688-0229

UNITED STATES GOVERNMENT

memorandum

DATE: June 10, 1981

REPLY TO ATTN OF: DEO, Lewis W. Lucke

SUBJECT: CARE Wells Proposal Review

Project File

TO: See Distribution

OFFICIAL PROJECT DOCUMENT

Project Paper

The meeting to review the CARE wells proposal was held Friday, June 5, with the following people in attendance: CARE--Jack Packard, David Rhody, Joe Wambach, and USAID--John Ford, Dick Scott, Gerry Cashion, Moussa Ly, Hamacire Daou, and Lew Lucke. The CARE proposal for an OPG to finance the construction of 30 wells in three Cercles in Mali's Fifth Region around Douentza was reviewed subject to the availability of funds from Washington and pending the resolution of several important issues raised by USAID.

The issues are as follows:

1. High unit cost per well. The price per well using total project funding (AID--$495,088, CARE--$202,595, in-kind village contributions--$53,816 for a total of $751,499) equals approximately $25,000. The USAID amount taken alone still equals $16,533 per well--a figure for which USAID asked further justification, CARE contending that the estimated cost of materials and construction was in fact not overestimated. The high cost of CARE administrative expenses and overhead proposed for financing by AID as well ($134,19 or 27% of the AID total) was pointed out. It was requested that a revised project budget reduce AID's financing of CARE operating/administrative costs by 40%. Exchange rate fluctuations were another factor in the high dollar figure in the proposal as presented. The original project budget exchange rate utilized was $1/440 francs maliens; the present exchange rate has risen all the way to $1/574 FM. An estimation of project costs at the rate of $1/500 FM alone would reduce the budget from $494,000 to $435,683. Pending however, receipt of a final revised budget proposal from CARE, AID/W will be asked to make an availability of funding decision on the $496,000 even though the revised figure shall be lower.

2. Villager participation and contribution. It was the strongly held position of USAID that a wells project should fit into an overall wells strategy approach rather than the proposed approach where wells are offered to certain villages quite simply as gifts. A proper wells strategy, it was maintained by USAID, included the contribution of inputs--not just in-kind inputs of sand, gravel, etc.--but monetarily as well whenever and wherever possible. It was maintained by USAID that a cash contribution by villagers to CARE was a prerequisite to well construction in a particular village --at least 500,000 FM and hopefully 1,000,000 FM per village or a percentage of a particular well's estimated cost-- and was within the financial means of most villages and preferable to the perpetuation of a "cadeau" system.

The village contribution would be used by CARE, at a minimum, to pay village laborers recruited for the well digging on a full-time basis. CARE is undertaking a mission at the present time to determine a reasonable and consisten figure for the village contribution.

3. Initial environmental examination. An IEE must be included as a part of the CARE proposal.

4. Project request. A letter from the appropriate GRM ministry (in this case the Ministry of Interior) requesting and supporting the project should be forthcoming.

5. Financial. Transfer of funds between line items will not be unrestricted as proposed by CARE, but restricted to 20%.

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23 May, 198
LL N° 1315

Mr. John N. Ford
Chief
General Development Division
USAID, Bamako
Mali

Dear John,

Please find attached four copies of the CARE/Mali Operational Program Grant Proposal to USAID, requesting support for the construction of thirty wells in Douentza. This activity is intended to bring improved water supplies to poor, rural Malians.

The proposal is for the construction of thirty wells during a two year period in three arrondissements of Douentza Cercle in the Fifth (Mopti) Region of Mali. The project is designed to provide for permanent, cement - lined hand-dug wells and to allow for the villagers maximum participation in the construction activity. It also presents a component for training the villagers in the upkeep and maintenance of the wells.

A waiver is being requested in order to permit us to purchase locally the Toyota truck. Also, would the Initial Environmental Examination (IEE) completed for the Ouelessebougou Wells Project suffice for this current proposal?

It is hoped that USAID will positively consider the proposal and make available the funding necessary for its implementation.

Sincerely

Jack Packard
Assistant Director
CARE-Mali

115
405
cc: CARE-New York
Encl A/S (4 copies)

JP/fm

3

C A R E / M A L I

PROJECT PROPOSAL

Country : MALI (035)

Project Title : Douentza 30 Wells

MYP Period : FY 80-FY 82

Prepared By : Jack Packar

1. INTRODUCTION

The purpose of this project is to install thirty hand-dug wells in thirty villages in the cercle of Douentza, Mali. Each well will be furnished with a drinking trough for livestock. This activity will be self-help in nature as the beneficiary population will supply all possible local construction materials and non-specialized labor during the construction phase. The villagers would, as possible, also provide cash inputs for the construction of their village well, on a per meter basis, based on village ability to pay. The villagers will be trained in the maintenance and repair of the wells and on such measures of health and sanitation as are practical.

CARE would be the overall implementing agency, and will contract six well construction teams and supply project supervision. The host country counterpart will be the Ministry of the Interior through the Mopti Region Governors' office. The project will have a two year duration from October, 1981 through September, 1983.

This project will directly benefit 15,000 rural villagers in thirty villages located in Douentza Cercle. Douentza is located in the Fifth Economic Region of Mali, (Mopti). The cercle of Douentza is centered 192 kilometers north-east of the Fifth Region capital, Mopti, and is comprised of six arrondissements with a total population of 141,000. Population density is about 6 persons/KM2.

This project will focus well construction activities in three arrondissements in Douentza Cercle : Bore, Boni, and Arrondissement Central. The basic occupation of the population in this area is subsistance agriculture (millet) and animal husbandry. The principle ethnic groups in Douentza are Dogons, Peulhs and Bambara.

2. PROJECT DESIGN

Statement of the Problems :

This project will provide an adequate and sanitary year-round supply of water to thirty village communities. The villagers lack of access to technical expertise and materials to construct wells occasions them

a serious shortage of water. The attempt to meet the demand for water has resulted in the construction of open wells by villagers which, due to faulty design and lack of concrete casings, periodically cave-in become contaminate by run-off water during the rainy season. Historically, village water supply has been met by construction of open, shallow, hand-dug wells. Consequently due to: 1) variations in depth of the aquifer, 2) inability to dig deep enough into the aquifer, and 3) cave-ins, these wells usually dry up partially or completely during the dry season (December to June). These wells are also contaminated by run-off water due to the absence of concrete aprons for protecting the top of the well from erosion.

A recent Word Bank report, (April, 1980) illustrates the serious nature that water problems pose for Mali. Only 20% of the total 6,3 million population has access to suitable water supplies, and most of these are located in Bamako. Malnutrition is the major cause of the low productivity; 80% of the population suffers from gastroenteral diseases. Only 10% of the population is literate. The large percentage of the population subsist on an average annual income of $120. 90% of the population is rural with more than half the population under 15 years of age.

WHO sets a standard of 20 liters per day of potable water per person as an acceptable level. However in Mali, only 2,400 water well systems exist for the near 10,000 villages. Most of these water points are heavily contaminated and are often located over 5 kilometers from the nearest village.

The villagers throughout Mali have consistantly listed water as their principle need, this is particularly so in the case of women who spend up to 20% of their time transporting water. It is estimated that Mali requires an additional 8,500 new wells to satisfy the minimum demands of 20 liters of water per person daily. In order to achieve this objective it would cost from $150 to $220 million from 1981 to 1990.

There are two governmental organizations responsible for water well systems installations in rural Mali, the Direction Generale de l'Hydraulique and Operation Puits. Both are dependant on exterior financing for actual well construction. Operation Puits, formed in 1974 and responsible for all open well construction, has not achieved its targeted number of wells and managed to construct only 156 wells out of 419 wells it originally targeted. Hydraulique is currently coordinating three borehole drilling projects all financed from exterior sources stipulating the drilling of up to 1,700 tubewells. From these figures it can easily be deduced that governmental operations alone can not satisfy the population needs of Mali.

The wells to be constructed for the project will all be dug by hand. To reach a satisfactory depth (a minimum of three to four meters below the static water level and sometimes more depending upon the season) a compressor, pump, and perforated concrete capturing columns will be employed. All

will work along side experienced well diggers learning simple well digging techniques which can be replicated to improve hygiene at other village wells.

FINAL GOAL :

To increase the water quantity, dependability and accessibility by 50% for 15,000 villagers utilizing 30 wells in the 30 villages located in Douentza Cercle by 1983.

An increased quantity and accessibility of water supplies will allow a decrease in the amount of time required by the villagers in seeking water and this gained time may be diverted to more productive activities.

INTERMEDIATE GOALS

1) The year-round availability and utilization of an adequate supply of improved water supplies in thirty villages in Douentza Cercle by 1983.

2) The effective functioning of the villagers trained well repair and maintenance teams in thirty villages in Douentza Cercle by 1983.

PROJECT ACTIVITY TARGETS :

FY 82

1) Construction of 15 wells by September 1982, in Douentza Cercle.

2) Training of 30 villagers in well repair and maintenance from 15 villagers in Douentza Cercle, each receiving four days of training by September 1982. (120 total days).

FY 83

1) Construction of 15 additional wells by September, 1983 in Douentza Cercle

2) Training of 30 additional villagers in well repair and maintenance from 15 villages in Douentza Cercle, each receiving four days of training by September. 1983 (120 total days).

3. PROJECT OVERVIEW

Project Development

During a fourteen month period in 1975-6 CARE assisted in the implementation of the USAID 'Food-For-Work' (FFW/LRDP) pilot project undertaken in Malis' Fifth, Sixth, and Seventh Regions. This was primarily a relief and rehabilitation effort in which $ 880,000 was disbursed on 62 sub-project activities.

The pilot project was followed by a proposed five year, 6.3 million dollar project, 'Mali Rural Works', in which some 200 "economically viable development sub-projects" were to be implemented (CARE was not involved in this endeavor). The project commenced operations in late 1978 and was centered in two Sahel Cercles : Douentza and Goundam. The project was terminated in September, 1980.

One of the principle experiences gained from the brief Mali Rural Works project was stated by USAID in its December 1979, Annual Report, "The overwhelming majority of the rural communities in the Cercle of Douentza and Goundam need water for drinking and for their animals ... This is a primary real and priority need and is a precondition for any other development work. "The report furthes states, "Water, ... is the first concern of rural communities. Its availability is a condition for security and stability above any other activity in development. "The report concludes, "Bearing this in mend, a project concerned with well digging and water development would have been far more suitable and more welcome than a project dominated by community organization.""

The germination of this present wells construction proposal is the result of lessons learned from "Mali Rural Works". This wells project would, at least partially, alleviate the water needs for the villagers in Douentza.

In December, 1980, CARE-Mali personnel held a series of meetings with USAID representatives and undertook several field trips to Douentza. During the research phase intended project activities were explained to the local government authorities, political party representatives villagers, and Mopti Regional Governor. Joint CARE/GOM field trips in Douentza resulted in the decision to focus well construction activities in the three arrondissements of Central, Boré and Boni.

CARE is considered the appropriate implementing agency for the wells project because of previous exposure and field experience in wells projects and also the emphasis CARE places on self-help programming. The villagers who would be selected to receive these wells would have an important role in the actual construction of the wells including the provision of all locally available construction materials (Sand, rock and gravel) and all non-skilled labor required in the construction phase. The villagers would also be responsible for the maintenance, deepening, and repair of the completed well site.

PROJECT STRATEGIY :

The proposed project would relate most effectively to host government and major international agencies objectives and priorities. The subject is water in regular, if minimal, supply for rural Malians. This has been recognized by the Government of Mali as a top priority need.

The Governor of Mopti, Fifth Region has indicated that the improvement of living standards among the rural poor is a high priority activity. He has also identified water as among the most urgent areas in which increased availability is

rural water systems, the necessary financial and administrative support is lacking. The Governor informed that Operation Puits had no wells scheduled to be constructed in Douentza in 1981.

In relationship to other CARE projects in Mali, the activity is cumulative from experience gained in previous water projects undertaken and represents methodology and techniques based upon experience gained in these water projects. CARE is currently implementing a two-year thirty wells project partially financed by US-AID in the Ouelessebougou Arrondissement Koulikoro Second Region. This activity was proceeded by a twelve wells project in Sanankoroba, also in Koulikoro Region. In both cases CARE's main counterpart has been the National Direction of Social Affairs. In various community development projects thoughout Mali, CARE has gained additional experience by contracting wells construction with Operation Puits and also to local well diggers on a private basis.

Among the CARE projects in Mali water systems have represented and continue to represent a major part of CARE's involvement in rural development.

PROJECT IMPACT :

The impact of this project on the involved communities appears self-evident. When there is little or no water available for any use without personal portage ffom distances of several kilometers (often 5 to 10) for two or three months per year there seems no need for additional explanations.

Otherwise however, the Douentza Commandant of Cercle informed CARE personnel that the water problem is so severe that in the dry season several villages are evacuated due to lack of water.

All constructed wells will utilize improved traditonal techniques where possible. Every attempt will be made to improve upon existing traditional means of problem solving at the village level as it pertains to water and its use. Villagers will be trained in the proper techniques required to deepen a well; this knowledge can be replicated for family wells that dry up because of insufficient depth.

The reduction of time spent by women and children in the search for and transport of water should have beneficial effects on agricultural production and other facits of village life.

Project Continuity :

It is official Malian government policy that the repair and maintenance of village water supply systems are the responsibility of the villagers. Thus, the well systems once completed become the property of the village. The period of technical and financial support for the project is limited to the duration of the project. Local takeover would occur as each site is completed.

8

It is anticipated that the target beneficiaries will continue certain project activities themselves, most importantly the annual deepening and cleaning of the completed wells.

Project Potential :

Greater utilization of the private sector and emphasis placed on participating the villagers themselves both in constructing and financing the wells could result in a less costly approach to rural village wells construction. The potential of this approach might have far reaching effects. It is known that Operation Puits is actively interested in reducing their reliance on external financing and the one viable option is turning to the villagers for greater input of recources. Recently, there has been more awareness among Malian agencies of the development value of self-help activities with greater emphasis on village based training programs.

Project Constraints :

Although CARE has met with enthusiasm and cooperation in present water improvement activities on all levels-national, regional and village, the main constraint in undertaking development projects in Mali remains unreliable management, especially regarding organization and the delivery schedules of materials necessary to do the work. There are delays to be expected in the shipment of imported materials and equipment. Most especially, the cement required for projects must be imported from Ivory Coast, Togo or Upper Volta and this usually poses problems. However, assurances have been made by local Douentza administrative authorities that the cement required for this project may be purchased in Douentza through the local SOMIEX office.

Unpredictable and difficult climatic conditions are seasonal constraints that may slow project implementation.

The contracting of qualified well diggers would be crucial to the projects success, and CARE's ability to provide supervisory quality control is of the utmost importance. In this regards CARE has contacted several highly qualified well diggers in Douentza and the situation appears positive.

4. PROJECT IMPLEMENTATION

Pre-Implementation Conditions

Basic terms for implementation would be based on current, recognized effective methodology and techniques employed by CARE/MALI.

During the period January, 1981, through May, 1981, the following pre-project preparation activities have taken place :

Initial and follow-up contacts were established with Douentza Cercle authorities and Mopti Region Governor.

CONSTRUCTION OF 30 WELLS IN DOUENTZA CERCLE

FINANCIAL PLAN

U.S. $ 1.00 = 500 MALIAN FRANCS

NUMBER	Description of Items Requested for Purchase	Suggested Purchase Locale	Unit Price in F.M.	Total Quantity Required	1st YEAR			2nd YEAR			TOTALS	
					Total Quantity Required	Total Cost in F.M.	Total Cost in U.S. $	Total Quantity Required	Total Cost in F.M.	Total Cost in U.S. $	IN U.S. $	IN F.M.
A.	MATERIALS AND EQUIPMENT :											
A.I	VEHICLE :											
1.	TOYOTA 5 TON DUMP TRUCK(DA 110)	MALI	13,656,000	1	1	13,656,000	27,312	-	-	-	27,312	13,656,000
A.II	EQUIPMENT :											
2.	Portable Compressor INGERSOLL Rand-model I 175 SD with diesel motor DEUTZ	USA	5,460,840	1	1	6,205,500	12,411	-	-	-	12,411	6,205,500
3.	SPARE PARTS for 2 Compressors	USA	555,960	2	2	1,259,000	2,518	-	-	-	2,518	1,259,000
4.	Sump Pumps WILDEN-Model M15C Air Operated	USA	569,360	2	2	1,294,000	2,588	-	-	-	2,588	1,294,000
5.	Jackhammer INGERSOLL RAND JH40. assorted bits and rods : Rods-5/36", 5/48", 5/60" : Bits : 5/1 3/4"; 5/2"	USA	488,840	1	1	555,500	1,111	-	-	-	1,111	555,500
		USA	517,880	25	25	588,500	1,177	-	-	-	1,177	588,500
6.	Manuel Winches with tripod-LEROUX (1.5 ton capacity)	MALI	573,000	6	6	3,438,000	6,876				6,876	3,438,000
7.	SAHLTI WINCHES	MALI	525,000	2	2	1,050,000	2,100				2,100	1,050,000
8.	Metallic Mold Ø 1.80 x 1.00 M height : for lining walls	MALI	320,000	6	6	1,920,000	3,840	-	-	-	3,840	1,920,000
9.	Metallic Mold for capturing column Ø 1.60 M x 1.40M x 1.00M height	MALI	859,760	2	2	1,719,520	3,439	-	-	-	3,439	1,719,520
10.	Metallic Mold for cutting device Ø1.70M 1.40M x .50 M height	MALI	875,000	1	1	875,000	1,750	-	-	-	1,750	875,000
11.	Chain Pulley (1 ton capacity)	MALI	223,235	1	1	223,235	446	-	-	-	446	223,235
12.	LOWERING PLATFORM for capturing casings (1.60 x 1.40)	MALI	259,160	2	2	518,320	1,037	-	-	-	1,037	518,320

13.	Re-Rod Cutters	MALI	80,000	12	10	800,000	1,600	2	160,000	320	1,920	960,000
14.	Wheelbarrows	MALI	32,000	30	20	640,000	1,280	10	320,000	640	1,920	960,000
15.	Mining Bar	MALI	30,000	6	4	120,000	240	2	60,000	120	360	180,000
16.	Shovels	MALI	3,000	60	30	90,000	180	30	90,000	180	360	180,000
17.	Picks	MALI	3,500	120	60	210,000	420	60	210,000	420	840	420,000
18.	Wire Cutters	MALI	2,000	20	10	20,000	40	10	20,000	40	80	40,000
19.	Mason Levels	MALI	4,500	12	6	27,000	54	6	27,000	54	108	54,000
20.	Bailing Metal Bucket - 100 liters	MALI	75,000	12	6	450,000	900	6	450,000	900	1,800	900,000
21.	Bailing Metal Bucket - 500 liters	MALI	145,000	1	1	145,000	290	-	-	-	290	145,000
22.	Hard Hats	MALI	14,000	55	30	420,000	840	25	350,000	700	1,540	770,000
23.	Re-Rod Benders	MALI	2,000	12	7	14,000	28	5	10,000	20	48	24,000
24.	Hammer - 5 Kg	MALI	5,750	15	10	57,500	115	5	28,750	58	173	86,250
25.	Hammer - 2 Kg	MALI	3,050	15	10	30,500	61	5	15,250	30	91	45,750
26.	Plumb Lines	MALI	1,500	15	10	15,000	30	5	7,500	15	45	22,500
27.	Metal Pails	MALI	2,000	60	50	100,000	200	10	20,000	40	240	120,000
28.	Measuring Tapes	MALI	4,000	15	10	40,000	80	5	20,000	40	120	60,000
29.	Trowells	MALI	2,500	30	20	50,000	100	10	25,000	50	150	75,000
30.	Barrells (200 liters)	MALI	7,000	30	30	210,000	420	-	-	-	420	210,000

31.	Pullies	MALI	2,500	50	40	100,000	200	10	25,000	50	250	125,000
32.	Jerrycans (20 liters	MALI	25,000	35	25	625,000	1,250	10	250,000	500	1,730	875,000
33.	Hand Chisels	MALI	2,000	60	50	100,000	200	10	20,000	40	240	120,000
34.	Cement Brick Molds	MALI	40,000	4	4	160,000	320	-	-	-	320	160,000
35.	Metal Brushes	MALI	2,500	12	12	30,000	60	-	-	-	60	30,000
36.	Saws (wood)	MALI	6,000	6	6	36,000	72	-	-	-	72	36,000
37.	Pliers	MALI	1,500	12	12	18,000	36	-	-	-	36	18,000
38.	Screwdrivers	MALI	600	12	12	7,200	14	-	-	-	14	7,200
39.	Sifting Screens	MALI	5,000	20	20	100,000	200	-	-	-	200	100,000
40.	Cement Buckets	MALI	3,000	12	12	36,000	72	-	-	-	72	36,000
41.	Wrenches	MALI	1,000	30	15	15,000	30	15	15,000	30	60	30,000
A.IV	MATERIALS											
42.	Cement (tons)	MALI										
	(1st year Price)		105,000	135	135	14,175,000	28,350				28,350	14,175,000
	(2nd year Price)		110,000	135				135	14,850,000	29,700	29,700	14,850,000
43.	N° 6 Re-Rod (meters)	MALI	104	34,590	17,295	1,798,680	3,397	17,295	1,798,680	3,397	7,194	3,597,360
44.	N° 8 Re-Rod (meters)	MALI	213	23,880	11,940	2,543,220	5,086	11,940	2,543,220	5,086	10,172	5,086,440
45.	N° 12 Re-Rod (meters)	MALI	480	360	180	86,400	173	180	86,400	173	346	172,800
46.	Tie Wire (Kg)	MALI	1,000	840	420	420,000	840	420	420,000	840	1,680	340,000
47.	Bolts	MALI	300	450	225	67,500	135	225	67,500	135	270	135,000
48.	Channel Pieces ("Etriers")	MALI	4,000	450	225	900,000	1,800	225	900,000	1,800	3,600	1,800,000
49.	P.V.C. Pipe (meters)	MALI	1,500	108	108	162,000	324	-	-	-	324	162,000
50.	Form Wood N° 30 (meters)	MALI	1,200	1,200	600	720,000	1,440	600	720,000	1,440	2,880	1,440,000
51.	Form Wood (8 x 8 - meters)	MALI	750	1,080	540	405,000	810	540	405,000	810	1,620	810,000
52.	Used Engine Oil (Liters)	MALI	200	1,800	900	180,000	360	900	180,000	360	720	360,000
53.	Rope - 25 mm (meters)	MALI	400	3,000	1,500	600,000	1,200	1,500	600,000	1,200	2,400	1,200,000
54.	Sand (M3)	MALI	3,000	450	225	675,000	1,350	225	675,000	1,350	2,700	1,350,000
55.	Pulley Structures	MALI	70,000	30	15	1,050,000	2,100	15	1,050,000	2,100	4,200	2,100,000

PERSONNEL AND OPERATIONS :											
PERSONNEL :											
CHIEF FIELD SUPERVISOR (man/months)	MALI	350,000	1 (24)	1 (12)	4,200,000	8,400	1 (12)	4,200,000	8,400	16,800	8,400,000
ASSISTANT FIELD SUPERVISOR (man/months)	MALI	150,000	1 (24)	1 (12)	1,800,000	3,600	1 (12)	1,800,000	3,600	7,200	3,600,000
WELL DIGGING TEAMS											
CHIEF WELL DIGGERS(man/months)	MALI	95,000	5 (24)	5 (12)	5,700,000	11,400	5 (12)	5,700,000	11,400	22,800	11,400,000
AST. WELL DIGGERS(man/months)	MALI	45,000	5 (24)	5 (12)	2,700,000	5,400	5 (12)	2,700,000	5,400	10,800	5,400,000
CASING FABRICATION TEAM (1 Chief at 95,000 FM/month ; 1 assistant at 45,000 FM/month) (man/months)	MALI	140,000	2 (24)	2 (12)	1,680,000	3,360	2 (12)	1,680,000	3,360	6,720	3,360,000
WELDER/RE-ROD WORKER (man/months)	MALI	50,000	1 (24)	1 (12)	600,000	1,200	1 (12)	600,000	1,200	2,400	1,200,000
DRIVERS (1 Driver at 150,000/FM month ; 2 Drivers at 50,000FM/ month) (man/months)	MALI	250,000	3 (24)	3 (12)	3,000,000	6,000	3 (12)	3,000,000	6,000	12,000	6,000,000
GUARDIANS (man/months)	MALI	20,000	2 (24)	2 (12)	480,000	960	2 (12)	480,000	960	1,920	960,000
LABORER (man/months)	MALI	20,000	1 (24)	1 (12)	240,000	480	1 (12)	240,000	480	960	480,000
WAREHOUSE MAN (man/months)	MALI	35,000	1 (24)	1 (12)	420,000	840	1 (12)	420,000	840	1,680	840,000
OPERATIONS - GASOLINE :											
1 TRUCK (Liters) (24 months x 2,000 KMS per month x 350 FM/ liter ÷ 3 KM/liter)	MALI	350	16,000	8,000	2,800,000	5,600	8,000	2,800,000	5,600	11,200	5,600,000

57.	2 Toyota Land Cruisers(liters) 24 months x (2 vehicles x1,300 miles/month ÷ 13 miles per gallon x 400 FM/liter)	MALI	400	18,240	9,120	3,648,000	7,296	9,120	3,648,000	7,296	14,592	7,296,000
58.	2 Compressor (Liters) (10 liters/day = 300 liters/ month x 18 months x 350 FM/ liter)	MALI	350	5,400	2,700	945,000	1,890	2,700	945,000	1,890	3,780	1,890,000
	VEHICLE REPAIR AND MAINTENANCE											
59.	Maintenance : (Oil, grease, tires, insurance for 3 vehicles and 5 equipment)	MALI	-	-	-	2,004,860	4,010	-	2,004,860	4,010	8,020	4,009,720
60.	Repairs : (for 3 vehicles and 5 equipment)	MALI	-	-	-	3,322,000	6,644	-	3,322,000	6,644	13,288	6,644,000
61.	Mechanics Tools (Sets)	MALI	150,000	2	2	300,000	600	-	-	-	600	300,000
III	RENTS :											
62.	Rent 1 staff house and warehouse (months)	MALI	30,000	24	12	360,000	720	12	360,000	720	1,440	720,000
63.	Repairs for 1 staff house and warehouse	MALI	1,000,000	1	1	1,000,000	2,000	-	-	-	2,000	1,000,000
64.	Sea and Internal transportation costs for equipment purchases in USA	USA/MALI	-	-	-	1,043,000	2,086	-	-	-	2,086	1,043,000
	SUB-TOTALS :					97,994,435	195,988		60,319,160	120,638	316,626	158,313,595
65.	OVERHEADS :											
65.1	CARE/MALI - Partial cost of administrative expenses					16,250,000	32,500		16,250,000	32,500	65,000	32,500,000
65.II	CARE/NEW YORK - 7,42% of total ($381,626)					7,079,500	14,159		7,079,000	14,158	28,317	14,158,500
66.	GRAND TOTALS :					121,323,935	242,647		83,648,160	167,296	409,943	204,972,095

June 23, 1981

To: AFR/HA

From: USAID/BAMAKO, Design and Evaluation Office

Subject: Addendum to Attached CARE Wells Proposal Memo

In response to the informal Mission review held on June 5 and described on the attached memo, CARE subsequently undook a revision of their proposed budget (issue 1) and a field trip to determine an appropriate monetary contribution from villagers (issue 2) for the construction of their wells. As for issue 1, the budget has been cut to $ 410,000 from $ 496,000. As a result of the field trip, CARE determined that it was unfeasible to demand a fixed up-front contribution from most of the villagers from this particular region of Mali, and to do so would seriously impede the accomplishment of project goals. They (CARE) however accepted in principle AID's concern that a sound wells development strategy entails villager contribution (other than labor) and that prior to construction of the wells, monetary contributions will be solicited, albeit not in fixed amounts, each village according to its means.

CARE

MALI

B P. 176
Bamako
MALI

Tél: 22
24
Cable: CARESA

CARE/MALI

DOUENTZA 30 WELLS - AID/OPG

Temporary list of 30 Well Sites Douentza Cercle:
Arrondissements of: Central, Boni, Bore

(Final Site Selections to be determined upon project approval).

ARRONDISSEMENT CENTRAL DE DOUENTZA

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	DOUENTZA - VILLE	3
2	DALA	1
3	NANI	1
4	TANAL	1
5	KERSANI	1
6	DIONA	1
7	GOUI	1
8	HASSA KARBA	1
9	KOUBEL KOUNDIA	1
10	MADINA	1
11	ORODOU	1
12	DIANVELI KESEL	1
13	DOUMA	1
	TOTAL	15

ARRONDISSEMENT DE BORE

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	BORE	2
2	HORORO	1
3	DOUMBA	1
4	DOUMBARA	1
5	KIROU	1
6	NIMINIAMA	1
7	FALEMBOUGOU	1
8	KERINGO	1
	TOTAL	9

ARRONDISSEMENT DE BONI

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	BONI	2
2	NOKARA	1
3	OURO NGUEROU	1
4	BEBI	1
5	LORO	1
	TOTAL	6

INITIAL ENVIRONMENTAL EXAMINATION

Project Location : Mali

Project Title : CARE Wells - Douentza

Funding : $ 409,943 - AID

Life of Project : 2 years

IEE prepared by : Jack PACKARD Date : JUNE 22, 1981

Environmental Action Recommended : Negative determination

Concurrence : _____ Date :

Decision :

Approved : _____ Date :

Approved : Thomas C. Gulliver Date June 29, 1981

Acting Director

JC

Examination of the Nature, Scope and Magnitude of Environmental Impacts

1. Project Description

CARE will construct thirty 1.8 meter diameter hand-dug wells in the Central, Boré and Boné Arrondissements of Douentza Cercle, Mopti Region of Mali, over a two year period. Each well will contain a drinking trough for livestock.

The ultimate beneficiaries of this self-help project will be the inhabitants of thirty villages. They will supply locally available materials and non skilled labor, provide candidates for maintenance training and, contribute money for payment to their own laborers.

CARE will be the overall implementing agency, managing and supervising the project in cooperation with the Governor of Mopti Region and the Ministry of the Interior. CARE will organize six well construction teams and procure materials and equipment. A series of well maintenance and repair seminars will also be organized and implemented at each village by CARE. CARE's intervention is requested by the Governor because villages neither have an adequate and sanitary year-round supply of water nor the technical expertise and materials to construct wells. Villagers have constructed "family wells" in attempts to meet the demand for adequate water; however, faulty design and the absence of reinforced concrete lining have caused periodic cave-ins. Consequently well depth within the aquifer is not sufficient to provide water during the dry season. The absence of concrete aprons and viable filters can and do cause contamination of water as well as serious soil erosion.

CARE, with village support, will improve on well digging methods presently employed by the villagers. The wells will be constructed by hand utilizing the "dig a meter, pour a meter" technology. A compressor pump will be used to assure adequate depth - approximately 4 to 5 meters below the static

water level or more, depending upon variation of the water table, during the dry season.

Each well will be lined throughout the digging with reinforced concrete and fitted with a concrete apron to prevent contamination and erosion. All wells will be capped with a concrete cover with adequate provision for cleaning and repairing through a manhole. Villagers will work along side experienced well digging teams learning simple well digging techniques. These can conceivably be replicated to improve hygiene at other village wells.

A. Land Use

1. Changing the character of the land through :

a. Increasing the population of the people or animals :

The probability of increasing the population of peopl or animals is low as the majority of the population of the project area is sedentary. The animal population would probably not appreciably increase as the majority of the population are traditionally farmers and not herders or nomads. The final goal of this project is the improved health status of the beneficiary population by providing a cleaner water supply and the knowledge of inproved hygienic pratice. It can be reasoned therefore that if the final goal is reached, it will have a salutory effect on the villagers and could directly improve health while indirectly increasing their capability for cultivation and increased production. Also since there is an expected increase in the water supply in the participating villages, or at least an adequate supply during the dry season when other village wells dry up, those who traditionally spend up to one day in the search for water can use this extra time for other, more productive endeavors.

Impact rating - N-L (positive)

b. Extracting natural resources :

The extraction of water from an additional village well will not appreciably lower the water table. This is

especially true in the area where the project is situated as the aquifers are adequately recharged by precipitation during the rainy season.

Impact rating - N

c. Land clearing : Negligible land clearing will be carried-out.

Impact rating- N

d. Changing the soil character :

Impact rating - N

B. Water Quality

1. Physical state of the water :

The physical state of the water will be clearer because of the increased depth of the well in comparison with family wells.

Impact rating - N L Positive

2. Chemical and biological states of water :

No pollutants are contemplated on this project. The state of water in the aquifer will be unchanged. Drinking water quality will be improved. Partially the taste will be saline because of the use of concrete; however, this condition is normal and it should pass within 6 months.

Impact rating - N

3. Ecological balance :

No impacts can be foreseen.

Impact rating - N

C. Atmospheric

No use of sprayed pesticides or herbicides or any other additives is contemplated in this project.

Impact rating - N

2. Air pollution

No air pollution is foreseen in this project.

Impact rating - N

3. Noise pollution :

No noise pollution is foreseen in this project.

Impact rating - N

D. Natural Resources

1. Diversion or increased use of water :

There is no diversion, storage or increased use of water contemplated in this project. Note : the slightly increased use of water during the dry season is negligible in environmental terms.

Impact rating - N

2. Irreversible or inefficient commitments :

No alternative development use is foreseen for this

Impact rating - N

E. Cultural

1. Altering physical symbols :

No impact

Impact rating - N

2. Dilution of cultural traditions :

This project will introduce no new or alien ideas

24

into the project area. The project will improve upon already existing cultural forms such as Sanitary Committees, etc.

Impact rating - N

F. Socio-Economic

1. Changes in economic/employment patterns :

Employment/economic patterns should be improved slightly (See A.1.a)

Impact rating - L (positive)

2. Changes in population

This project will increase the effectiveness of certain organized village groups as to how they impact on village related problems. This could weaken the traditional authority of the family heads, depending upon the present degree and effectiveness of the village groups. However, as stated above, ever attempt will be made to improve upon existing traditional means of problem solving at the village level as it pertains to water and its use.

Impact rating - L (positive)

3. Changes in cultural patterns :

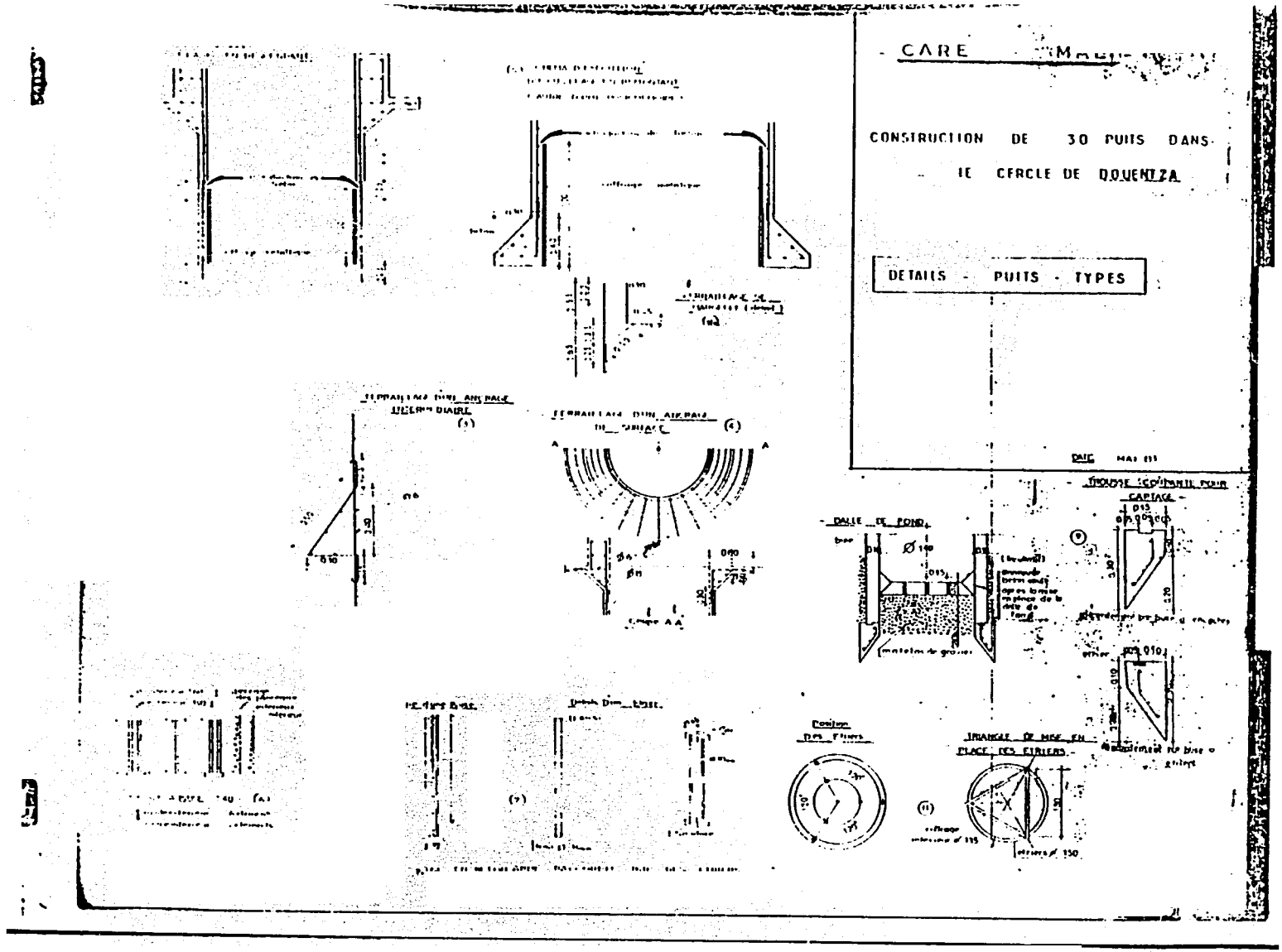
One of the indirect results of this project will be a reduction in the amount of time spent by women and young children in the search and transport of water. As stated previously, this could have a beneficial effect on overall food production in the village as this time saved could be used in other productive endeavors such as gardening, especially during the dry season.

Impact rating - L (positive)

G. Health

1. Changing the environment

None



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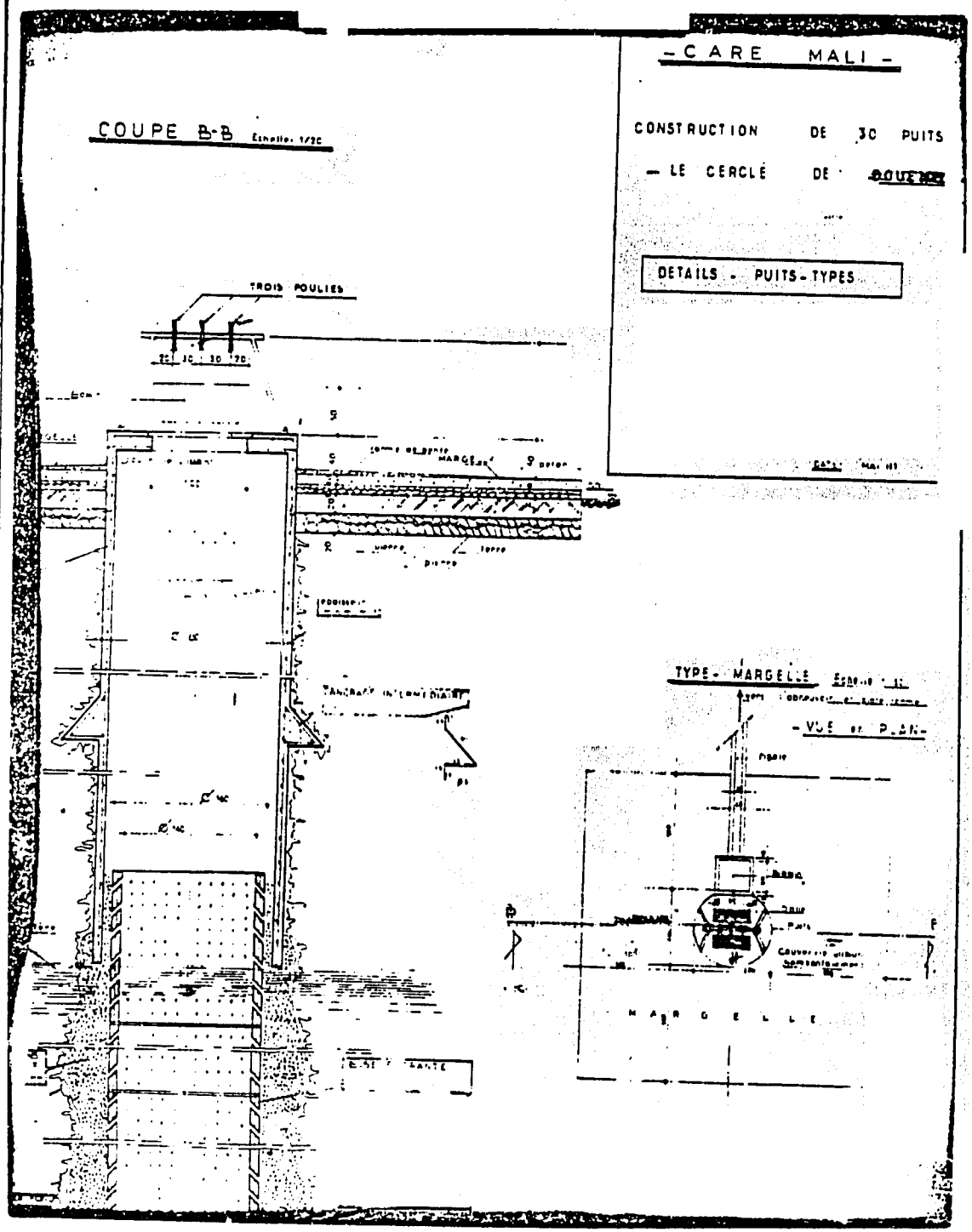

- Representatives from CARE, Douentza Commandant, political party Deputies and Mali Rural Travaux personnel undertake extensive site visitation viewing thirty villages in Central, Boré and Boni Arrondissements where hydraulogical conditions are studied and conditions of villager participation explained to population.

- Final project proposal completed and submitted to USAID representatives in Mali for review.

Implementation Plan and Schedule :

August 1981

- USAID and CARE World Headquarters should approve project activity.

- Project agreement should be signed between CARE and Ministry of the Interior via Mopti Region Governors' office.

- As overall project coordinator, CARE would designate a representative to oversee all project activities and to coordinate them at national, governorate, cercle and village levels.

- Immediately upon notification of project approval from USAID, CARE would require a sizable financial advance in order to begin purchasing construction materials, compressor and, pumps, from USA and the local purchase of project vehicles.

- CARE representatives in conjunction with Douentza cercle authorities finalize selection of first years fifteen well sites.

- Baseline data studies initiated by CARE in fifteen villagers for indicators measurement of projects goals.

September, 1981 - Project headquarters located in Douentza and Project Supervisor installed.

Village agreements signed for fifteen well sites.

October, 1981

Six contracted well digging teams commence construction at five well sites. Each team to complete one well in three months time (Fifteen wells are scheduled to be completed by July, 1982).

CARE personnel initiate villager training in well repair and maintenance at five villages.

January, 1982	- Compressor, pumps and jackhammers received from USA and put into operation.
	- Mopti Regional authorities assign personnel to be trained in compressor/pump operations for end-of-project takeover of equipment.
June, 1982	Fifteen wells completed and turned over to villages.
	Villager training sessions completed for fifteen villages and evaluated by CARE
JULY, 1982	CARE personnel should initiate post-project data collection concerning first year's indicators for project goals.
	First year's construction methodology should be reviewed and any modifications or changes effected if required.
	End of Project Year One.
September, 1982	- Selection of second year's fifteen villages initiated.
	- Project construction materials should be purchased by CARE and transported to sites.
October, 1982	- Six well diggings teams commence well construction activities.
	- Training sessions begin in village well repair/maintenance.
	- Baseline data should be collected on second years [redacted] villages by CARE representatives. 15
July, 1983	- Fifteen wells completed and turned over to villages.
	- Training sessions completed for fifteen villages.
August, 1983	- CARE personnel should conduct post second project year data collection for indicators relating to project goals.
September, 1983	- Prepare final reports and evaluations by CARE
	- End of Project Year Two.

TECHNICAL CONSIDERATIONS

Groundwater wells fail for several reasons. In areas with low annual rainfall and long dry seasons in areas covered by laterite crust or decomposed granite it would seem

clearly a prerequisite to investigate the area for sites where the soil is capable of storing large quantities of water. Yet this is rarely done and is a main cause of well failure.

The location of the well site is traditionally undertaken by water diviners. Modern site selection is done rationally by following one of two methods : 1) Soil resistivity measures; 2) Investigative drilling. However, as resistivity and other measures are liable to misinterpretation, the best results are produced by drilling investigative bore holes at prospective sites to know for certain the nature of the subsurface. Prospective sites are chosen after the following observations : 1) Productivity of traditional wells in the area; 2) the nature of surface soils and rocks; 3) the topography; 4) the flora.

There are two principle ways to construct dug water wells. One construction method is called the 'dig a meter-pour a meter' method. In this technique the casing is constructed as the well is dug, from top to bottom. In the other method construction proceeds from bottom to top by use of pre-fabricated cement casings. This method insures the presence of water and indicates the depths and nature of the water table before construction begins.

The 'dig a meter - pour a meter' is the preferred method of well construction. This technique uses an internal mold, the dug external mold being the well's earth wall. This method is advantageous because the column is monolithic and the adherence between concrete and ground is superior to that of prefabricated pipes which do not adhere to the ground resulting in the need for concrete flanges spaced arbitrarily along the column. This wells project, after careful consideration of all factors, would normally utilize the 'dig a meter-pour a meter' construction technique. Flexibility may be required however and perhaps in some cases the use of prefabricated casings might be employed. For example, this might be done where finding the aquifer is much in question, to save possible waste of cement, reinforcing rod, and labor costs.

This wells project would construct wells with a 1.40 meter diameter. The output capacity of wells depends on diameter, permeability of the aquifer, and height of drawdown. The importance of diameter is outweighed by the importance of drawdown height. Experience has shown that the ideal inner diameter is 1.40 meters which is the standard in most parts of Europe and America. A 1.40 diameter well yields 1,540 liters of water per meter of depth.

CARE's ability to effeciently integrate technical components is critical for successful implementation . CARE will select thirty villages among the three Douentza arrondissements grouped closely together to enable the five well digging teams to more easily coordinate their activities. CARE's organization of the villagers for material and labor will take such technical and logistical coordination into account to insure continuing work during the construction period.

30

In conclusion, there are no technical aspects of this project that require special consideration that are beyond the competence of locally qualified well diggers. A blueprint is attached to this proposal showing a standard CARE well design.

Procurement Requirements :

A detailed project budget is found attached to this proposal. Following is a list of the general types of major equipment and materials needed to be procured for the project.

O.	Description of items Requested for Purchase	Total Est Quantity required	Est. Total cost in U.S. $	Suggested Purchase Locale	Delivery Schedule 1981	Delivery Schedule 1982
	Toyota 5 ton Dump Truck	1	27,312	MALI	AUG.	
	Toyota Land-Cruiser Pick-ups(CARE purchase)	2	29,297	"	AUG.	
	Compressor	1	12,411	USA		JAN.
	Sump Pumps	2	2,588	"		JAN.
	Jack Hammer	1	1,111	"		JAN.
	Winches	6	6,876	MALI	SEPT	
	Well molds	9	9,029	"	SEPT	
	Various hand tools (for 6 well digging teams)	- - -	13,471	"	50% SEPT	50% SEPT
	Cement (tons)	270	58,050	"	"	"
	Re-Rod n°6, n° 8, n°12 (meters)	58,830	17,712	"	"	"
	Form Wood (meters)	2,280	4,500	"	"	"
	Rope (meters)	3,000	2,400	"	"	"
	Sand (M3)	450	2,700	"	"	"
	Gasoline and Diesel Fuel (liters)	39,640	29,572	"	"	"
	Repairs for Project Vehicles		13,288	"	"	"
	Maintenance for Project Vehicles		8,020	"	"	"

Personnel Requirements :

The following are the CARE international personnel requirements for project implementation. All personnel and percentage cost distribution would be required for a total project period of two years.

Personnel	Percentage Cost Distribution and Time to be Spent toward this Project
1. Country Director (1)	33%
2. International Staff member (1)	50%

5. PROJECT EVALUATION :

A. FINAL GOAL :

To increase the water quantity, dependability and accessibility by 50% for 15,000 villagers utilizing 30 wells in 30 villages located in Douentza Cercle by 1983.

An increased quantity and accessibility of water supplies would allow a decrease in the amount of time required by the villagers in seeking water and this gained time may be diverted to other more productive activities.

Indicators :

a) A reduction from 20% to 10% in the amount of time daily required by the villagers in transporting water upon the completion of the project.

b) An increase from 10 liters to 20 liters of water per person daily upon the completion of the project.

Means of verification :

Indicators a and b will be measured by rando sample surveys of selected village families conducted throu pre-and-post project surveys under CARE supervision.

B. INTERMEDIATE GOALS :

1) The year-round availability and utilization of an adequate supply of improved water supplies in thirty villages in Douentza Cercle by 1983.

Indicators :

a) Each of the 30 completed wells produces 10,000 liters of water per day on an annual basis at the conclusion of the project.

b) Each of the 30 completed wells operates at capacity 365 days a year upon completion of the project.

Means of verifications :

Indicators a and b, will be measured by pre-and-post project surveys on randomly selected well sites and village families conducted by CARE personnel.

2) The effective functioning of the village trained well repair and maintenance teams in thirty villages Douentza Cercle by 1983.

Indicators :

a) Each of the completed 30 well sites is deepend and cleaned by the villagers the year following the well site completion.

b) None of the 30 completed well sites remain dry or caved in upon their completion for a period longer than two weeks.

c) 75% of the 60 trained villagers from the 30 Douentza Cercle villages remain in their villages and continue to maintain and repair the well sites after the completion of the project.

Means of Verification :

Indicators a, b and c will be measured by CARE personnel conducting periodic follow-up site visits to the completed well sites.

6. BUDGET :

The funds which would be granted to CARE by USAID would be used to finance the following cost elements, (a detailed project budget is attached to this proposal) :

Cost Elements	Total Obligated Amount from Date of Grant to 24 months thereafter Equivalent in US $ of Local Currency Costs
1. Materials and Equipment	176,340
2. Personnel and Operations	140,286
3. CARE-Mali - Partial cost of administrative expenses	65,000
4. CARE - New York Overhead (7,42%	28,317
TOTAL	$409,943

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73

CARE should not exceed the total amount of the budget. However, adjustments among the line items should be limited to 20% fluctuation.

CARE would submit to USAID/MALI documentation for expenditures of local currency based on the budget in the grant proposal. Reimbursement for local currency costs should be paid to the CARE/MALI local bank account.

CARE would be obliged to request an advance payment of approximately $60,000 in order to initiate purchase of project equipment. Thereafter, CARE would submit monthly or quarterly reimbursement requests to USAID. Such invoices would itemize costs incurred during the current billing period based on the project budget and include receipt documentation for all costs exceeding $500. The final reimbursement payment under this grant would account for the total amount of the outstanding advance payment. The CARE overhead rate will be paid in local currency two times; at the end of the first year and at the end of the second year of the project.

Title to all commodities purchased by USAID funds under this Grant would be vested to CARE and subsequantly (at end of project) be turned over to the Ministry of the Interior via Mopti Region Governors' office. Should CARE and Ministry of the Interior agree to undertake a subsequant wells project title to the involved commodities would remain with CARE for the subsequent project also.

Reporting :

CARE will submit trimesterly (every four months) progress reports to USAID. These reports would address progress of the stated objectives including planning, implementation and evaluation componants.

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7. PROJECT FUNDING :

FINANCIAL PLAN - OPG PROPOSAL

(in U.S. $)

I. CARE-MANAGED INPUTS	Firm 1st Year (FY 82)	Projected 2nd Year (FY 83)	Total
A. In Kind Contributions			
1. Villagers Labor and Materials	26,908	26,908	53,816
2. GRM Equipment	9,799	-	9,799
TOTALS	36,707	26,908	63,615
B. Materials and Equipment			
1. U.S. Purchases	19,805	-	19,805
2. In Country Purchases	132,994	52,838	185,832
3. Third Country Purchases	-	-	-
TOTALS	152,799	52,838	205,637
C. Personnel and Operations			
1. Int'l. Personnel	44,408	44,408	88,816
2. National--Personnel	66,270	66,270	132,540
3. Int'l. Travel	5,623	5,623	11,246
4. In Country Travel	14,680	14,680	29,360
5. Office Costs inclu. Equipment + Maintenance	25,530	23,530	49,060
6. Vehicle Maintenance and Repair	46,040	45,440	91,480
7. Other Support Costs	6,584	4,498	11,082
TOTALS	209,135	204,449	413,584
D. Training Costs			
1. Training Costs In Country		-	-
2. Training Costs 3rd Countries		-	-
3. Training Materials inclu. curriculum development		-	-
4. Tuition and Other Fees		-	-
TOTALS	-	-	-
Grand Total			
Exclusive of Overhead	398,641	284,195	682,836

FINANCIAL PLAN - OPG PROPOSALS (Continued)

E. Summary of Funds Requested AID/OPG		Firm 1st Year (FY 82)	Projected 2nd Year (FY 83)	Total
1. Materials and Equipment	-	123,502	52,838	176,340
2. Personnel and Operations	-	72,486	67,800	140,286
3. CARE-Mali - Partial Cost of admin. expenses	-	32,500	32,500	65,000
4. CARE - New York Overhead (7,42%)	-	14,159	14,158	28,317
TOTALS		242,647	167,296	409,943
II. Summary of CARE - Managed Input Sources				
A. CARE - Generated				
1. General Public, principally from North America and Europe-		133,446	104,149	237,595
2. Host Government		9,799	-	9,799
3. Other Donor Gov't. Agencies				
4. Private and U.N. Agencies				
5. Village Labor and Materials		26,908	26,908	53,816
TOTALS		170,153	131,057	301,210
B. AID/OPG		242,647	167,296	409,943
C. Other Inputs Managed but not generated by CARE				

III. Non-CARE Managed Inputs

RE-CAP	CARE	USAID	GRM	VILLAGES	TOTALS
FY 82	133,446	242,647	9,799	26,908	412,800
FY 83	104,149	167,296	-0-	26,908	298,353
TOTALS	237,595	409,943	9,799	53,816	711,153

ANNEX

VALUE OF IN-KIND INPUTS

A. CARE MANAGED INPUTS (IN U.

	FY 82	FY 83	TOTAL
1) Village Communities :			
-Sand (915 M3)	3,116	3,116	6,232
-Gravel (1,245 M3)	8,086	8,086	16,172
-Rock (600 M3)	4,200	4,200	8,400
-Non-Skilled Laborers (13,500 man/days)	11,506	11,506	23,012
TOTALS :	26,908	26,908	53,816
2) GRM - IN-KIND			
Equipment			
(1 compressor, 1 arc-welder, 1 generator, 3 well molds, 1 jack hammer)	9,799	-0-	9,799

ANNEX

BREAKDOWN OF CARE-MALI PARTIAL COSTS OF ADMINISTRATION EXPENSES

(in U.S. $)

NO	ACCOUNT TITLES	FY 82		FY 83	
		AID	CARE	AID	CARE
1.	International Personnel	10,539	33,869	10,539	33,869
2.	National Personnel	5,865	18,765	5,865	10,765
3.	International Travel	1,337	4,279	1,337	4,279
4.	In - Country Travel	3,496	11,184	3,496	11,184
5.	Office Costs including Equipment and Maintenance	5,430	17,380	5,430	17,380
6.	Vehicle Maintenance and Repair	4,762	15,238	4,762	15,238
7.	Other Support Costs	1,071	3,434	1,071	3,434
	SUB-TOTALS :	32,500	104,142	32,500	104,142
	GRAND TOTALS :	$ 136,642		$ 136,642	

ANNEX

Materials Quantity Evaluation
for a 25 meters deep well Ø 2.00 ext. 1.80 int.
with 6 meters high capturing column

Nº.	ACTIVITY	Cement	Iron Rods Ø 6	Iron Rods Ø 12	Iron Rods Ø 8	Tie Wire	Bolts	Channel Pieces	Nails	PVC Pipe	Form Wood 2"x30	Form Wood 8 x 8	Oil	Sand	Gravel	
		sacks	meters	meters	meters	Kg	items	items	Kg	meters	linear	meters	Litres	M3	M3	M3
1	Casings to 20 m	80	800	-	630	20								20	20	
2	Joints	20														
3	Capturing Column	20	180		130	5	15	15					60	6	6	
4	Gravel Filter														10	
5	Cutting Devise	4	48		36	1										
6	Rim and Apron	10				1								1.5	2	20
7	Canal, Trough, Platform	15	60							18	40			1	1	
8	Basin	18	65			1								1	1.5	
9	Well Top	8		12					2			36		1	1	
10	TOTAL	175	1,153	12	796	28	15	15	2	18	40	36	60	30.5	41.5	20
		(8.75 tons)														

Impact rating - N

2. Eliminating an element of ecosystem :

None

Impact rating - N

3. General

This project was conceived with the intent of improving the quality and quantity of drinking water available to the village population. Village well maintenance Committees will be formed and trained to better impact on problems relating to water and its use. However this is not an entirely new concept to the villagers as each village has some type of formal group such as Youth groups, Women groups, etc., to deal with related problems and activities. This project will expand on this concept traditionally accepted by the villagers.

All the wells that will be constructed with improved traditional techniques where possible, and villagers will learn to use and maintain the well;

However, this is a concept already applicable at the village level, in a basic way. Therefore a positive general health impact can be identified.

Impact rating - L-M (positive)

II. RECOMMENDATION FOR ENVIRONMENTAL ACTION

The preceding discussion has indicated that the effects of the project on the natural environment are expected to be small and on the balance positive. No potential negative effects are foreseen which would not be reversible.

Consequently, a negative determination is recommended.

ARRONDISSEMENT CENTRAL DE DOUENTZA

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	DOUENTZA - VILLE	3
2	DALA	1
3	NANI	1
4	TANAL	1
5	KERSANI	1
6	DIONA	1
7	GOUI	1
8	HASSA KARBA	1
9	KOUBEL KOUNDIA	1
10	MADINA	1
11	ORODOU	1
12	DIANVELI KESEL	1
13	DOUMA	1
	TOTAL	15

ARRONDISSEMENT DE BORE

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	BORE	2
2	HORORO	1
3	DOUMBA	1
4	DOUMBARA	1
5	KIROU	1
6	NIMINIAMA	1
7	FALEMBOUGOU	1
8	KERINGO	1
	TOTAL :.....	9

ARRONDISSEMENT DE BONI

LISTE DES VILLAGES CHOISIS

N°	Noms des Villages	Nombre de puits
1	BONI	2
2	NOKARA	1
3	OURO NGUEROU	1
4	BEBI	1
5	LORO	1
	TOTAL	6

ARRONDISSEMENT CENTRAL DE DOUENTZA

LISTE DES VILLAGES CHOISIS

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5	KERSANI	1
6	DIONA	1
7	GOUI	1
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9	KOUBEL KOUNDIA	1
10	MADINA	1
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ARRONDISSEMENT DE BORE

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ARRONDISSEMENT DE BONI

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5	LORO	1
	TOTAL	6

CARE

MALI

B. P. 1766
Bamako
Mali

Tél: 222-6.
249-0
Cable: CARESAHEL

CARE/MALI

DOUENTZA 30 WELLS - AID/OPG

Temporary list of 30 Well Sites Douentza Cercle:
Arrondissements of: Central, Boni, Bore

(Final Site Selections to be determined upon project approval).

ARRONDISSEMENT CENTRAL DE DOUENTZA.

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ARRONDISSEMENT DE BORE

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ARRONDISSEMENT DE BONI

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