

669

669-0157

PP-AAG-813-

BI

(2)

ACTION MEMORANDUM FOR THE DIRECTOR

FROM: Office of Rural Development, Jack M. Cornelius

SUBJECT: Liberia - Hand-Dug Wells Project (669-0157)

I. PROBLEM: Your authorization is required for a grant-financed project in an amount not to exceed \$267,000 for the Republic of Liberia to implement the Hand-Dug Wells Project, No. 669-0157.

II. DISCUSSION:

A. Description of the Project:

The principal goals of the project are to provide a basis for continued economic growth of Liberian rural peoples and improve their standard of living and quality of life by providing them with adequate supplies of potable water. This project will institutionalize the government's assistance in the provision of water pumps and wells to remote rural villages. The improvement of local water supplies is acknowledged as an important element of both the Government of Liberia's and USAID's development efforts.

Direct beneficiaries of the project are the 46,000 people who will benefit from the project during its life. Indirectly, the institutionalization of a hand-dug well scheme for remote villages will benefit thousands of persons in future years. The project beneficiaries will typically be poor farm families and since women and children draw and carry most of the water necessary for family needs, the benefit to them will be proportionately larger than that accruing to men.

B. Financial Summary: AID grant funding for the project is \$267,000 all to be obligated in the first year. The table

below summarizes funding by inputs:

Input:	Cost: (US\$)
Water Pumps	93,000
Tools and Equipment	24,000
Water Testing Equipment	9,000
Supplies and Materials	56,000
Vehicles	60,000
Other Costs	<u>25,000</u>
Total Cost	267,000

Substantial commitments will also be made by:

The Government of Liberia	189,400
Peace Corps.	108,000
UNICEF and UNDP	<u>81,000</u>
	378,400

C. Socio-Economic, Technical and Environmental Description:

The project was subjected to social and economic analyses and found to be sound in both areas. The project is technically sound and contains the requisite input components to allow proper administration, operation, training and maintenance of country teams which will assist villagers to install clean wells and water pumps. The environmental action recommendation is to approve a negative determination.

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D. Conditions, Waivers and Implementing Agencies

The Implementing Agency will be the Ministry of Local Government, Rural Development and Urban Reconstruction. A source origin waiver has been authorized for the procurement of hand-operated water pumps.

The following conditions precedent to first disbursement are included in the PAF II, and will be incorporated in the Project Grant Agreement.

a - The Government of Liberia will submit written assurances that the budget for year one (1) as reflected in the financial analysis of the PP subtotalling \$38,600 has been approved and is available. A detailed budget will also be submitted at the time, showing planned monthly disbursements; commitment to provide funding for years two and three will also be confirmed.

b - A list of authorized, funded and filled Liberian positions considered essential to the project will be submitted

c - The Government will furnish written confirmation that the UNDP advisory position will be encumbered for the entire three year life of the project.

E. Prior Actions and Congressional Apprisement:

The AID/W project review committee approved the Project Identification Document (PID) on March 29, 1978. The committee members commented on the thoroughness of the presentation and on the appropriateness of the project to the USAID/L rural development strategy and to our Congressional Mandate guidelines. The committee recommended total life of project funding the first year, local procurement of

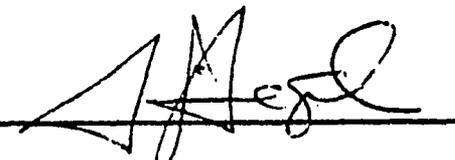
commodities and assumed that, given the relatively small scale and self-help aspects of the project, the substantive requirements for a project paper would be suitably modified.

Because the FY 1978 Congressional Presentation did not indicate an obligation for this project, an Advice of Program Change is required. This Congressional Notification is currently in process.

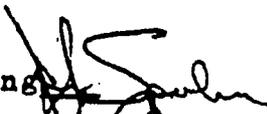
The USAID project review committee represented by the Offices of Rural Development, Program and Controller simultaneously recommends the attached project paper for your approval.

III. Recommendation Section:

Recommendation: That you sign the attached PAF II, Project Paper and Environmental Decision and thereby authorize the proposed project.

APPROVED   
DISAPPROVED \_\_\_\_\_  
DATE July 6, 1978

Drafted by RGoldman:

CLEARANCES: PR:JRSperling 

CON:RKRogers 

INFO: AFR/DR for AID/W Dist.

Attachments:

- A. Project Authorization and Request for Allotment of Funds (PAF) Part II
- B. Project Paper

PROJECT AUTHORIZATION AND REQUEST FOR ALLOCATION OF FUNDS  
(PAF Part II)

COUNTRY: Liberia

Project: Hand Dug Wells

Project No: 669-0157

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a grant to the Government of Liberia, not to exceed Two Hundred Sixty-Seven Thousand United States dollars (\$267,000) to help in financing certain costs of goods and services required for the project as described in the following paragraphs. The entire amount of the AID financing herein authorized for the project will be obligated when the Project Agreement is executed.

The project is designed to institutionalize a self-help hand-dug well program providing an adequate supply of low-cost/low-maintenance potable water to the more remote Liberian villages. Specifically, the project will establish regional hand-dug well teams within the Ministry of Local Government, Rural Development and Urban Reconstruction who will work with the local communities, UNICEF, UNDP, the Peace Corps and USAID to build approximately 260 wells over the three-year life of the project. The wells will provide clean water year round to villages of between 40 to 400 persons. The teams will also impart information, perform maintenance on existing wells, survey for new wells, and help organize community

efforts to support the well program. The project will concentrate on the six Liberian counties which have received the least developmental attention - Cape Mount, Sinoe and Grand Gedeh in year one; and these plus Grand Bassa, Bong and Maryland Counties from year two forward.

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

A. Source and Origin of Goods and Services:

Goods and services financed by AID under the project shall have their source and origin in countries listed in AID Geographic Code 000 or Liberia, except where AID regulations allow local currency and/or shelf item procurement from other sources, and/or as AID otherwise agrees in writing.

B. Waivers:

A procurement source waiver has been authorized by the Assistant Administrator for Africa which permits the purchase of 140 hand-operated water pumps valued at approximately \$93,000 total from AID Geographic Code 935 countries.

C. Local Currency Costs:

The relatively small size of the project, the need for implementation to accommodate the needs of the GOL, Peace Corps, USAID and the UNDP, the necessity that spare parts be available for equipment purchased and the availability of U.S. manufactured parts in Liberia dictate that AID's contribution be available for local cost financing. Notwithstanding, the above, to the maximum extent possible, procurement will be from U.S. source. A detailed procurement plan will be submitted to USAID prior to first disbursement showing planned locus of procurement and justification for the recommended actions.

D. Conditions Precedent to First Disbursement:

Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, the Government of Liberia shall furnish in form and substance satisfactory to AID:

- a - Assurances that the budget for year one, July 1, 1978 thru June 30, 1979 totaling \$38,600 has been approved and is available for disbursement. A detailed budget will be submitted at this time showing planned monthly disbursements. Commitment to provide funding for years two and three in the amounts of \$66,100 and \$84,700 will also be confirmed at this time.
- b - A list of authorized, funded and filled Liberian positions considered essential to the project will be provided.

c - Written confirmation that the UNDP advisor position will be encumbered for the entire three year life of the Project.

  
Stanley J. Siegel  
DIRECTOR

Clearances:

PR:JESperling 

CON:RK Rogers 

AGENCY FOR INTERNATIONAL DEVELOPMENT

## PROJECT PAPER FACESHEET

1. TRANSACTION CODE  
 A ADD  
 C CHANGE  
 D DELETE

2. DOCUMENT CODE  
**3**

COUNTRY/ENTITY  
**LIBERIA**

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits)  
**[ 669-0157 ]**

6. BUREAU/OFFICE  
 A. SYMBOL **APR** B. CODE **[ 6 ]**

7. PROJECT TITLE (Maximum 40 characters)  
**[ Hand Dug Wells ]**

ESTIMATED FY OF PROJECT COMPLETION  
 FY **[ 81 ]**

8. ESTIMATED DATE OF OBLIGATION  
 A. INITIAL FY **[ 78 ]** B. QUARTER **[ 4 ]**  
 C. FINAL FY **[ 78 ]** (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS \$5000 OR EQUIVALENT \$1 -

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L.C	D. TOTAL	E. FX	F. L.C	G. TOTAL
D APPROPRIATED TOTAL		267	267		267	267
GRANT		267	267		267	267
LOAN						
OTHER U.S. 1. Peace Corps			36		108	108
OTHER U.S. 2.						
HOST COUNTRY			39		189.4	189
OTHER DONOR(S)			49		81	81
<b>TOTALS</b>			<b>391</b>		<b>645.4</b>	<b>645</b>

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$5000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>78</u>		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) HE				267					
(2)									
(3)									
(4)									
<b>TOTALS</b>				<b>267</b>					

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULE
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1)					267		MM YY <b>[ 0   2   8   0 ]</b>
(2)							
(3)							
(4)							
<b>TOTALS</b>						<b>267</b>	

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

1. NO  
 2. YES

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE

TITLE **Director, USAID Mission to Liberia**

DATE SIGNED **MM DD YY [ 07 | 06 | 78 ]**

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION  
 MM DD YY [ ] [ ] [ ]

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LIBERIA

HAND DUG WELLS PROJECT

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- Annex H. Logical Framework Matrix
- Annex I. Hand Dug Well/Spring Box Development Water Survey Form

**Part I. SUMMARY AND RECOMMENDATIONS**

**A. Recommendations**

Grant FY 1978	\$267,000
Waivers - Procurement Source Waiver	
Loans - None	<hr/>
<b>Total New AID Obligations</b>	<b>\$267,000</b>

It is recommended that USAID/Liberia be allotted \$267,000 as shown above, to initiate a three-year Hand-Dug Wells Project in concert with the Liberian Ministry of Local Government, Rural Development and Urban Reconstruction, UNICEF, UNDP and the United States Peace Corps.

LIBERIA HAND DUG WELLS PROJECT

PART II. THE PROJECT

A. Background and Summary of the Problem

Seventy-three percent of Liberia's populace live in rural areas, the majority inhabiting villages of between 40 and 400 people. These villages are either situated on dirt tracks or have no road access. Basic sanitary services are virtually non-existent. Water is drawn from swamps or open cisterns often far from the village during the dry season; rain water is used during the wet season. As most of the water sources are unprotected and open to the elements they frequently become polluted and unsafe. The most common debilitating diseases in Liberia, including dysentery, typhus and typhoid are water borne. The cost to both the economy and individual of these diseases is high.

The Government of Liberia has acknowledged that the improvement of local water supplies is an important element of their development efforts. A special unit has been created in the Ministry of Local Government whose mandate includes the swiftest possible delivery of potable water to rural villages. The program, originally started with the support of UNICEF and UNDP in late 1973, has expanded greatly in recent years and is continuing to expand. Additional drill rigs and personnel have been added each year since its inception. Complementing this effort is a well program mounted as a part of the USAID assisted Lofa County Integrated Rural Development and Health Projects and a spring box program assisted by CARE.

The well drilling and toilet construction program now has four truck mounted percussion type drills and crews servicing the country. Expansion to one drill rig in each of the nine counties with supporting spare parts and maintenance capacity is planned. Crews for existing rigs have been trained and training for crews for the additional rigs is being developed. The Government of Liberia has standardized the pump used by selecting the Abidjan Industries hand pump, which has proven to be reliable, adaptable to local conditions because of its rugged construction, easy to maintain and convenient in the supply of spare parts. It is, however, relatively expensive.

The major difficulty with the existing program is the restriction of the rigs to areas served by roads of sufficient quality to allow access by heavy truck mounted drill rigs. Until smaller rigs arrive or feeder roads are improved, the locus of activity is restricted to areas bordering highways. Further, because of the limited number of rigs presently working, excess capacity presently exists in pump mechanics and hydrology.

In most parts of Liberia existing wells have been dug by itinerant well diggers. Traditionally, these people have been paid by the villagers. Because of the lack of modern techniques the hand dug wells are normally too shallow to allow an adequate year round flow of clean water in sufficient volume to satisfy village needs. Hand-dug wells are cheaper than drilled wells and drilled wells may not always

be necessary (or possible), thus GOL has decided to undertake a hand dug well program using existing techniques of digging and adding certain simple technology to assure a dependable clean flow. Concurrently an information program stressing the advantages of clean water is being undertaken.

B. Project Description

Goal - Improvement of standard of living for the inhabitants of remote rural villages,

Purpose - Institutionalize a self-help hand dug well program providing an adequate supply of low cost/low maintenance potable water to the more remote Liberian villages.

Relation between goal and purpose - As previously noted, a major cause of the misery and low productivity of rural Liberians is poor quality water, located at a distance from dwelling places and sporadic in supply. By providing a system to bring clean water in good quantity virtually to the villagers' doorstep, a major step to alleviating the above difficulties would be made. The project will test and institutionalize an approach which is eminently replicable by supplying experience and data on remote village wells in Liberia which can be used in expanding the program in the future.

A well development unit within the Ministry of Local Government with cooperation of local communities, UNICEF, UNDP, the Peace Corps and USAID intends to build approximately 260 hand dug wells over the three year life of the project

which will provide clean water year round to villages of between 40 and 400 persons. The teams will also impart information, perform maintenance on existing wells, survey for new wells, and help organize community efforts to support the well program. The project will concentrate on the six Liberian counties which have received the least developmental attention - Cape Mount, Sinoe and Grand Gedeh in year one, and these plus Grand Bassa, Bong and Maryland from year two forward.

The project will be phased, with the first year covering three counties and providing experience in this technique for a planned expansion in year two. The four components of the program will be site identification and survey, information concerning clean water, digging of wells and maintenance of wells. Activity in identification/survey, information and maintenance will be carried out during the rainy season when it is not possible to dig wells which will provide a reliable flow during the dry season. These activities will be carried out by three four-person teams sited in the most remote areas of the country during year one, and six four-person teams in year two. The project would work as follows:

Starting at the onset of the wet season, a team leader (whose qualifications include knowledge of the site identification and basic information concerning potable water) would visit villages not served by roads and which have no well or

an inadequate (low flow or polluted) well. Discussions with villagers would reveal whether they are sufficiently interested to contribute time and materials to the effort. One team leader would visit perhaps forty villages during this period, which would take about three months. Villages which exhibit strong interest would be informed that a well would be dug in their village during the forthcoming dry season if they collected certain materials (gravel, sand) and made available one or two places for the well construction. The team leader would then return to the first village visited and assess progress in local contribution. If judged adequate, a site would be selected and a small hand test boring made. It is anticipated that only about 30-40 of the villages in each county will follow through on their contributions and thus about 260 wells will be dug over the three year life of project (some villages may need two wells). This stage of the operation would be conducted two to three months prior to the January to April construction season. The villagers would be informed when to expect the digging team - what they are expected to do and given basic information explaining the benefits of clean water.

The next stage would be digging the wells. Each team leader would have one hand well digger assigned and a locally hired well digger will be hired if conditions such as depth, digging condition etc., dictate. This person will be paid for by the village. The typical well will be 40 to 50 feet deep, with a nine foot underground reservoir constructed from

culverts built on site (see Annex A). Depending on location, gravel and sand may need to be trucked and hand carried in. Where available the villagers will provide gravel (or crushed stone) and sand for the reservoir and concrete works. A standardized pump will be provided, installed and a proper platform and runoff structure constructed. One well should take an average of two weeks to complete. The digging and installation will continue throughout the dry season. At the onset of the rains, the equipment (truck, hand pumps etc.) will return to Monrovia for one month intensive maintenance. The surveying phase would then start again.

The teams will provide basic hand tools, reinforcing bar, cement and culvert forms to each village during the construction phase. They would receive additional support from county well drilling centers and would share warehousing and maintenance facilities. Each team would be equipped with basic water testing paraphernalia to ascertain the quality of the water in the dug well. The team will be equipped with simple water testing devices to determine water quality before outfitting the pump. Tests will measure the level of disease producing organisms caused by fissures in the aquifers, and will insure that the water obtained is not polluted due to contamination of close proximity to the well such as existing uncovered draw bucket type wells or pit latrines (see draft survey form below). More sophisticated sampling would be done at county hospitals, using equipment provided

under the project. Over time the number of teams would be expanded using individuals trained on the larger drill rigs. Peace Corps will provide support to the project during the first three years (see Administrative Feasibility).

The final phase is the maintenance of existing wells. Spare parts will be stocked in county locations and a villager will be trained in simple maintenance techniques. A yearly maintenance visit by a water unit technician will assure preventive maintenance. Emergency maintenance will be available through the Ministry of Local Government's rural water program, which uses the same type of pump.

#### End of Project Status

(a) An MLG supported program (personnel, logistics, budget) providing at least 105 wells to isolated villages per year.

(b) Functioning cadre of well diggers..

(c) At least 90% of "project" villagers with access to new wells using the water as instructed.

(d) Villagers assume cost of maintenance and operation of wells.

#### Outputs

(a) Estimated 260 new wells dug and pumps installed over a three year period in off-the-road villages in five counties.

(b) Estimated 46,000 villagers informed of benefits and use of clean water.

(c) 10 MLG personnel trained in water quality testing and in maintenance of wells.

PART III. PROJECT ANALYSES

A. Technical Analysis

The technology to be employed is appropriate to Liberia. The types of wells to be dug have been built in India and are described between pages 25 - 29 of the Village Technology Handbook, June, 1964 reprint. One such well was recently installed in Blamayea, Bong County, Liberia, and has performed successfully. The technology to be used is being employed on a much larger scale in the Netherlands/Tanzania shallow wells program and is apparently successful.

Digging crews and other personnel assigned to the program will utilize the rainy season and the early part of the dry season to identify recipient communities for wells, which are to be installed between January and April. Surveys and site visits are made in target areas to accomplish three purposes: First, each village visited is made aware of the program and what the villagers can expect to receive if they participate. Second, a survey determines whether a well or springbox\* is more feasible and where it can be located. Third, the villagers are briefed on what they must contribute in the way of materials and labor and told when the work is scheduled to begin. A list of interested villages is maintained for planning purposes.

\*NOTE: If dependable springs are found during the survey their locations are recorded and passed to CARE which is conducting a similar program whereby springs are sealed off to protect them from contamination and nozzles attached to facilitate use by villagers.

Approximately one month prior to the beginning of work in any given village a second visit is made. The purpose of this visit is to inform the people of the scheduled time of arrival of the team and to request that preparations begin for work. A preliminary and basic health survey is taken during this visit. The survey will evaluate the local health situation and determine the extent of water-borne disease in the area.

Approximately one week prior to the scheduled digging operation a final trip is made to the village to ensure that the required preparations have been completed. The village must have arranged accommodations for the crew, gathered crushed rock (or identified a convenient source of rock crushing) and assisted in the transport of the remaining materials to an agreed upon assembly point (most likely the nearest point accessible by vehicles to the village).

The crew arrives at the assembly point on the day scheduled to begin the digging. They are met by village workers who assist them in organizing the materials and equipment in manageable head loads. Pumps are broken down into smaller components for re-assembly at the well site, 100 lb. bags of cement are placed in smaller sacks, portable rock breaking tools and other equipment are similarly transported etc.

The digging is performed by a designated team member with assistance from villagers and other crew members. A hole 45" in diameter is dug down into the aquifer to within three to five feet of the water table at which point water seepage into the hole begins to impede further digging. A pump test is now conducted by placing the pump on planks over the hole and manually operating the pumps until water comes to the surface. The quantity of water in the aquifer is estimated by measuring the water level during the pumping process. If the well cannot be pumped dry, sufficient water exists to terminate the digging operation and begin installation of the well system and pump.

In most cases it is desirable to have a large storage area for water because the aquifer may not be capable of rapidly replenishing the water supply. Therefore, concrete culverts are most appropriate to create a suitable chamber at the base of the well. These are constructed on the site by utilizing setting forms for concrete which are part of the digging crew's equipment and materials. The culverts require three days to dry once the cement has been poured into the forms. The finished culverts are 36" in diameter and stand 36" high. Normally crews are assigned to work on several well sites within reasonable working distances of each other. While culverts are drying for one well, digging may continue or begin on others.

Once the culverts have dried thoroughly a layer of course sand or gravel, 10 - 12 inches thick, is poured into the hole and leveled. Then with the use of a locally made tri-pod, rope, and pulley assembly the first culvert is lowered into the hole and secured on top of the sand/gravel base. Each culvert is made with ridges and grooves on the tops and bottoms which fit together when one culvert is properly placed on another. Culverts are lowered and secured in this manner until the top of the last culvert extends above the water level. During this process it may be necessary to pump water from the hole to facilitate the installation of culvert sections.

A reinforced concrete cap, molded with a four inch diameter hole to enable a piece of four inch plastic PVC casing to pass through, is placed on top of the last culvert. The water storage chamber is then sealed by the installation of a pipe casing through the hole in the concrete cap and puttying it securely in place. Next the remainder of the well hole is back filled until only the top four inches of the casing, which is connected to the storage chamber, extends above the ground. Finally, the well system is completed with the installation of a hand pump and the setting of a concrete base.

In locations where there is a particularly good aquifer and only a limited water storage area is required, another type of well may be substituted. Rather than using culverting, a four inch PVC filter screen is placed in the bottom of the well hole. The filter screen is connected to PVC casing which is eventually extended through the concrete cap. Gravel is then packed around the bottom six feet of the well thus filtering the water which reaches the filter screen. The remainder of the well hole is backfilled and the rest of the process is the same as for culvert lined wells.

Simple maintenance of any system is fundamental to the continued operation of that system. It is anticipated that as part of the six week Peace Corps training exercise a pamphlet will be prepared on simple hand pump and spring box maintenance. Such things as the greasing of bearings and the changing of cylinder leathers will be stressed. At least two individuals will be identified in each village and given this responsibility. These individuals will be selected and instructed in simple maintenance.

The Well Drilling Program of the Ministry of Local Government currently has qualified pump mechanics. It is anticipated that this program will decentralize its operation to a county by county basis. Included in the decentralization is the placement of one pump mechanic in each county capital. He will be assigned the responsibility for maintaining the pumps in his county. If the pump should

break down and not be repairable by the local community, this person will be responsible for its repair. An adequate supply of spare parts will be available in each county.

B. Administrative Feasibility

The project will be implemented through the Ministry of Local Government's Rural Development Division and its Well Drilling Program. The Ministry is headed by the Minister of Local Government. Directly responsible to him are the Deputy Minister and Assistant Minister for Rural Development. These three individuals will be responsible for carrying out the administrative decisions for the program. Beneath the Assistant Minister is a Director for Rural Coordination who is responsible for carrying out the day to day coordination of any divisional program. Beneath the Director are the three programs of the division, the Farm to Market Road Program, the Rural Community Development Program (responsible for the building of schools, clinics, markets) and the Well Drilling Program. The Well Drilling Program will now be combined with the Hand Dug Wells Program to form the Rural Water Supply Program.

Peace Corps Volunteers will be brought in to perform the day to day logistic support of the Rural Water Supply Program. Each volunteer will be assigned a counterpart who will be responsible for assuring that the volunteer has an adequate supply of field supplies. The counterpart will also be responsible for correspondence with other Ministries

and agencies and the filing of reports concerning the hand dug wells facet of operations. At the conclusion of the three year project period, the PCV's should have made themselves redundant by having trained their counterparts.

The repair and maintenance program for this project will be supported by the Rural Development Division Workshop in Monrovia, which has the capability to repair heavy duty vehicles, and the Rural Water Supply Program workshop which is presently being constructed in Gbarnga, Bong County (126 miles northeast of Monrovia in the geographical center of the country). The new workshop will have the facilities and staff to repair pumps, drills and vehicles.

Government supplies will be transported through the existing logistics system. Procurements for the Well Drilling Program are handled through accounts with some 25 local vendors. Project commodities financed by USAID will be acquired through purchase orders or PIO/C's, in the case of U.S. procurement. All commodities, to the extent possible, with the exception of cement and rebar, needed for year two and thereafter will be ordered from U.S. sources. U.S. procurement is estimated at \$78,000 including six pick-ups, water testing equipment, hand tools and culvert forms for years two and three and pipe/casing for years two and three.

The government commitment to provide potable rural water systems is significant. The Hand Dug Well Program and the Spring Development Program have been approved by Government for FY 1978 - 79 funding and it is anticipated that the Well Drilling Program will continue to receive firm and progressively larger commitments in the future. The Well Drilling budget has increased from \$36,000 in FY 1975 - 76 to \$141,000 in FY 1976 - 77 to \$243,000 in FY 1977 - 78. Preliminary meetings at the Ministry of Planning and Bureau of the Budget suggested another increase for FY 1978-79.

#### Peace Corps Participation

The seven volunteers assigned to this project will have at least six months' experience in general masonry and carpentry. Their ability to mix, talk, guide and in general motivate group action is essential to this program. One person from this group will assume most of the administrative support/logistical functions for the volunteer groups. These PCVs will join other volunteers working for the MLG in their water development program. Assigned in teams of two, with counterparts, the teams will be responsible for the site selection, much of the actual digging, gathering of rock and sand, fabrication of culverts, top decking and actual pump installation. The teams will also stress community health education pertaining to the use of safe water and the proper disposal of human waste. The number of teams will be increased to six at the start of the second year of project implementation.

C. Financial Plan

A. U.S.

	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
Commodities			
Pick-up trucks (6)	30,000	30,000	-
Hand tools, culvert forms equipment	12,000	8,000	4,000
Cement - rebar	5,000	7,500	7,500
Pumps (140)	13,000	40,000	40,000
Water testing equipment	5,400	3,600	
Pipe/casing	10,000	13,000	13,000
Contingency/Inflation @ 10%	<u>7,000</u>	<u>11,500</u>	<u>6,500</u>
Total	82,400	113,600	71,000

B. GOL

	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
A. Personnel	16,100	19,100	22,700
B. Transport of persons and things - per diem	5,000	5,000	5,000
C. POL and maintenance	12,000	20,000	20,000
D. Sand/aggregate	5,500	8,000	8,000
E. Pumps (65)	<u>-</u>	<u>14,000</u>	<u>29,000</u>
Total	38,600	66,100	84,700

C. Local Community - Labor (shadow wage not established)

D. <u>Other Donors</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
1. <u>UNICEF and UNDP</u>			
a. Pumps (55)	33,000	-	-
b. 1/3 drilling advisor	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>
Total	49,000	16,000	16,000
2. <u>Peace Corps</u>			
a. 4 volunteers	<u>36,000</u>	<u>36,000</u>	<u>36,000</u>
Total	85,000	52,000	52,000

E. Recapitulation

	<u>PROJECT COSTS</u>			
	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>Total</u>
U.S. Contribution	82.4	113.6	71	267
GOL Contribution	38.6	66.1	84.7	189.4
Other Donor Contribution	<u>85</u>	<u>52</u>	<u>52</u>	<u>189</u>
Total	206	231.7	207.7	645.4

Commodities for FY 78

Pick up trucks: \$30,000.00

Three American made (most likely chevey) 4 wheel drive, crew cab pick-ups. The crew cab is required because each truck will support 2 crews. The four wheel drive is required to enable the vehicle to get as close to the village as possible and due to the poor nature of rural roads during the rainy season.

U.S. Input Summary

USAID will provide funds for cement, tools, culvert forms, pipe, reinforcing bar, vehicles and hand pumps for an estimated three year period. No technical assistance will be required from USAID, nor will participant training be necessary.

Government of Liberia Input

The Government will provide at least twenty qualified persons to carry out the activities of the project. These individuals will be skilled in site selection, community organization, well digging, and installation and pump maintenance. One supervisor will also be provided by the Government of Liberia. Additionally, the GOL will provide POL and maintenance for the well teams' vehicles and transport of pumps from Abidjan to upcountry sites. Sixty-five pumps will be provided by the Liberian Government.

Local Community Inputs

Sand and gravel will be provided where readily available. Labor needed to assist in construction of culverts, mixing concrete, excavating the well and performing heavy work will be provided by the village. In areas where sand and gravel are not locally available, labor to carry these materials from the nearest vehicular track will be supplied as well.

Other Donor Involvement

UNICEF will provide 55 pumps at the beginning of the program. The services of a UNDP rural water expert will also be provided for the training of well digging teams and for supervision. Peace Corps Volunteers will be assigned to the program to supplement the Liberian staff.

Working Equipment: \$12,000.00

Working equipment to include four major items.

- 1) Hand Tools - Three sets of automobile mechanic tools, one for each vehicle. Six sets of tools required to dismantle, reassemble and install water pumps, one for each crew.
- 2) Culvert Forms - Forms to be produced in U.S. to mould a 36" diameter, 36" high culvert with 3" walls.
- 3) Portable rock crusher or hammer. Required in the event that crushed rock is not available in the town.
- 4) Camping Equipment - Tents, campbeds, kerosene lanterns and stove for living in rural areas.

Cement/Rebar: \$ 5,000.00

Cement required for making of culverts and casting of base 1/2" rebar required for reinforcement. Cement is available in country for \$2.85 per bag. The quantity required per well will vary with the number of culverts need per well. The project programmed for 7 bags of cement per well on average.

Pumps: \$13,000.00

Sufficient money for the purchase of 20 pumps. Pumps to be purchased from either Abidjan Industries, Ivory Coast (ABI) at a cost of \$665.00 per pump or Consallen Structures, England (LD.4) at a cost of \$400.00 per pump.

Water Testing Equipment: \$ 5,400.00

Purchase of portable water testing units capable of testing both the bacteriological and chemical make-up of the water.

Plastic PVC well casing and screens. Casing to be 4" in diameter. Screens to be 4" in diameter with three mm slots. Ends to be belled and to be connected with PVC glue. PVC cleaner will also be purchased to prepare the piping for gluing.

The commodity acquisition program for FYs 79 and 80 will approximate the above, with increased GOL participation.

D. Economic Feasibility

There are no economically feasible alternatives to this project. Eventually, access roads will be improved enough to permit some well drilling rigs access to some of the villages which will benefit from this hand-dug well program. However, mechanized crews can never be expected to fully meet the needs of isolated villages because they must stay on the roads whereas the hand-dug well crews can go anywhere. The total program will cost \$645,400. If the target of 46,000 persons is reached the cost per capita for potable well water would be \$14.00. Maintenance over a ten year period is estimated to cost another \$3.00 for a total of approximately \$17.00 per person over a ten year period, or \$1.70 per person per year. The economic feasibility of the project is obvious. Given a per capital income in rural areas of \$80 per annum the average rural villager earns a little more than \$1.50 a week in cash. Of course, there are also imputed earnings which these people make which depend on their ability to work their farms, hunt, fish, build houses, and otherwise contribute to the life of the village. The imputed earnings are probably equal to the cash earnings. Therefore, if a village person should lose a week of productivity over the course of a year due to disability caused by water-borne disease, at least \$3.00 in actual and imputed income is lost. Based on this analysis the Mission concludes that the project is

economically justified.

E. Social Beneficiary Analysis

Little demographic data are currently available. Since the wells will be dug in villages of between 40 and 400 persons, the average village population is assumed to be 180 persons. Thus, roughly 15,500 persons per year will be targeted, half of them female and 10,000 of them children (the Liberian rural family approximates 6.3 persons). The people typically will be poor farmers. Those with money generally migrate to areas served by roads; without roads it is virtually impossible to carry out commercially viable farming ventures. Since women draw and carry most of the water, the benefit to women will be proportionately larger than that accruing to men.

By extrapolation, approximately 46,000 people could benefit from the project during its life, but knowledge gained in the program would directly benefit many other rural Liberians as they would receive wells in future years.

F. Environmental Considerations

The Initial Environment Examination of this project found that it will have no significant negative effect on the environment and therefore, a negative environmental determination was recommended and approved (Annex B).

The project is expected to improve water quality in rural villages and thus have a positive effect on the health and welfare of rural people.

IMPLEMENTATION PLAN  
July - December 1978

PART IV. MINISTRY OF LOCAL GOVERNMENT

A. Reassignment of three supervisory personnel from the Ministry of Local Government Well Drilling to Hand Dug Program.

B. Identification and employment of three well diggers.

C. Final selection of three counties which have received the least developmental assistance.

D. Official notification by the Ministry of Local Government to county officials and local development groups of program intention.

E. Selection by the Ministry of Local Government and county officials of the initial district within each of the three counties.

F. Training of seven Peace Corps Volunteers and three Ministry personnel in site selection, well construction, community organization including health education and pump maintenance.

G. Division of each team into groups of two who will survey all villages of thirty houses or more within the initial districts. Survey to include:

- Level of community interest - e.g., the contribution of time and local materials;
- Suitable site selection(s) for either well or spring box construction;

- Accessibility in terms of moving equipment and materials into the community, actual construction and moving on to another site.

H. Development of an adequate, yet simple maintenance program for village level workers.

I. Development by the Ministries of Health & Social Welfare and Local Government of simple health care materials for village education.

J. Shipment of materials with stock piles in each of the three county capitals.

USAID

A. Procurement of vehicles and materials necessary for construction.

B. Outfitting of the vehicle to begin operation.

PEACE CORPS/Liberia

Assignment to the Ministry of Local Government of seven Peace Corps Volunteers for the implementation of well/spring box construction program.

IMPLEMENTATION PLAN  
January - June, 1979

MINISTRY OF LOCAL GOVERNMENT

A. Revisitation by survey group to each community measuring village follow through in the collection of local materials for well/spring box construction.

B. Begin construction of wells in those communities which have demonstrated an interest.

C. Training of community maintenance person - two for each community.

D. Follow up visit to the community after pump installation providing information which explains the benefits of clean water.

E. A project appraisal report at the end of the first year.

F. Core samples taken at least every five feet will be collected and given to the Ministry of Lands & Mines.

G. Basic water tests will be conducted at each proven source and safe drinking water will be proven before the permanent installation of a pump.

H. Alternative sources of a healthful community water supply will be explored primarily.

I. Identification by the community of a person capable of performing basic preventative maintenance to the pump.

USAID

Continued supply of those inputs necessary for the success of this program.

**PART V. EVALUATION PLAN**

The project will be monitored and evaluated at various stages during its implementation and after it terminates. During the implementation stage it will be monitored by the MLG, specifically by the Assistant Minister for Rural Development, by a USAID project officer and by the Peace Corps Associate Director.

The evaluation program will include:

- (a) an evaluation of progress towards attainment of the objective of the project;
- (b) identification and evaluation of constraints which may inhibit such attainment;
- (c) an assessment of how such information may be used to help overcome such problems, in this or other projects; and
- (d) an evaluation, to the degree feasible, of the overall development impact of the project.

Assuming that the project begins, and the Peace Corps Volunteers arrive by November 1978, a special review will be scheduled about February 1980 or 14 months after project initiation. This mid-project evaluation will be jointly undertaken by Peace Corps, USAID, and the Ministry of Local Government.

A similar evaluation will also be scheduled approximately six months after the project terminates or about May 1982.

## PART VI. ISSUES AND ASSUMPTIONS

1. The technology to be employed is appropriate to Liberia. The type of wells to be dug have been built in India and are described between pages 25-29 of the Village Technology Handbook, June 1964 reprint - one such well was recently installed in Blamayea, Bong County, Liberia, and has performed successfully. The technology to be used is being used on a much larger scale in the Netherlands/Tanzania shallow wells program. It is also apparently successful.

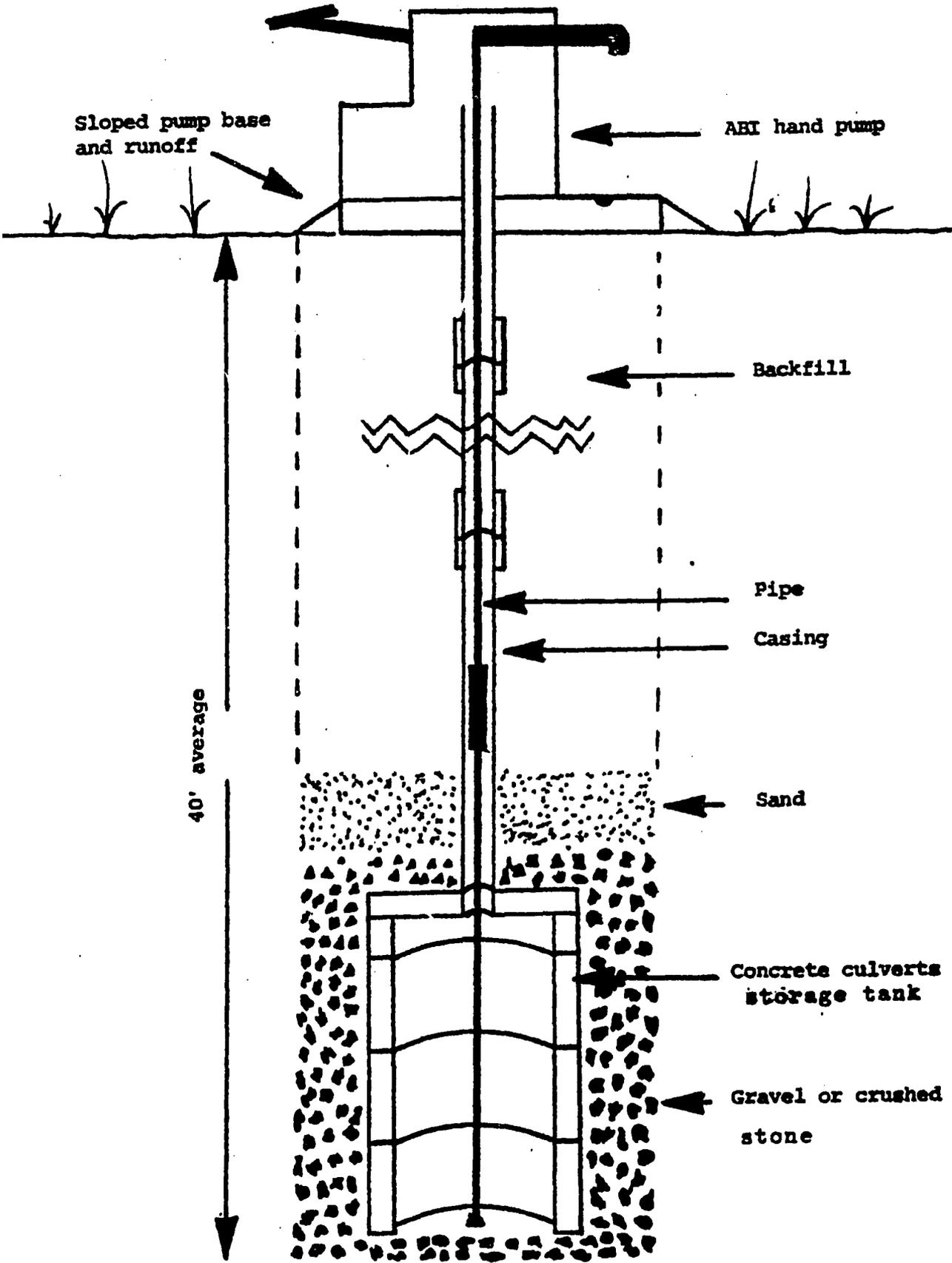
2. The pumps can and will be maintained by the villagers and the MLG. The GOL has standardized on the Abidjan hand pump, which is being used in the LCRH project. (Waiver has been issued by AID/W allowing offshore procurement of the item for the LCRH Project). Regional maintenance shops and spare parts supplies are being organized and repairmen trained.

3. The team leaders (who will have received training in a non USG water program) will be sufficiently qualified to perform all of the requisite functions. This is the most questionable of the assumptions. PCVs will work closely with all teams and will do training as well. The UNICEF drilling advisor will train and pre-qualify the leaders on technical matters. Experience will be necessary to decide if additional inputs will be needed in the training area.

4. Villagers will provide labor and local materials. All data available at Mission indicates that demand for wells is very high. Sociological information on rural Liberians indicates that they willingly work together in activities of demonstrable benefit to the community.

5. Will the simple techniques involved produce dependable, clean wells? In constructing hand dug wells, the digger often does not go deep enough. A cutting culvert is planned for those areas where the digging becomes difficult - hand pumps to clean the well will also be used to encourage deepening. The testing kits will assure a high standard of water quality. Additional testing of samples in Monrovia can also be built in at a later stage.

6. GOL will provide the projected manpower budgetary resources in accordance with the project's timetable (Annex E).



ANNEX B

INITIAL ENVIRONMENT EXAMINATION

Project Location: Liberia (rural areas)  
Project Title: Hand Dug Wells; Project No. 669-0157.  
Funding: FY 1978-80; total project cost is \$645,400 of which \$267,000 is to be provided by AID; \$189,400 from Liberian Government sources and \$189,400 from other donors.  
Life of Project: Three years starting August 1978.  
IEE Prepared By: J.L. Sperling, Project Officer  
Howard V. Guiot, Chief Engineer

Date: November 1977.

Environmental Action Recommended: The project will have no significant effect on the environment and therefore a negative environmental determination is recommended.

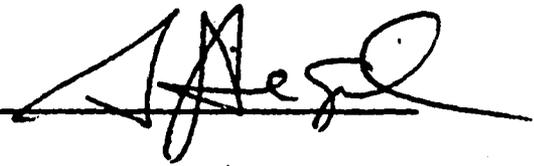
CONCURRENCE:

Richard H. Goldman  
Project Design Officer

Jack Cornelius  
Food and Agriculture Officer

Mission Director's Decision

Recommended Environmental Action:

Approved: 

Disapproved: \_\_\_\_\_

Date: 7/6/78

INITIAL ENVIRONMENTAL EXAMINATIONDescription of Project Area and its Environment

The project consists of five main areas within Liberia: Sinoe, Grand Gedeh, Grand Bassa, Maryland and Cape Mount Counties. With the exception of Grand Gedeh, which is predominately rain forest, all counties are a combination of tropical rain forest and coastal plain interspersed with swampland. Numerous rivers and creeks occur in all counties. The soils are lateritic in character normally with a high ferrous content. They are not particularly fertile.

## 1- Human Environment

A- Physical Description

The purpose of this project is to institutionalize a self-help hand dug well program providing an adequate supply of low cost low maintenance potable water to the remotest Liberian villagers. The locus of activity is expected to be in villages located on or approximately a one hour walk from feeder roads. The project will be implemented over a three year period and will install approximately 260 wells serving 46,000 people. Well diggers and team leaders will be trained to carry out an intensified program after the conclusion of this effort.

B- Social Characteristics

The areas to be assisted are tribally heterogenous. Major tribal groupings are Vai, Bassa, Kru and Kpelle. Water is traditionally drawn by the older village women and carried to the village for cooking and drinking. When water is taken from river or creek, the source is normally used for washing and disposing of human wastes. Virtually

all of the tribes have a tradition of community based self-help, organized by village leadership.

C- Population and Housing

The population in the five counties is sparse and widely distributed. The 15-20 hut village located away from any road is typical. Houses are built from local materials (bamboo, mud and wattle, etc); Galvanized iron sheet being used by the more affluent members of the village. There are normally no electricity or latrine facilities in the villages. Schools and clinics are the exception rather than the rule.

D- Employment and Economy

The people in the villages to be assisted are subsistence farmers who grow rice. In the coastal areas a percentage of the villagers will be fishermen. Commercial enterprise consists of selling small amounts of palm oil or rice either in markets or to buyers. The need to head-load everything to and from the villages reduces the possibilities of commercial enterprise.

E- Health Conditions

A poor but not disastrous nutrition status is normal, as shown in the recently published USAID assisted National Nutrition Survey. The ill nourished populace is therefore subject to debilitating diseases which are endemic in the project area. Malaria and schistosomiasis are common afflictions in the project area. Present water supplies are extremely unclean, and have a deleterious effect on public health.

## 2- Natural Environment

### A- Climate and temperatures

The areas to be assisted have a seven month rainy season and five month dry season. Rainfall varies from a low annual of 79 inches in parts of Grand Gedeh to a high annual of 180 inches along the coast in Cape Mount and Sinoe Counties. Average rainfall over the area is 120-160 inches per year. The climate is normally characterized as humid with average high temperatures ranging between 85 degrees F - 98 degrees F and average lows ranging between 62 degrees - 73 degrees F.

### B- Water Resources

The counties to be assisted are traversed by numerous streams and rivers. In numerous locations spring water occurs. In many cases water for human use is drawn from these sources. Hand dug wells supplement these sources in much of the country. The hand dug wells provide an adequate quantity of water (often unclean) during the height of the rainy season and diminished amounts at the beginning of the rains. Many of these wells are dry during much of the dry season. Many of the streams dry up during the five month dry season.

### C- General Soil Formation Characteristics

Most of the soil is lateritic, with a sandy clay characterizing the soils along the coastal plains. The topography is generally flat with plateaus rising as one leaves the coast. Hilly land is located in areas of Grand Gedeh.

D- Vegetation and Wild Life

Much of the area is tropical rainforest, with the more thickly settled environs containing second growth vegetation. Wildlife is rare, consisting mostly of bush pig, bush deer and birds. The more exotic African Fauna are found mostly in Nimba County, although occasional pigmy hippos or elephants can be found in other parts of Liberia.

E- Cultivated Vegetation

Traditional agricultural practices predominate. Although there are a few large rubber plantations, rice, cassava, palm oil, and coconut are the main crops. Cocoa and coffee are also grown by smallholders. The cultivated vegetation is grown predominately for subsistence, and commercial marketing is rare in the remotest areas.

F- Land Tenure

Land is in abundance in relation to the number of people. Shifting techniques of farming are used, typical of situations where no land pressure exists. In heavily settled areas, a system of leasehold and freehold exists. Much land is titled to tribal groups.

3- Probable Impacts

Areas of probable impacts are:

- a- land use
- b- cultural and socio-economic
- c- natural resources
- d- noise
- e- public health

The nature of the impact on these areas is characterized as negative or positive below. In the event that the impact is negative steps to be taken to eliminate potential problems are defined.

A- Land Use

The village well(s) will be dug either in the center of the village or as close by as possible, depending on the village's physical location and the results of the test borings. If built in the village, a piece of land approximately 15 feet on each side will be occupied by both the construction and the runoff works. If no public land is available, a piece of land will need to be donated. Once installed, this land will be unavailable for other uses, such as roads. As villages are usually free form in plan, and roads are non existent and expected to remain so for the foreseeable future, no negative impact is envisioned. In the event the well must be dug on farmland near the village the impact will be similarly negligible. Because of the small plot of land needed for the well and the relative abundance of farmland, the crops displaced can be planted on adjacent land. It is hypothesized that in most cases where wells are located on village borders, scrub vegetation will be cleared and no alteration in land use patterns will occur.

**B- Cultural and Socio-Economic**

At present water is often carried by the older women from nearby streams. With a dependable source of water in villages, this cultural practice will probably fade away. The carrying of water is often done in groups and the new system will deprive the women of socializing time and perhaps alter other water related folkways. This may be viewed as a negative impact by certain anthropologists. A recent discussion with a leading Liberian anthropologist disclosed that although the socializing time is prized by the older women, the younger women do not enjoy the treks to obtain water and would welcome relief from this task. The anthropologist further surmised that the village well would become a major point of social intercourse in the village. On balance it is therefore concluded that over time the social impact will be negligible.

The economic impact is potentially positive with greater productivity resulting from healthier people. Ideally, time saved in fetching water would be used to farm more intensively. Out of pocket expenses for medicine should decrease once clean water is used.

**C- Natural Resources**

The major potential danger to natural resources arises from possible pollution of the water sources. This presently occurs with hand dug wells as a result of wastes being dropped or otherwise finding their way into the unprotected wells. The project intends to eliminate this by sealing

the well at the bottom and creating an underground storage area constructed of concrete culverts. Backfilling with sand and soil will complete the protection of the supply.

The volume rate of ground water depletion is comparatively small due to the dispersion of the wells and the drawdown rate affected by the number of potential users in the village. Re-charge rates are usually high enough to maintain a balanced supply.

D- Noise

In villages where water will be available within the villages for the first time, the noise level will undoubtedly rise as the locus of activity/socializing moves from a remote riverside to the center of habitation. This will undoubtedly disturb some households living nearby. This can be handled by discussion among the normally socially cohesive village inhabitants and is not considered a major problem.

E- Public Health

The substitution of clean water for the existing befouled supplies will have a major positive impact on public health. Most rural Liberians suffer from water borne diseases, including schistosomiasis and gastro-intestinal illnesses. Uncovered water is a breeding place for malaria mosquitoes. The village wells will reduce these dangers.

A potentially negative impact would occur if the well is or becomes polluted. This will be guarded against by testing the water both at the initial boring stage and during maintenance checks. Wells will not be dug into polluted aquifers.

Improper runoff systems could cause puddles in towns providing breeding places for disease vectors. Each well will be designed with a runoff system designed to eliminate spillage over a wide area.

4- Measures necessary to minimize harm and control potential adverse impacts

A- Water quality will be tested before and during well construction, and at maintenance checks. This will assure constant monitoring of water quality.

B- Pollution of well by users will be eliminated by employment of an underground reservoir and backfill, making the introduction of manmade pollutants directly into the well impossible. Wells will be located well away from latrines and burial grounds to eliminate this type of pollution. The effects of fecal matter and buried people on water quality will be spelled out to villagers by the digging teams to eliminate future pollution of wells.

C- Noise

Moral suasion by village leadership will be necessary in instances where well related socializing noise become unbearable. The project can have no effect on this problem.

IMPACT IDENTIFICATION AND EVALUATION FORMImpact  
Identification  
and EvaluationImpact Areas and Sub-areas

## A. LAND USE

1. Change the character of the land through:

a. Increasing the population \_\_\_\_\_ Nb. Extracting natural resources \_\_\_\_\_ Nc. Land clearing \_\_\_\_\_ Nd. Changing soil character \_\_\_\_\_ N2. Altering natural defenses \_\_\_\_\_ N3. Foreclosing important uses \_\_\_\_\_ N4. Jeopardizing man or his works \_\_\_\_\_ N

5. Other factors

## B. WATER QUALITY

1. Physical state of water \_\_\_\_\_ H2. Chemical and biological states \_\_\_\_\_ N3. Ecological balance \_\_\_\_\_ N

4. Other factors

a. Run-off from road \_\_\_\_\_ N

N- No environmental impact  
 L- Little environmental impact  
 M- Moderate environmental impact  
 H- High environmental impact  
 U- Unknown environmental impact

## C. ATMOSPHERIC

1. Air additives \_\_\_\_\_ N2. Air pollution \_\_\_\_\_ N3. Noise pollution \_\_\_\_\_ U

4. Other factors

## D. NATURAL RESOURCES

- |  |       |       |   |
|--|-------|-------|---|
| 1. Diversion, altered use of water       | _____ | _____ | H |
| 2. Irreversible, inefficient commitments | _____ | _____ | N |
| 3. Other factors                         |       |       |   |

## E. CULTURAL

- |                                    |       |       |   |
|------------------------------------|-------|-------|---|
| 1. Altering physical symbols       | _____ | _____ | N |
| 2. Dilution of cultural traditions | _____ | _____ | L |
| 3. Other factors                   |       |       |   |
| Ethnic                             | _____ | _____ | N |
| Educational                        | _____ | _____ | N |

## F. SOCIOECONOMIC

- |  |       |       |   |
|--|-------|-------|---|
| 1. Changes in economic/employment patterns | _____ | _____ | M |
| 2. Changes in population                   | _____ | _____ | N |
| 3. Changes in cultural patterns            | _____ | _____ | M |
| 4. Other factors                           |       |       |   |
| Agricultural Activity                      | _____ | _____ | N |

## G. HEALTH

- |                                      |       |       |   |
|--------------------------------------|-------|-------|---|
| 1. Changing a natural environment    | _____ | _____ | N |
| 2. Eliminating and ecosystem element | _____ | _____ | N |
| 3. Other factors                     |       |       |   |
| Accessibility to medical attention   | _____ | _____ | N |
| Control of endemiological diseases   | _____ | _____ | H |

## H. GENERAL

- |                                      |       |       |   |
|--------------------------------------|-------|-------|---|
| 1. International impacts             | _____ | _____ | N |
| 2. Controversial impacts             | _____ | _____ | N |
| 3. Larger program impacts (positive) | _____ | _____ | N |
| 4. Other factors                     |       |       |   |

## ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM : AFR/DR, John L. Withers *JLW*

SUBJECT: Procurement Source Waiver, Liberia: Hand Dug Wells (669-0157)

Problem: A procurement source waiver permitting purchase of 140 hand pumps valued at approximately \$93,000 total from a non-United States source is required for the subject project. The following discussion elucidates the need and justification for such waiver from Code 000 to Code 935 procurement.

- a. Cooperating Country : Liberia
- b. Authorizing Document : Project Paper (669-0157)
- c. Project : Liberia Hand Dug Wells
- d. Nature of Funding : Grant
- e. Description of Goods : 140 Hand Operated Water Pumps
- f. Approximate Value : \$93,000
- g. Probable Source : Ivory Coast or Great Britain
- h. Source Waiver Granted for: (000) to (935)  
Commodity Procurement

Discussion: The Ministry of Local Government, Republic of Liberia, has embarked on an extensive program to provide potable water to rural Liberian peoples. One of the most important aspects of this program is the provision of self-help hand dug village water wells in each village not scheduled for participation in Local Government's well drilling program.

A major problem facing USAID assistance to this project is the non-availability of a hand-operated water pump from United States sources that will stand up to the continual operation required of a pump use at the village level. The only known source for hand pumps in the United States is the Dempster Company. The Dempster pump is one that is constructed for family needs. According to the well-drilling experts in Liberia with the United Nations Development Program (UNDP), the Peace Corps and the Ministry of Local Government, the Dempster pump will not stand up to constant village use. The most appropriate type of pump, according to these officials, is the ABI pump manufactured by ABI Industries located in Abidjan, Ivory Coast or alternatively a

British pump currently under test in Liberia. This latter may be chosen since it is less expensive and perhaps easier to maintain.

If U.S. manufactured pumps are purchased for this project they would be dissimilar to the other pumps planned for placement throughout Liberia. The Ministry of Local Government with UNDP assistance is currently standardized on the ABI pump. The utilization of Dempster pumps would cause a severe maintenance and spare parts problem in that the two pumps are not compatible with regard to parts and repairs, there is no Dempster dealership in Liberia. It should be noted that considerable field testings of the ABI and British pumps has been going on for more than two years. Performance has been exemplary. While the initial cost of these pumps is higher than the U.S. counterpart, this is more than offset by its demonstrated failure free performance. It may be noted that excepting the pipe body and leather, all parts of the ABI pump are manufactured in the Ivory Coast.

Primary Justification: The purchase of the ABI hand pump or other pump approved for use under Liberia village conditions, from Free World sources is essential to this A.I.D.-financed project because it will assure that the hand-operated pumps purchased with U.S. funds will be appropriate for the required usage and compatible with all other pumps being installed in rural areas by the Ministry of Local Government. Continuing operability of the pumps will promote the objectives of the Hand Dug Wells project in that potable water can be supplied to villages with a minimum of interruption due to pump failure.

On October 6, 1977, in concert with the wishes of USAID/Liberia and the Government of Liberia, the Assistant Administrator for Africa approved a procurement source waiver for ABI pumps for use in the A.I.D.-assisted Lofa County Rural Health Project (669-0125).

Recommendations: For the reasons discussed above, I conclude that procurement from the source requested above is necessary to the attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program. I recommend that you certify by approving a Geographic Source Code Waiver from Code 000 (U.S. only) to Code 935 (U.S. and Free World) so that the USAID in Liberia can purchase the appropriate make of pump for its village well program.

*DR* *CH*  
Drafted: AFR/DR:RSolem/USAID/L:RGoldman  
Clearances:  
AFR/DR/CAWARAP:GThompson (draft)  
AFR/CAWA:Sanderson draft  
SER/COM/ALI:CRaley (Sub's - prnc)  
USAID/L:HGutman (info)

Approved *[Signature]*  
Disapproved \_\_\_\_\_  
Date 3/6/78

Rec'd 2/6/78  
 ACTION: RD/  
 INFO: D/A  
 PR  
 CON  
 RF

**REPUBLIC OF LIBERIA**  
**MINISTRY OF PLANNING AND ECONOMIC AFFAIRS**  
 P. O. BOX 9224  
 MONROVIA



OFFICE OF THE MINISTER

MPEA-211/D-7.18/'78

February 3, 1978

Mr. Director:

I have the honour to forward for the consideration of your Government a proposal from our Ministry of Local Government, Rural Development and Urban Reconstruction concerning a "Hand-Dug Well Project" for which this Government is requesting both financial and technical assistance through your Agency.

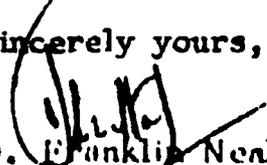
We have reviewed the project and have found it both feasible and compatible with the spirit and objectives of our Integrated Rural Development Programme. As such, we pledge our compliance with the counterpart provisions specified in the proposal.

We note that extensive discussions have already been held between the relevant members of your staff and officials from the Local Government Ministry on the possibility of obtaining the desired assistance and are heartened by your favourable initial response.

In view of this, I am pleased to tender this proposal to the US Government through your Agency on behalf of the Government of Liberia.

Kind regards,

Sincerely yours,

  
 D. Franklin Neal  
 MINISTER

The Director  
 USAID/Liberia  
 Monrovia, LIBERIA

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## ANNEX E

PROPOSED GOVERNMENT OF LIBERIA  
BUDGET FOR HAND DUG WELLS PROJECT

Year 1

## A. Personnel

6 - water technicians @ \$150 per month	\$10,800
6 - well diggers (paid by foot @ \$1.50 per foot estimated 500' each dig. Hired for four months)	4,500
1 - supervisor @ \$2,400 per year 1/3 of salary charged to project	<u>800</u>

## TOTAL PERSONNEL

\$16,100

## B. Transport of persons and things - per diem

5,000

## C. Petrol/oil/lubricant, maintenance of vehicles and equipment

12,000

## D. Sand/aggregate (where not provided by villagers)

5,500

## TOTAL YEAR 1

\$38,600

Year 2

## A. Personnel

6 - water technicians @ \$150 per month	10,800
10 - well diggers (paid by foot @ \$1.50 per foot) Estimated 500' each dig. Hired for four months	7,500
1 - supervisor @ \$2,400 per year 1/3 of salary charged to project	<u>800</u>

## TOTAL PERSONNEL

19,100

## B. Transport of persons and things - per diem

5,000

## C. Petrol/oil/lubricants, maintenance of vehicles and equipment

20,000

D. Sand/agregate (where not provided by villagers)	8,000
E. Pumps - 22 @ \$640 each	<u>14,000</u>
TOTAL YEAR 2	\$66,100

Year 3

A. Personnel	
8 - water technicians @ \$150 per month	14,400
10 - well diggers (same terms as year 2)	7,500
1 - supervisor (same terms as year 2)	<u>800</u>
TOTAL PERSONNEL	\$22,700
B. Transport of persons and things - per diem	5,000
C. Petrol/oil/Lubricants, maintenance of vehicles and equipment	20,000
D. Sand/Aggregate (community contribution)	8,000
E. Pumps - 45 @ \$640 each	<u>29,000</u>
TOTAL YEAR 3	\$84,700

NOTE: Pumps will be provided from following sources:

	<u>UNICEF</u>	<u>USAID</u>	<u>GOVT. OF LIBERIA</u>	<u>TOTAL</u>
Year 1	55	20	0	75
Year 2	0	60	22	82
Year 3	<u>0</u>	<u>60</u>	<u>45</u>	<u>105</u>
TOTAL	55	140	67	262

# TELEGRAM

PROJ. FILE

ACTION: AID

INFO: AMB DCM ECON CKRON

UNCLASSIFIED

STATE 86492

DE RUENC 86492 8942227  
ZNR UUUUU ZZX  
R 042100Z APR 78  
FM SECSTATE WASHDC  
TO AMEMBASSY MONROVIA 4276  
BT  
UNCLAS STATE 086492

Classification

05 APR 78 1800  
DUE DATE: 4/10/78  
ACTION: RD  
INFO: AD  
CON  
FR  
CP  
CHRON  
RF

ACTION FILE COPY  
RETURN TO S & R

AIDAC

E.O. 11652N/A

TAGS:

SUBJECT LIBERIA - HAND DUG WELLS - PID REVIEW (S69-0137)

1. PROJECT COMMITTEE APPROVED PID ON MARCH 29. COMMITTEE MEMBERS COMMENTED ON THOROUGHNESS OF PRESENTATION AND APPROPRIATENESS OF PROJECT TO USAID/L RD STRATEGY AND MANDATE GUIDELINES.

2. AS PROJECT DESIGN CALLS FOR THREE YEARS OF IMPLEMENTATION, COMMITTEE RECOMMENDS THAT PROJECT NOT BE FUNDED UNDER AIP PROGRAM BUT RATHER AS NORMAL LIBERIA BI-LATERAL PROJECT. THIS SHOULD NOT DELAY IMPLEMENTATION AS REQUIREMENTS FOR PROJECTS UNDER 500,000 ESSENTIALLY THE SAME AS AIP APPROVAL CONDITIONS. MISSION SHOULD PROCEED WITH PP DESIGN AND APPROVAL, PREPARE FORMAL IEE THRESHOLD DECISION PER STATE 017536 AND SUBMIT CONGRESSIONAL NOTIFICATION(CN). AID/W PROJECT BACKSTOP OFFICER IS RAY SOLEM, AFR/DR/CAWARAP. THE LIBERIA DESK WILL BACKSTOP CN. GOLDMAN WILL POUCH WORK-UP OF CN AND PROCESS WAIVER REQUEST FOR ASI PUMP.

3. COMMITTEE COMMENTS: ENGINEERING WANTED TO KNOW WHAT A CUTTING CULVERT WAS (P. 11, NO. 5), REQUESTED CLARIFICATION OF COMMENTS ON PAGE 3, PARA 2 WHICH WOULD LEAD ONE TO BELIEVE THAT WELL HOLE WOULD BE BACKFILLED WITH SAND AND GRAVEL AND NOT LATERITE, WANTED TO MAKE SURE THAT CONCRETE

CULVERTS (CASING) ANNEX A HAD HOLES FOR WATER ENTRANCE AND SUGGESTED THAT PORTABLE AIRDRIVEN JACK HAMMERS AND TAMPERS MIGHT BE USEFUL ADDITIONS TO THE EQUIPMENT LIST THOUGH ADDITION OF THIS EQUIPMENT MIGHT REQUIRE ADDITIONAL FUNDS OVER WHAT HAS BEEN BUDGETED. PLEASE NOTE THAT AID RURAL WATER SUPPLY EXPERT LES MAUPIN IS ASSIGNED TO REDSO/WA SHOULD LIBERIA NEED ON-SITE TECHNICAL ASSISTANCE DURING DESIGN OR IMPLEMENTATION. PROGRAM: TABLES PAGE 9, 10 SHOULD ITEMIZE NUMBER OF PUMPS, TRUCKS, ETC. COST PER PUMP SHOULD BE CONSISTENT THROUGHOUT PRESENTATION. FINAL

UNCLASSIFIED

Classification

# TELEGRAM

PG-2

UNCLASSIFIED

STATE 86492

*Classification*

PAPER SHOULD REQUEST LOP FUNDING AND ALL COSTS SHOULD BE NOTED LC EXCEPT PUMP PROCUREMENT. ASSUME ALL PROCUREMENT TO BE SHELF ITEM AND THAT TRUCKS WILL BE U.S. MANUFACTURED THOUGH LOCALLY PURCHASED. AFR/DP MAY CHANGE FUNDING CATEGORY FROM FN TO PH AND WOULD APPRECIATE APPROVAL PRIOR END MAY FOR FY 78 FUNDING. PEACE CORPS DESK OFFICER AND LIBERIA COUNTRY DIRECTOR WERE IN ATTENDANCE. ENVIRONMENTAL: IEE SHOULD ELABORATE ON (A) GENERAL WATER QUALITY AND EXISTANCE OF MINERAL CONTENT THEREIN (B) LOCATION OF WELLS MORE THAN 150 FEET AWAY FROM TOILET FACILITIES AND (C) WATER QUALITY TESTING CAPABILITY AND PROPOSED USE RELATIVE TO PROJECT WELLS. RECOMMEND NEGATIVE THRESHOLD DECISION, ENVIRONMENTAL ASSESSMENT NOT REQUIRED PROVIDED IEE INCORPORATES COMMENTS LISTED ABOVE. VANCE  
BT

DF

UNCLASSIFIED

*Classification*

OPTIONAL FORM 10  
(Formerly FS-41)  
January 1977  
Dept. of State

PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

A. GENERAL CRITERIA FOR PROJECT.1. App. Unnumbered; FAA Sec. 653(B)

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project;  
 (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus 10%)?

A Congressional Notification will be sent.

YES

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

Yes, see financial plan.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is necessary.

4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?

N/A

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U. S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

N/A

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6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multi-lateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multi-lateral organizations or plans to the maximum extent appropriate?

No, although multilateral organisations will participate in project implementation.

7. FAA Sec. 601 (a); (and Sec. 201 (f) for development loans). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

N/A

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

Private trade will be encouraged through the procurement of U.S. manufactured goods.

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

The GOL will provide a minimum of 25% of total project fundin

10. FAA Sec. 612(d). Does the U. S. own excess foreign currency and, if so, what arrangements have been made for its release?

No.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(d); Sec. 111; Sec. 281a.

Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

(a) This project will involve the rural poor in the selfhelp provision of potable water to rural villages. Labor intensive technology is envisioned.

(b) N/A

b. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph -- e.g., a, b, etc.-- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

See below.

(1) (103) for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, is full account taken of needs of small farmers;

Project's main purpose is to increase the productivity and health of rural peoples. Project activities will be direct at the poorest and most remote Liberian villages.

(2) (104) for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;

N/A

(3) (105) for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

N/A

(4) (106) for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

N/A

(a) technical cooperation and development, especially with U. S. private and voluntary, or regional and international development, organizations;

N/A

(b) to help alleviate energy problem;

N/A

(c) research into, and evaluation of, economic development processes and techniques;

N/A

(d) reconstruction after natural or manmade disaster;

N/A

(e) for special development problem, and to enable proper utilization of earlier U. S. infrastructure, etc., assistance;

N/A

(f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

N/A

(5) (107) by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries.

N/A

c. FAA Sec. 110(a); Sec. 208(a). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Yes, The project agreement will require a GOL contribution in excess of 25% of the cost of this project.

d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, was justification satisfactory to Congress been made, and efforts for other financing?

No.

e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

1. The project will improve the health and productivity of rural people by decreasing the time currently spent in non-productive endeavours, i.e. carrying water, poor health.
2. Increased agricultural production.
3. Training Liberians to maintain pumps and wells.
4. Improved health resulting from clean/potable drinking water.
5. N/A.
6. Women will be relieved of drudgerous water hauling responsibilities.

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

The project is in support of GOL's four year development plan. It will institutionalize a self-help hand dug wells program.

g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(a); Sec. 211(a)(1) - (3) and - (8). Does the activity give reasonable promise of contributing to the development: of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

Project will contribute substantially to GOL development activities.

Yes.

Yes.

Yes.

h. FAA Sec. 201(b)(6); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U. S. economy, with special reference to areas of substantial labor surplus, and extent to which U. S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U. S. balance-of payments position.

Wherever practicable U.S. manufactured commodities will be procured.

2. Development Assistance Project Criteria  
(Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U. S.

N/A

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U. S.) of lending and relending terms of the loan.

N/A

c. FAA Sec. 201(a). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

N/A

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

N/A

e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

N/A

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

N/A

3. Project Criteria Solely for Security Supporting Assistance

N/A

FAA Sec. 531. How will this assistance support promote economic or political stability?

4. Additional Criteria for Alliance for Progress

N/A

(Note: Alliance for Progress projects should add the following two items to a project checklist.)

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

PROJECT DESIGN SUMMARY  
LOGICAL FRAMEWORKProject Title & Number: Liberia - Hand Dug Wells (669-0157)From: Y-72 to F-81  
Total U.S. Funding: \$267,000  
Date Prepared: 5/29/78

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																						
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>Improvement of the standard of living for the inhabitants of remote rural villages.</p>	<p>Measure of Goal Achievement:</p> <p>Social/Economic studies National Accounts records World Bank reports.</p>	<p>- Infant mortality decreases from 1977 base</p> <p>- Per capita income increases</p> <p>- Quality of Life Index improves.</p>	<p>Assumptions for achieving goal targets:</p> <p>Major GOL resources continue to be directed to rural areas.</p>																																						
<p>Project Purpose:</p> <p>Institutionalize a self-help hand dug well program providing an adequate supply of low/cost low maintenance potable water to the more remote Liberian villages.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> <li>1. On going program providing 105 wells per year.</li> <li>2. Functioning cadre of well diggers.</li> <li>3. Villages use water as instructed.</li> <li>4. Village maintenance and operation of wells.</li> </ol>	<p>- USAID/Peace Corps UNICEF and GOL reports.</p> <p>- Reports of joint evaluation team.</p>	<p>Assumptions for achieving purpose:</p> <p>- GOL provide proper staffing and resources</p> <p>- Volunteers can effectively transfer skills.</p> <p>- Technology is appropriate.</p> <p>- Pumps are maintained.</p>																																						
<p>Outputs:</p> <ol style="list-style-type: none"> <li>1. New wells dug, pumps installed, operating.</li> <li>2. Villagers' education program.</li> <li>3. Water quality testing personnel trained.</li> </ol>	<p>Measures of Outputs:</p> <ol style="list-style-type: none"> <li>1. 260 wells.</li> <li>2. 46,000 villagers</li> <li>3. 10 MLC personnel.</li> </ol>	<p>USAID/Peace Corps UNICEF and GOL reports.</p>	<p>Assumptions for achieving outputs:</p> <p>- Inputs from all donors and host country provided as scheduled.</p> <p>- Village acceptance/interest remains high.</p>																																						
<p>Inputs: (\$US 000)</p> <table border="1"> <tr><td>USAID</td><td></td></tr> <tr><td>Tools</td><td>24</td></tr> <tr><td>Pumps</td><td>93</td></tr> <tr><td>Materials</td><td>56</td></tr> <tr><td>Vehicles</td><td>60</td></tr> <tr><td>Water testing equip.</td><td>9</td></tr> <tr><td>Other</td><td>25</td></tr> <tr><td></td><td><u>267</u></td></tr> </table>	USAID		Tools	24	Pumps	93	Materials	56	Vehicles	60	Water testing equip.	9	Other	25		<u>267</u>	<p>Implementation Target (Type and Quantity)</p> <table border="1"> <tr><td>COL</td><td></td></tr> <tr><td>Personnel</td><td>57.9</td></tr> <tr><td>Materials</td><td>21.5</td></tr> <tr><td>POL/Service</td><td>52.0</td></tr> <tr><td>Pumps</td><td>43.0</td></tr> <tr><td>Other</td><td>15.0</td></tr> <tr><td></td><td><u>189.4</u></td></tr> </table>	COL		Personnel	57.9	Materials	21.5	POL/Service	52.0	Pumps	43.0	Other	15.0		<u>189.4</u>	<table border="1"> <tr><td>Peace Corps Volunteers</td><td>108</td></tr> <tr><td>UNICEF Technical Assistance</td><td>48</td></tr> <tr><td>Pumps</td><td>33</td></tr> <tr><td></td><td><u>81</u></td></tr> </table>	Peace Corps Volunteers	108	UNICEF Technical Assistance	48	Pumps	33		<u>81</u>	<p>Assumptions for providing inputs:</p> <p>Obligations made in a timely fashion.</p>
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UNITED STATES GOVERNMENT

# Memorandum

*Noted SA 7/6/78*

TO : MR. STANLEY J. SIEGEL, DIR.

DATE: July 6, 1978

FROM : MR. BERNARD E. DONNELLY

*Bernard Donnelly*

SUBJECT: LIBERIA HAND DUG WELLS PROJECT - SECTION 611 (A) FINDING

1. Based upon information contained in the project paper for subject project, it appears there are adequate engineering plans to carry out the project and that there is a reasonably firm estimate of the cost to the United States for the assistance.

INFO: MR. JACK CORNELIUS, FAA OFFICER

