PART IV-A (Continue on form AID 1020-25 I):

See PAR continuation sheet.

IV-B - PROPOSED ACTION

108 This project should be (Place an "X" in appropriate block(s)):

1. Continued as presently scheduled in PIP.	
2. Continued with minor changes in the PIP, made at Mission level (not requiring submission of an amended PIP to AID/W).	
3. Continued with significant changes in the PIP (but not sufficient to require a revised PROP). A formally revised PIP will follow.	X
4. Extended beyond its present schedule to (Date): Mo. ___ Day ___ Yr. ___. Explain in narrative, PROP will follow.	
5. Substantively revised. PROP will follow.	
6. Evaluated in depth to determine its effectiveness, future scope, and duration.	
7. Discontinued earlier than presently scheduled. Date recommended for termination: Mo. ___ Day ___ Yr. ___	
8. Other. Explain in narrative.	

109 NARRATIVE FOR PART IV-B:

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Item 107: IV-A Effect on purpose and design

At the close of the fifth year of the originally planned 7-year Geological Survey and Appraisal relatively major realignment and restructuring of the project will be necessary in order to realize applicable end product results by June 30, 1972. The original plan was designed to do the following:

1. To prepare a series of geological maps covering all of Liberia at a scale of 1:250,000;
2. To evaluate the mineral resources of Liberia and prepare recommendations for future mineral exploration; and
3. To help establish a more effective Geological Survey Division in the Bureau of Natural Resources and Surveys to carry out geological mapping and mineral resources appraisal in Liberia.

The planning assumed the following support:

1. Availability of suitable topographic base maps compiled from new air photos and new control data produced by the U.S. Army Map Service (AMS) and the Liberian Cartographic Service (LCS).
2. No extensive mineral deposit studies--only target identification.
3. No expansion of the project concepts beyond the geologic map scale 1:250,000, the mineral evaluation for exploration targets, and a reasonable amount of institutional development activity.
4. Full and continuous USGS and LGS staffing as programmed for 7 years.

The following changes were made in the project without adequate provision being made by USGS/W, USAID/L, or the GOL in program documents to provide necessary adjustments in overall time, manpower, and support to the project to achieve objectives undertaken:

1. The project undertook the compilation of a form-line base map of Liberia scale 1:125,000 on which to plot the geology for publication at 1:250,000 scale on a shaded relief base (10 quadrangles covering the nation). This compilation was necessitated because the originally anticipated AMS-Liberian Cartographic Service base maps did not materialize.

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2. In the second and third year of the project field mapping revealed significant deposits of barite and kyanite. The project recognition of possibly petroliferous sedimentary rocks resulted in considerable geophysical and geological effort expended in evaluating and furthering development of Liberia's petroleum prospects. Because of GOL pressure to "find and develop a mineral deposit", and because base maps were still not completely in hand, the project undertook studies of these mineral targets to an extent which attracted private investment. GOL income from these sources has in fact amortized the GOL-AID investment but the project fell behind schedule accordingly as the expended man months were not restored.
3. Because of the difficult nature of the geological and physical environment, the GOL with USGS/USAID advice and assistance acquired an airborne geomagnetic-radiometric survey of the nation including a 25-mile offshore strip financed by an AID development loan (669-H-014).
4. BALPA eliminated three field data acquisition positions in the fourth year at a time when full staff was first realized and base maps and geophysical data were available to facilitate the work.
5. Time spent in various development activities outside primary program objectives:

The GERA project has become a primary source for data and information on various subjects, many of which are only remotely related to geology. These data are generally not readily available at other places in Liberia. Most of the requests are in some way related to development activities of one sort or another here in Liberia, and therefore are accommodated by the GERA staff when feasible. Data supplied include information about localities based on maps and aerial photographs, pedological data, hydrological and meteorological records, and mineral and concession statistics. These data are all in addition to discussing and supplying relevant geological data to existing and potential mineral development activities.

The above is an explanation of major change factors which affected project progress in many ways all of which necessitate restructuring the project and redefining the products in terms of completing the project by or about 6/30/72.

IV-B Proposed action

Accordingly USGS-USAID-GOL negotiations are currently underway (April-May 1970) to restructure the project plan and schedule, to restore the project's manpower and to redefine the end products to enable the

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originally planned objectives to be met by June 30, 1972, plus such other subsidiary objectives and products as may be mutually useful to GOL and USAID in country development (base and geophysical maps).

Briefly it is estimated that the restoration of three of the four BALPA/OPRED resident positions and the addition of sufficient temporary duty geologists, plus funds for completion of the base map at USGS/W and financing of special cartographic and photogeologic activities at USGS/W will, in 2 years, enable the compilation and preparation for reproduction of all major project products as originally defined and institution building as follows:

1. Reconnaissance geological map of Liberia, scale 1:250,000 (10 sheets covering nation),
2. Inventory summary of mineral potential and mineral exploration targets of Liberia.
3. Completion of training of USAID-sponsored participants.

In addition, the following will also be accomplished:

1. Form-line base map sheets of Liberia, 1:40,000 scale (505 sheets),
2. Shaded relief base map of Liberia, scale 1:250,000 (10 sheets covering nation),
3. Magnetic map of Liberia with magnetic interpretation, scale 1:250,000 (10 sheets covering nation),
4. Radiometric map of Liberia with radiometric interpretation, (10 sheets covering nation),
5. Gravity map of Liberia with gravity interpretation, scale 1:1 million (1 sheet covering nation),
6. Tectonic map of Liberia interpreted from geophysical data, scale 1:1 million,
7. Including documents already released, those in preparation, and those enumerated above, a total of approximately 100 scientific, technical and economic reports and maps will have been produced by the project. Stemming from these reports and other data collected and disseminated, many agencies and individuals will have been assisted in developing Liberia.
8. The GERA staff will continue to render the diverse data and information necessary to other development activities in Liberia.

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The GERA Operations Managers and their supervisors feel that the above objectives can be met if recruitments can be met successfully by USGS/W, if adequate support is received from the GOL, USAID/L, AID/W, and USGS/W, and careful management is applied at project level.

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