END OF PROJECT EVALUATION REPORT

RURAL WATER IMPROVEMENT - OUELESSEBOUGOU, MALI

AID/OPG 688 - 0224

I. Introductory Comments

The project being reported and evaluated concerns 30 hand-dug, shallow wells in 30 rural villages in the arrondissement of Ouelessebougou, Mali. The center of the arrondissement is located 60 Km. south of the capital city, Bamako, and is accessible by paved road. The distances of the villages from the arrondissement headquarters varied considerably with one village being 50 Km. from the headquarters, but the average distance was 24 Km. The roads to most of the villages are only dirt tracks, often ill-defined. Many of the villages are isolated and almost all are inaccessible to vehicles 2 to 3 months of the year during rainy season.

The geographical area involved is wooded savannah, often with considerable low-bush forests. The villagers are mostly subsistance farmers but some livestock are raised, and small herds of cattle, sheep, and goats are common. The population of the villages participating in the proje ranged from 105 to 1248 but the average was 450. The villages are generally similar in most respects and one thing they all had in common was the lack of a year-aroun water supply. The traditional wells serving the villager dry up completely 2 to 6 months of the year necessitating long walks, often of many kilometers, to transport even the most limited water supplies to the villages. The task is basically performed by the village women, and it is both fatiguing and time consuming.

To alleviate this situation the project constructed concrete-lined wells dug deeply enough into the aquifers at the time of lowest water-table (May-June) to assure a year-around supply of good drinking water in each village. The wells are covered and equipped with foot pumps, trap-doors for access, and livestock troughs located some distance from the wells but connected to them by a spillage flume. The average depth of the wells constructed was 19 meters, or about 62 feet, with each being dug deeply enough to assure a minimum of 3 meters of water during the driest time of the year.

.../2

The project was accomplished with financing provided by AID/OPG 688-0224 and financing, technical assistance, logistics, and management provided by CARE. The Malian Ministry of Health and Social Affairs provided assistance and instruction for health and sanitation training of the villagers and village committees. Each village participating in the project provided unskilled labor (6 villagers per day of work in the village), sand, gravel, rocks, and the wooden superstructure required during construction. The villagers also provided lodging for the CARE technical employees during their work on the wells. The Chef d'Arrondissement assisted the project with encouragements to the villages and was very cooperative and helpful in all respects.

II. Purpose and Specific Objectives of the Grant

These were stated in the grant's Program Description, parts A. and B., as follows:

A. Purpose - To provide support for a project located at Ouelessebougou, Mali to construct up to thirty wells, each two meters in diameter, to increase the quality and quantity of drinking water for local consumption. Each well will be equipped with a pump and a drinking trough for livestock. Village Sanitary Committees will be organized and trained in community hygiene and in the maintenance and repair of wells and pumps.

B. Specific Objectives -

1. The construction of 30 wells, each two meters in diameter.

2. The installation of thirty foot pumps on thirty wells.

3. The installation of thirty drinking troughs for livestock.

4. The formation and training of thirty village committees.

5. The training of one hundred twenty villagers from thirty villages in well and pump maintenance/repair.

6. To evaluate the project at the end of year two and recommend procedure for improvement where needed.

.../3

2

III. Evaluation in Relation to the Grant-stated Purpose and Specific Objectives

The purpose and specific objectives were achieved without exception. All aspects in well construction and training were successfully accomplished. This report completes the last specific objective of evaluating the project at the end of year two.

The monthly and tri-annual reports regularly furnished by CARE to AID during the implementation of the project fully explain all activities related to achieving the purpose and objectives involved, and reiteration is not considered necessary in this report.

IV. CARE's Project Targets and Goals

CARE's project targets and goals roughly paralled those of the grants purpose and specific objectives but the goals were somewhat further qualified as to results from project activities, rather than the conduct of the activities themselves. As such the goals' attainments could not be much commented on until the project activities were terminated and some result assessments made. The goal results are covered in the following paragraphs of this section. As to project targets, all were met, but not necessarily within exact schedules. Deviations on target schedules were minor however and had no negative effect on project success.

CARE's final Planning, Implementation and Evaluation Report (end of year two tri-annual P.I.E.) indicated that the project's three basic goals had been achieved. The goals were: the provision of a year-round adequate supply of improved water in 30 villages; the establishment of 30 effective village sanitary committees; the establishment of 30 effective maintenance/repair teams. In order to evaluate the project, each goal will be individually studied with the purpose of ascertaining to what extent the goals were achieved.

The first goal of providing a year-round source of improved water was achieved with all 30 wells registering at least 3 meters of water during the driest part of the year. This quantity of water facilitates in particular the work of women and raisers of livestock whose lives are much influenced by the availability of a reliable source of water.

.../4

The quality of the water was measured through water analyses done at all 30 wells. This exercise turned up contamination in 5 of Year II's wells, attribuable, it is presumed, to the probability that contaminating elements somehow entered during excavation, which was completed only a short time before the analysis. After treatment and subsequent analysis all 5 contained water of high quality.

The second goal of establishing 30 effective village sanitary committees composed of 120 villagers was achieved. In villages where receptivity to the work of such committees was good, rules were made and fences were constructed in order to keep well aprons free of sources of contamination. In villages where community spirit was less developed, keeping potable water clean seemes not to be of primary concern; thus no precautions were taken to keep well tops clean, rendering possible the eventuality of the water's becoming contamined. It was found that such villages, even through they had received thorough training sessions, did not respond satisfactorily to the project's health component. In most cases this was due to an internal problem of disunity which prevented the conflicting factions of the village from organizing and working together for this or any other joint endeavor. Disunity would engender a lack of enthusiasm at all stages of the well construction work and would also result in the villager's appearing late or in insuficient numbers at the work site. The intervention of the Chef d'Arrondissement had to be resorted to on occasion, and two disunified villages were ultimately replaced by others of greater motivation and organization.

The third goal of establishing 30 effective maintenance/ repair teams was achieved, but conditioned by the state of receptivity of the concerned villages. Composed of villagers with some aptitude for simple mechanics, the teams were provided training in well and pump maintenance/repair with a view to ensuring that the new well water remained potable. In villages where serious interest was taken in the health aspect of the project efforts were made to repair broken-down pumps and maintain wells. In other villages, however, little interest was shown in the pumps right from the beginning, perhaps primarily because of slowness of water delivery. Under these circumstances, no great effort was made to repair or maintain their pumps.

.../5

In general terms it can be said that, in regards to water quantity, the project has produced very successful results. As for quality, although the project terminated with water of good quality in all wells, it is uncertain how long this condition will be maintained. In addition to the reasons for this explained in the preceding paragraphs, it must also be taken into consideration the fact that only during the driest period of the year when traditional wells contain no water (for 3 to 6 months) will the CARE well be used 100% of the time by all the inhabitants of the villages. Thus, even if the water in the CARE well was to remain uncontaminated, any attempt to measure change in incidence of water-related diseases would be difficult, if not impossible.

It had been hoped and expected that the improved water in the villages would result in improved health for the inhabitants. Some health improvement will probably result, but less than originally hoped for and not measurable to much if any degree. In the original planning of the project toward the goal of measurably improved health it was not taken into account that the villagers would most likely continue to use their traditional and contaminated wells, as long as these contained water, if they were closer at hand then the new wells. Further comment on this important factor is made in the following section of this report.

V. Observations and Lessons Learned from the Project

A. The project definitely improved the quantity and quality of water in all the villages, but if such projects are going to have a measurable health improvement impact design change will probably be required. The design change would be to improve and cap all existing traditional village wells when constructing the new well. The traditional wells are seldom covered and contaminated surface water runs into them in rainy season. (There is a quantum leap in the incidence of intestinal diseases among villagers at the beginning of the annual rains.) Well improvement and capping would considerably increase project costs and in many locations it would be difficult due to sandy soil structures, but it could be done in some instances.

B. No gain appears to come from equipping the wells with pumps, and it does not seem to be worth the cost and effort involved. Despite training of village teams in simple mechanics and hygiene broken pumps are likely

.../6

to remain unrepaired for long periods of time, if repaired at all. Good pumps are costly and even the best seem to breakdown quickly. Most villagers did not accept the need for the pumps and preferred buckets, water delivery usually being faster by multi-bucket use.

C. The wells were expensive and had an average cost of around $10,700., including the pumps which cost about $900. each. A good portion of the costs involve equipment (compressors, winches, etc.) Project year one costs were around $15,000 per well, and project year two costs were about $5000 per well. The higher year's costs greatly reflects starting up and equipment costs for the project.

D. The relatively accessible geographical location of this project, relatively high water-table levels, and a general absence of rock structures in the sub-soils all combined to reduce project costs and were a great assist for the project being able to meet time schedules. It could be expected that costs would be higher and conclusion times increased in other geographical locations.

E. The grant's stipulation that grant purchased equipment be turned over to the counterpart at project's end does not guarantee good post-project equipment use or maintenance. Although in this case still CARE retains the equipment to continue a new well operations with the same counterpart by virtue of previous agreement, the grant would be more practically flexible without that stipulation.

F. Simple as this wells project may perhaps appear organizing it and keeping it going on schedule involved considerable management. Also, the equipment utilized, which was an absolute necessity to accomplish the project, required careful use and maintenance. It does not appear that the skill levels in the villages or arrondissements are sufficient to accomplish such projects. Accomplishment by a local agency at a higher level might be possible, but past attempts do not show a record of great success. Realistically, it would seem that outside assistance will be required for these projects in the forseeable future.

.../7

VI. Concluding Comments

The successful conclusion of the project's activities appear to have been extremely beneficial to the participating villages, although a better probable realization of the full health component goal would be desirable. Valuable lessons were learned from the project, and operations activities were refined and improved during the course of implementation resulting in more efficiency and reduced costs. Should additional information concerning the project be desired CARE will attempt to provide it upon request.