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WATER AND SANITATION
FOR HEALTH PROJECT

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THE CARE/CAMEROON NORTHERN WELLS CONSTRUCTION PROJECT: AN EVALUATION PLAN FOR AND REVIEW OF THE HEALTH EDUCATION COMPONENT

WASH FIELD REPORT NO. 165

JANUARY 1986

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by Camb Dresser & Moore
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for CARE/Cameroon
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Prepared for the USAID Mission to the Republic of Cameroon
for CARE/Cameroon
under WASH Activity No. 122

by

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January 1986

Table of Contents

Chapter	Page
ACRONYMS USED IN THIS REPORT.....	iii
ACKNOWLEDGEMENTS.....	v
EXECUTIVE SUMMARY.....	vii
1. BACKGROUND INFORMATION.....	1
1.1 Introduction.....	1
1.2 Project Setting.....	1
1.3 Project Objectives.....	4
1.3.1 Final Objectives.....	4
1.3.2 Intermediate Objectives.....	4
1.4 Project Implementation.....	5
1.5 Review of Phase I Activities.....	7
1.6 The Purpose of this Report.....	7
2. THE HEALTH EDUCATION PROGRAM.....	11
2.1 Introduction.....	11
2.2 Effectiveness of Community Development Agents.....	11
2.3 Field Supervision.....	12
2.4 Neglected Project Components.....	13
2.4.1 The Schools Component.....	13
2.4.2 The Well-Guardian Program.....	13
2.4.3 The Village Health Committee Program.....	13
2.5 Continuity of Project Personnel.....	14
2.6 GOC Counterpart Funding.....	14
2.7 Women Community Development Agents.....	14
2.8 Recommendations.....	14
3. EVALUATION PLAN AND INSTRUMENTS.....	17
3.1 Evaluation Variables.....	17
3.2 Previous Evaluation Proposals.....	17
3.2.1 The Tomaro and Heilman Report.....	17
3.2.2 USAID/PD&E/CARE Proposal.....	18
3.3 Proposed Plan for Evaluating the Health Education Component.....	19
3.3.1 Evaluation Development Goals and Guidelines.....	19
3.3.2 The Household Survey.....	20
3.3.3 The Community Survey.....	22
3.3.4 Forms for Evaluating CD Agent Presentations and Health Education Materials.....	23
3.4 The Primary School Pilot Project.....	23
3.5 Other Project Evaluation Data.....	25

Chapter	Page
4. THE HANDPUMP MAINTENANCE PROGRAM.....	27
4.1 Choice of Pump.....	27
4.2 Spare Parts Availability.....	27
4.3 The Status of Handpump Maintenance Training.....	27
4.4 Long-term Responsibility for Handpump Maintenance.....	28
4.5 Recommendations.....	28
5. BACTERIOLOGICAL TESTING PROGRAM.....	29
5.1 Tests Conducted by the Consultant.....	29
5.2 Water Quality Standards.....	29
5.3 Recommendation.....	30

APPENDICES

1. Scope of Work.....	31
2. Household Survey Questionnaire and Manual.....	35
3. Community Survey.....	51
4. Health Education Presentation Evaluation Form.....	59
5. Health Education Materials Evaluation Checklist.....	65
6. Membrane Filter Analysis Protocol.....	69
7. Bacteriological Sampling Results.....	73
8. School Health Impact Survey Results, Magoumaz, 1983-1985.....	77

TABLES

1. Site Protocol.....	6
2. Evaluation of the Health Education Program, 1980-1984.....	8

MAPS

1. Cameroon.....	2
2. Northern Wells Project Area.....	3

ACRONYMS USED IN THIS REPORT

CARE	Cooperative for American Relief Everywhere
CD	Community Development (Ministry of Agriculture)
FONADER	Fonds National de Developpement Rural (National Fund of Rural Development)
FSAR	Fonde Special d'Action Rurale
FY	Fiscal Year (July 1 - June 30)
GOC	Government of Cameroon
HEED	Health Education
PD&E	Project Development and Evaluation Office (USAID)
REDSO/WCA	Regional Economic Development Services Offices/West and Central Africa
USAID	United States Agency for International Development
WASH	Water and Sanitation for Health

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EXECUTIVE SUMMARY

A WASH consultant was requested to assist the staff of CARE/Cameroon in developing the standards, criteria, and means for the evaluation of the health education component of the Northern Wells Construction Project. The consultant spent a period of four weeks in Cameroon during March 1985.

The Northern Wells Project is funded through a joint agreement between CARE/Cameroon and USAID. The Government of Cameroon has gradually increased its annual financial support. The project was originally funded for the period 1980 to 1984. Due to logistical and staffing problems during the first two years of the project, initial project output goals were not met according to schedule. CARE requested an extension of the project to 1987 and this was approved by USAID in 1984. The total cost to USAID for the initial and extended phases of the project is \$2,280,000.

The project is composed of two separate yet complementary components: well construction, including the installation of handpumps, and health education. The well component was designed to increase the number of year-round potable water sources in three economically depressed and densely populated departments of the Extreme North Province of Cameroon that suffer from chronic water shortage. The target of the project is to provide 207 new potable water sources to serve a population of approximately 200,000 people.

The health education component objective was to induce long-term hygienic behavior changes in the populations receiving the water sources. The development of an evaluation methodology presented in this report concerns itself with the health education component only.

The evaluation guidelines were developed after reviewing the entire program and plans of the Northern Wells Project. Site visits proved valuable in assessing the degree to which behavior changes would be amenable to observation and measurement. Consultations with CARE and Cameroonian government counterparts aided in the setting up of realistic goals for the evaluation.

The major evaluation instrument developed is a household hygienic behaviors survey to be repeated on a randomly selected sample of 10 percent of all the households benefiting from the project. The result of the survey is a scale score that can be used to measure changes in health behaviors through the remaining two years of the project.

An evaluation study involving four schools is recommended to demonstrate the impact of water supply and health education on the health status and hygienic behaviors of school children. This study includes collaboration with professionals from the Ministry of Health, using their expertise to assist in medical diagnostic evaluations of the students for water-related morbidity and parasitic infections. The study is planned to last for the remaining two years of the project.

Implementing the health-education activities using Ministry of Agriculture personnel without health backgrounds has meant that the health education coordinator, the program's manager, has had to commit extensive time to

educating them for their health roles. The fact that he is the only official supervisor for the twenty community development field personnel complicates the field supervision issue. The lack of supervisory staff is a major problem for the project.

Another problem is the delay in receiving the Government of Cameroon's counterpart fund project contributions for FY 85.

Recommendations include training the health education coordinator in epidemiology and data management methods. Another is to incorporate a theoretical and practical health education curriculum into the national community development training centers in Babouri and Santa.

Chapter 1

BACKGROUND INFORMATION

1.1 Introduction

The CARE/Cameroon Northern Wells Project originally received funding assistance from USAID through a grant (REDSO/WCA 79-189) effective from 1 October 1979 through 30 September 1984 for the amount of \$1,460,000. The project was extended in 1983 to continue until September 1987. The original title of the project was the Margui-Wandala Water Supply Project.

The first objective of the project is to increase the number of permanent potable water sources in three departments of the Extreme North Province of Cameroon. This is to be accomplished by upgrading traditional wells, digging new wells, or drilling small bore wells (depending on existing local conditions) and equipping them with handpumps.

The second objective of the project is to teach project beneficiaries how to use water hygienically, dispose of water properly, and protect the new water sources being constructed through an integrated motivation and health education program. This program is implemented concurrently and in coordination with the project's construction activities.

1.2 Project Setting

CAPE operations in the Extreme North Province of Cameroon began in 1980 and are based in Mokolo, a town of approximately 5,000 inhabitants located in the Mandara Mountains. Besides Mokolo (Mayo-Tsanaga Department), the project also operates out of Mora (Mayo-Sava Department) and Maroua (Diamare Department). There are approximately 150,000 people in the more than 100 villages in the project area, an average of 1,500 persons per village. (See Maps 1 and 2.)

The terrain in the North is geologically complex. It consists of plains, plateaus and mountains. The hot and arid conditions within the region favor the cultivation of millet, cotton, and peanuts and some potatoes and rice along the perimeters of the Logone River, the only perennially flowing river in the north.

The three departments, Mayo-Sava, Mayo-Tsanga and Diamare, in which the project is working were chosen by the GOC because they represent one of the poorest and most densely populated rural areas in the country. It has been estimated that there are as many as 122 inhabitants per square kilometer in these three economically depressed departments. Another water supply project funded by USAID, the Mandara Mountains Water Resources Project was cancelled due to prohibitive increases in estimated project costs.

The residents of the Margui-Wandala region have one of the lowest average estimated per-capita income in Cameroon and a life expectancy of only 24 years -- compared to 52 in the capital and 40 elsewhere in the rural areas. Water is an acute problem for the inhabitants of the region. Drinking water is collected from unsanitary streams or shallow wells which are usable only

during the short rainy season. During the dry season, women spend between four to seven hours per day in the search for water. In the rainy season, flash flooding occurs in the dry river beds, but much of this water is uncaptured and is thus of minimal benefit to the population.

1.3 Project Objectives

CARE's program in the north is designed to assure the provision of clean, reliable and year-round accessible water to the communities which need it and are willing to participate with CARE in a self-help project. CARE's program is designed to inculcate a self-help philosophy among government personnel and villagers, to provide government staff and villagers with on-the-job-training in water source development and maintenance, and to make available health education inputs.

The overall goal of the Northern Wells Project is to improve the health of the rural poor of Margui-Wandala and to decrease the amount of time women spend collecting water so that they can participate in other socially productive and possibly economically valuable activities.

1.3.1 Final Objectives

Phase 1 (1 October 1979 - 30 September 1984) was to construct 72 potable water points, install handpumps on 36 existing but poorly-functioning wells, and provide public faucets at 56 springs.

Phase 2 (30 September 1984 - 30 June 1987) has two major objectives, the first is to construct 135 permanent potable water points capable of meeting the needs of an estimated population of 500 persons each. Thirty wells per year are to be drilled in conjunction with the Ministry of Mines and Energy; 15 additional wells per year are to be hand-dug; all wells are to be protected and equipped with handpumps.

The second objective is to teach hygienic water and sanitation practices to members of beneficiary communities specifically in the following areas:

- water usage (personal and domestic)
- water handling and storage
- waste disposal (human, animal, and domestic) and
- routine upkeep and protection of the water system.

Health education activities include training seminars for village leaders, developing hygiene and sanitation curriculums for the primary schools, and training village maintenance crews in the upkeep of the wells.

1.3.2 Intermediate Objectives

1. To continue to strengthen the health education program implemented in the villages and schools in the project zone.

2. To develop a sense of community participation and ownership in both the construction of the water points and in the long-term maintenance and protection of the wells.
3. To reinforce the existing CARE/Community Development pump maintenance program. It has been recommended that this program effort be merged with maintenance projects maintained by other agencies installing handpumps such as Genie Rurale (a national service in the Ministry of Agriculture), FONADER, and FSAR.
4. To train government counterparts in the technical and educational aspects of the project so that project activities can eventually be completely turned over to the local government services.

1.4 Project Implementation

The project is being implemented by CARE in cooperation with the Department of Community Development of the Ministry of Agriculture. Technical assistance for the drilling component is provided by CARE with the cooperation of the Ministry of Mines and Energy through the Ground Water Project.

CARE provides the project with the technical expertise, administrative support and personnel necessary for project implementation and operation of the Mokolo regional office. CARE also provides some of the vehicles, equipment, and materials required in the construction component of the project. Additionally, CARE supplies some of the community development agents' motorcycles.

The Government of Cameroon (GOC) is required to make an annual deposit of counterpart funds; assign adequate counterpart personnel, including a senior staff member qualified in health education and 15 new or existing field agents; to provide one field vehicle each for the health education and the well program technical counterparts and for the three departmental service chiefs affected by the project; to provide adequate office space for the CARE staff operations in Mokolo for the duration of the project; and to supply a drilling rig with crew (including their salaries) for each of the three remaining drilling seasons. The total estimated value of the contributions by the GOC in Phase I was \$248,000. For Phase II the total planned contribution of the government is \$326,880 (\$193,548 in kind and \$133,332 in cash).

The project was modified in a number of ways for Phase II. Project technology was expanded to include small-bore mud drilling for the hand-dug wells program. The project activity targets were increased substantially without increasing project costs. Finally, special emphasis was placed on GOC counterpart commitments in order to increase the likelihood that the project will be continued after CARE's involvement has stopped.

Table 1 lists the site protocol for the well construction, community motivation, and education activities in a client community.

Table 1

Site Protocol

PHASE I

1. Village makes a request to the local prefet who forwards all requests to the Department of Community Development in the Ministry of Agriculture (CD).
2. CD compiles a list of all requests and separates them into Mora/Maroua or Mokolo areas.
3. CARE receives list. Dispatches CD agent to potential village to investigate history of community involvement, quality of water sources, any other indications that may facilitate or impede the success of working within the village.
4. CARE examines information collected by CD agent and conducts a site visit of the village. Feasibility of proposed area is assessed by CARE technical staff. Sites already identified by FSAR and Genie Rurale are not considered.
5. Amended list returned to CD and circulated to FSAR and Genie Rurale which confirm which sites they will work in. (This step is to provide a region-wide coordination of site selection. It also gives existing government well-drilling services the first choice at site selection.)
6. CD returns list of possibilities to CARE. (List still may exceed 100 sites; CARE objective in Phase II is 45 sites annually.)
7. CARE chooses 45 sites from modified list.

PHASE II

8. CD sets advance dates for visit of animators, technical coordinator, and local officials (sous prefet, chef du village, etc.) to villages chosen as well sites. The villagers are told what their contribution is to be (lodging for CARE well diggers, food for well diggers, volunteer labor, gravel, and sand) and then the contract is signed.
9. Well is constructed.

PHASE III

10. Village Animation/Health Education initiated. Training of local leaders in water usage habits. Well guardians identified for future training. School (if present) visited in effort to supplement curriculum with water related hygiene and sanitation lessons.

CARE leaves the site selection policy firmly in the hands of the government agencies charged with that responsibility. In doing so CARE does not work for third (private) party requests for assistance. This CARE policy serves two purposes. It builds up the government's ability to select sites while also concentrating its efforts in working with local villagers.

1.5 Review of Phase I Activities

Following a mid-term project evaluation by a USAID REDSO/WCA engineer in May 1982, a number of modifications were made to the implementation of the project. Infiltration galleries that had been installed were found to produce unsatisfactory results. That method of providing water was discontinued after eight such facilities had been built. Some wells were found to be too shallow to provide a year-round supply. CARE undertook to deepen these wells. Problems identified with the Robbins and Myers Moyno Pump, the only one being installed by CARE, were found to originate at the point of manufacture. These problems were addressed with the assistance of the manufacturers.

By the time of the mid-term evaluation only 22 out of the projected 92 water points had been constructed, and the original target was reduced to 72. By the end of FY 83, another 18 waterpoints had been completed and the amended target of 72 water points was reached by the original project expiration date of September 1984.

Total estimated number of beneficiaries (based on village populations) at the end of FY 83 was 51,000 persons served by 40 water points for an average of 1,300 per well. On that basis, the 72 well points were expected to serve some 95,000 people.

The second component of the project, health education activities, was first designed and implemented by CARE international staff members but was turned over to a full-time Cameroonian health education coordinator in 1982. The coordinator is a Ministry of Health professional who has been seconded to this Ministry of Agriculture project. Under his direction the program activities have continued with a field staff that has expanded to 20 community development workers.

Table 2 gives the evolution of the activities in the health education program from its inception in 1980 until the end of 1984.

The first years of the project were "start-up" years for CARE/Cameroon in the Mokolo area. Project efforts included constructing a warehouse, setting up vehicle maintenance facilities, and training staff.

A large part of CARE's efforts in the first five years of the project was to assist in as many ways as possible in reinforcing the growth of the Department of Community Development within the Ministry of Agriculture. In 1979, when project activities began, the Department of Community Development barely existed and had practically no effective presence in the field. The concept of community development is a relatively new one for the French speaking (francophone) areas of Cameroon, although it has enjoyed much success in the English speaking (anglophone) areas of the country. The GOC's support of the expansion of the Department of Community Development is evidenced by its desire to introduce community development concepts to the francophone areas.

1.6 The Purpose of this Report

In 1984 CARE approached the WASH Project to obtain assistance in the design of a methodology to evaluate the effectiveness of the health education program.

Table 2

CARE/C.D. Evaluation of the Health Education Program, 1980-1984
 Regional Sanitary Education Program
 Mayo Sanaga / Mayo Save / Diamare
 Progress of CARE/C.D. Sanitary Education Activities

<u>Activities</u>	<u>Yearly Totals</u>			
	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>	<u>1983-84</u>
1. Number of wells constructed	4	16	20	28
2. Villages with village leaders already trained	-	20	11	19
3. Number of already trained village leaders	1	122	57	104
4. Number of trained well-diggers	27	44	12	3
5. Number of trained well-guards	-	-	3	-
6. Number of trained sanitation organizers	-	-	-	10
7. Number of latrines currently being used in the villages	-	1,195	2,366	6,663
8. Number of villages with CARE wells maintained and adequately enclosed	-	-	19/35	27/58
9. Number of villages whose CARE well water is the principal source of 80% of the drinking water	-	-	38/35	58/58
10. Villages possessing a cover and cups for conserving "canari" (storage jar) water hygienically	-	-	25/35	45/58
11. Villages that hold open community meetings providing information about sanitary education (E.S.)	-	-	-	35/58
12. Villages with a communal field	-	-	-	8/58
13. Number of villages for which "Basic Health Care" program planned	-	-	-	4/58
14. Number of villages with active "Basic Health Care" program	-	-	-	1/58
15. Number of trained village health workers	-	-	-	6/58

Table 2 (Continued)

<u>Activities</u>	<u>1980-81</u>	<u>Yearly Totals</u>		
		<u>1981-82</u>	<u>1982-83</u>	<u>1983-84</u>
16. Number of schools where health education has taken place	13	13	12	10
17. Number of trained instructors	26	26	24	20
18. Schools that have incorporated sanitary education into their curriculum	-	-	20/25	28/31
19. Schools using the teaching materials furnished for sanitary education	-	-	-	28/31
20. Schools with an active school health committee	-	-	-	19/31
21. Schools with separate latrines for teachers and pupils	-	-	18/95	24/31
22. Schools with a storage jar of drinking water in each classroom	-	-	12/25	19/31
23. Schools carrying on environmental sanitation (garbage pits)	-	-	9/25	17/31
24. Schools with a school garden	-	-	-	-
25. Schools cooperating with village leaders for promotion of sanitary education in the village	-	-	-	11/31
26. Schools cooperating with the local area health service	-	-	-	18/31

In response WASH selected a consultant whose specific task it was to review the Northern Wells Project -- in particular its health education facets, and develop an evaluation plan, including protocols for collecting the necessary data (See Appendix 1, Scope of Work.) Two additional tasks involved assessing spare parts supplies and bacteriologic testing of well water. The consultant spent four weeks in Cameroon in March 1985 to carry out the assignment. This report documents the effort and the results.

Chapter 2

THE HEALTH EDUCATION PROGRAM

2.1 Introduction

The health education component of the Northern Wells Project is designed and managed by the health education coordinator with the help of local government officials, and a corps of 20 community development agents. Once trained, these agents participate in all phases of the well project -- from site selection and village extension work to post-installation visits -- and receive re-training as required. (The fact that the program is directed by a Cameroonian government official at this level of project activity indicates that CARE's long-range objective of institutional building is possibly being realized and also indicates the degree to which the GOC is committed to the project.)

The health education component has two goals. The first is to give Cameroonian nationals on-the-job training in health education techniques so that they can train other agents and the villagers of the region and supervise their activities. The second is to change the water use and hygiene habits of the villagers themselves.

The health education project activity targets are redefined yearly. The FY 84 targets were to hold seminars for local leaders, school teachers, and well guardians, to complete village site files, to hold well-digger health education workshops, and to conduct village orientation/health education visits. The seminar/workshops cover general methodology, educational techniques and tools, and methods of organizing, supporting, and motivating a community and feature "hands-on" practical demonstrations. Follow-up site visits by the health education coordinator and community development agents supplement the seminar/workshop training sessions. The visits provide important field support assistance to the communities in problem solving. One of the unplanned-for impacts of the community development work is that four communities have requested further health-related assistance. These requests in turn have spurred the creation of a new project activity in organizing the community for primary health care.

The GOC has given the provision of village water supply systems top priority for rural development activities in the Extreme North Province. This has meant an increase in the budgets of other government community and rural development entities as well as government monetary support to other international aid organizations such as CARE. However, the CARE project differs significantly from other well construction projects in the region in its emphasis on community participation and health education. It is therefore important to evaluate these unique project components.

2.2 Effectiveness of Community Development Agents

Ideally, the community development agent's main purpose is to encourage and nurture a willingness among villagers to work together to solve community problems. This includes assisting them to organize themselves and to launch

the work as well as following through with the necessary supervision of the community's efforts. The activities demanded by the project require the villagers to carry out important exercises in decision-making and planning that can lay the groundwork for other communal self-help development activities.

There are, however, some problems which seriously weaken the agents' effectiveness. Since the purpose of the proposed evaluation plan is to assist CARE personnel and their Cameroonian counterparts to improve the project, a closer look at the problems hindering the agents is in order.

Because the Community Development Department within the Ministry of Agriculture is not a health-related service, approximately 90 percent of the individuals assigned to work on the project as agents have not had any previous health training.

The new agents are assigned to the project by Ministry of Agriculture headquarters; the health education coordinator has no input into the hiring of new personnel. The new agents may be recently out of the Community Development Department's training program, which apparently has no health component, or they may have had field experience with some other agency within the Ministry of Agriculture or from some other ministry altogether. Lacking training or work experience in public health, some agents understandably feel inadequately prepared for work with the communities. Some of the community development agents are illiterate. The health education coordinator has the complete responsibility for training these people for health education activities.

Several community development agents with experience in community motivation deny the importance of being knowledgeable about health education. They see themselves principally as community motivators, not health educators. While this may be acceptable at the initial stages of a project when the principal task is motivating the community to aid in the construction of the water supply, such an attitude is deleterious with respect to the later stage when the emphasis is placed on health education.

Paradoxically, the importance of health education is being acknowledged by other non-health GOC agencies constructing water supplies such as Genie Rurale and FSAR, a special rural fund of the GOC. Genie Rurale recently asked the Ministry of Health for nurses to carry out health education in villages where it is digging wells, and FSAR asked the Health Education Coordinator to do health education at some of their new sites.

According to their job description, agents are expected to spend 40 percent of their time in the office. Unfortunately, however, several agents are not enthusiastic about fieldwork and choose to spend a greater percentage of their time in the office. Also agents tend not to spend much time in a community because of their desire to return home each night no matter the distance.

2.3 Field Supervision

The health education coordinator has numerous responsibilities. He is responsible for three departmental officers and the 20 agents carrying out the program. In addition he has to train any agents not qualified to work in

health education. The training consists of one month of classroom instruction and one month of fieldwork. The classroom instruction is carried out by the coordinator. Obviously, the time he spends in the classroom diminishes the time he has to visit the field and supervise what people are doing there.

The supervision problem has been exacerbated by the increase in the number of wells to be completed per year. Phase II calls for 45 wells per year, whereas Phase I achieved a maximum of 27 per year. This significant increase translates into greater planning and training responsibilities for the health educator coordinator at the expense of supervision. The coordinator recently discovered that an agent had falsely claimed to have visited and carried out activities in a community.

The need for more supervisors is obvious and will be met only temporarily by a three-month contract for assistance with a Peace Corps Volunteer. A Dutch volunteer was to be assigned to help the coordinator but his arrival has been postponed twice.

2.4 Neglected Project Components

2.4.1 The Schools Component

Part of the community development agent's job is to seek out and work with school officials and teachers located in the villages of his sector. Unfortunately, many of the agents have not gone beyond the initial contact phase to develop a working relationship with the teachers and officials. The agents probably are intimidated by the higher income, better education, and status of the teachers and tend to avoid having to deal with them.

2.4.2 The Well-Guardian Program

The well-guardian program is part of the effort to set up an effective well and pump maintenance program. The guardian's tasks are to keep the well area clean, notify the regional pump maintenance mechanic if there is a problem with the pump, and regulate pump use if there is a water shortage or other reason for so doing.

At this time there are very few well guardians; the project has not given much effort to developing this aspect.

2.4.3 The Village Health Committee Program

At this time, there are few village health committees that have been formed as a result of the efforts of the project agents. Most agents have preferred to work with the formal leaders in the community. The project is now trying to change this situation and is emphasizing the need for the community development agents to work at getting such committees organized so that there will be a group of villagers capable of working as change agents to assist them.

2.5 Continuity of Project Personnel

When a community development agent performs well and receives a promotion, he will very likely be transferred to another part of the country. Such transfers of experienced people are a serious drain of talents and skills from the project. In comparison, when local Ministry of Health personnel get promoted, they receive a raise in salary but stay where they are. Collaboration between the project personnel and personnel from the Ministry of Health should be encouraged to promote continuity of the project activities after 1987.

2.6 GOC Counterpart Funding

The morale problem among agents stems not only from their inadequate background in health but also from delays in salary and transportation payments. The GOC has not paid its counterpart fund contribution for FY 85. Money from this fund is used to pay agents' salaries and fuel and replacement costs for their motorcycles. This year the payment to the fund is nine months overdue. If the fiscal year comes to a close before the fund is released, the monies that CARE has advanced the health education program throughout the year probably will not be reimbursed by the GOC.

2.7 Women Community Development Agents

It is disturbing to note that women of child-bearing age did not attend the health education talks presented in the villages. Due to religious and ethnic traditions, men and women do not mix together in groups publicly. However, water collection, household sanitation, and child hygiene are all women's responsibilities and it just does not make sense to have men trying to convince the women to change their habits. The men lack credibility as agents of change. There is a need for the project to recruit more women for the agent positions.

Ideally, each community should be serviced by one male and one female community development agent. They should both be from the area and be able to communicate directly to the clients in their own language. The male agent would be most effective in dealing with the male formal leadership groups within the community and at the construction stage of the project. The female agent would be most effective in the much longer stage in which the project tries to encourage the long-term adoption of healthful behaviors.

2.8 Recommendations

1. Minimal qualifications should be set for candidates for community development agent positions. Candidates should be evaluated for their communications skills.
2. Community agents should either live in the communities to which they are assigned or should spend nights in them to increase their level of contact.

3. There is an urgent need for more supervisors in the health education program.
4. Community agents should be pressured into increasing their work with the schools.
5. Women community agents should be recruited. Each project community should be serviced by both a male and female agent.
6. Greater emphasis should be placed on the well-guardian and village health committee components of the project.

Chapter 3

EVALUATION PLAN AND INSTRUMENTS

3.1 Evaluation Variables

In the usual systems evaluation model, there are input, process, and output variables to consider. For health education programs, the output or dependent variables are changes in the health behavior of the group or groups targeted by the program that, if adopted on a long-term basis, are expected to result in the improved health status of the people adopting these behaviors. Health status of a population may be considered as an outcome variable for the whole Northern Wells Project. In the case of the Northern Wells Project, the output variables are indices of morbidity and mortality rates for diseases related to poor domestic and community sanitation, the use of contaminated water supplies, and unhealthy personal hygiene.

The input or independent variables are the various activities implemented by the program, including the construction of water and sanitary facilities, health education, community development, etc.

The exploration of the relationships that might exist between input, process, and output variables is expressed in terms of an evaluation design. There are several standard designs and the choice of any specific design depends on the unique combination of the evaluation questions, of conditions present and resources available for the program evaluation.

3.2 Previous Evaluation Proposals

3.2.1 The Tomaro and Heilman Report

An evaluation methodology for the health education program was suggested by WASH consultants, Tomaro and Heilman, in their report, "Formulation of the CARE Multi-year Plan for Water Supply and Sanitation in Cameroon" (WASH Field Report No. 75, March 1983, pages 20-29).

They proposed a methodology that combined two evaluation designs for assessing behavior change and the overall impact of the water-supply project. One was a simple "before" and "after" approach that identified differences in the values of the evaluation variables before the introduction of the program and at some point after the program's start. The other was an approach that compared the "before" and "after" status of communities who received the water supply and health education with communities that did not receive these services, i.e., the use of control communities.

Tomaro and Heilman suggested that the evaluation should attempt to measure changes in outcome variables, principally changes in the infant mortality rate, the child mortality rate, and the prevalence of diarrhea in children under five years of age.

Process or intermediate variables to be measured included: 1) well sites with constructed and maintained well enclosures, 2) increased number and use of

latrines, 3) the use of the CARE well as the main drinking water supply for the community, 4) improvement in cleanliness of water storage and water usage vessels, 5) indicators regarding latrine construction, maintenance, and use, 6) general measures of community cleanliness, and 7) changes in mothers' hygiene practices regarding their children.

After the baseline study, with the data to be collected by trained professionals (not project personnel), the next attempt to assess impact was to be made after the interventions had been in place at least a complete year.

Tomaro and Heilman proposed selecting a sample of villages consisting of the wealthiest and poorest ones in the program. The control group was also to consist of wealthy and poor communities.

This suggested evaluation plan was not implemented and the consultants concluded that project personnel hesitated to expend the resources and time needed to implement this evaluation design.

3.2.2 USAID/PD&E/CARE Proposal

In February 1984, USAID/Cameroon (and CARE) outlined plans for an evaluation in a cable to WASH. The following quotations from the cable give the essence of the plan.

"Data reported from health posts in project area indicate precipitous decline in the incidence of water borne diseases. CARE and USAID are both interested in verifying data which indicated that the project is a bona fide 'success story' in health improvement resulting from well implemented program of both technical and practical hygiene transfer to the village. A positive evaluation would justify extending and/or expanding activities in the present project target area.

"...In order to complete the evaluation, CARE has suggested the following scope of work which they estimate could be accomplished by two water usage health specialists during a one month period in the project zone. The preferred timing is May, 1984.

- A) Follow-up studies in two selected villages on health indicators in school age children. This to be considered the post-intervention investigation corresponding to pre-intervention studies already conducted by HEED component.
- B) Basic health studies in a paired-village (with and without CARE HEED program) study in 2 to 4 isolated rural villages in the project zone.
- C) Investigation of the effectiveness of the CARE primary school health education program.
- D) Analysis of morbidity and mortality statistics of clinics and hospitals both in and out of the project zone."

The response to USAID/Cameroon was a cable that stated WASH's reservations about the epidemiological validity of the proposed studies and a query as to whether or not the project had the budget to cover the costs of completing the suggested work. A later cable from CARE indicated that the project lacked baseline data, and there is no mention of any pre-intervention study results. As far as the consultant is aware no further action on project evaluation was taken.

3.3 Proposed Plan for Evaluating the Health Education Component

3.3.1 Evaluation Development Goals and Guidelines

The general goals of any health education program evaluation are:

1. To improve policy decisions about the usefulness and design of future health education activities.
2. To improve the performance of the existing program.
3. To improve institutional basic program management skills.

Studies that measure health impacts are complex, require the services of an epidemiologist and a statistician, and are generally expensive to carry out if they are to achieve results that will have scientific and statistical validity. Given the resources available to the project, it would not be feasible to evaluate actual changes in health status. Instead the evaluation should focus its efforts on measuring changes in the intermediate variables, the targeted health behavior changes themselves. The task then becomes one of designing a data collection system that yields scientifically valid results and that can be carried out given the skill levels of project personnel, the availability of supervisors, and the time left in the project.

After preliminary visits to the field, meetings with project field personnel, and detailed discussions of the present program, several guidelines were chosen for the development of the evaluation instruments:

- The instruments should be developed as much as possible by the people who will use them so that they will feel some sense of ownership. In this case, when the suggested surveys go through rigorous field testing, users will have an opportunity to make suggestions about how they could be improved.
- Given the level of interviewing skills of the field staff, the instruments should be kept as simple as possible and should be based as much as possible on direct observation, rather than on direct questioning.
- The field staff should be able to carry out the first level of data analysis so that they can see how the results of their efforts can be immediately applied to their own work and planning needs.

- The forms should be accompanied by instruction manuals describing how to interpret the questions and score the responses.
- Embarrassing questions should be avoided.
- The information should remain in the field so that it can be used both by the program and individual agents for their work.
- The evaluation instruments should not be too long or cumbersome; completion time should not exceed 30 minutes per interview.
- Interviewers should receive minimal training before they begin their work in the field.
- The survey instrument and the performance of the interviews should be pretested before actual data collection begins.

3.3.2 The Household Survey

The household survey of hygienic behaviors is the major evaluation instrument developed through this consultancy. It consists of a questionnaire and instruction manual, copies of which can be seen in Appendix 2. Hygienic behaviors targeted by the health education program are observed with the aid of 42 questions. The principal areas of interest are personal hygiene, family water storage and use, house quality and hygiene, cooking area, clothes-washing at home, toilet habits, and cleanliness of the yard.

The Health Education Coordinator is to select a random sample of households to be surveyed in each of the communities either already in the project or slated to join the project before its completion in 1987. The size of the sample should represent 10 percent of the total number of households in the community. These selected households will be followed longitudinally until the end of the project. The ability of the coordinator to choose a random sample from each community is based on the assumption that there is a rough map of each community showing the location of each home.

The survey should be repeated on the longitudinal sample of families at least twice in one year, at six-month intervals. To diminish complications in interpreting the data, the surveys should be done only during the dry season. This should not be too difficult given the shortness of the wet season. If possible, the survey should be repeated at quarterly intervals.

Implementation

Before they are used, both the survey questionnaire and the instruction manual should be field tested by the community development agents under the supervision of the health education coordinator. In addition the agents must be trained in how to conduct the survey. Each version of the form should be tested by three agents on three households each in the same community at the same time. The coordinator must be present when the survey is being tested so that he can fully discuss the experiences of the agents and find out in detail their reactions to the form and the reactions of the informants. The

expectation is that there will have to be at least two sets of field trials before the survey form and manual are finalized.

The in-staff training should be supervised by the health education coordinator. The sessions should not include more than five agents at a time, and the form and the manual should be reviewed carefully in detail. By the time the community development agents go into the field to implement the survey they should know the manual of instructions by heart, so that they are able to score the responses correctly. The quality of the results depends entirely on the quality of the information collected by the agents.

The health education coordinator, and any other supervisors there might be, are the key people for deciding whether or not the survey results are reliable. They should continually check the accuracy of the completed surveys by randomly choosing houses for retesting a week or two after they have been surveyed by the community development agent. If there are more than one or two differences between the responses obtained by the supervisors and those obtained by the agent then there is a problem with the understanding of the interviewer, with the instruction manual and/or the criteria for choosing a positive or negative response.

Analyzing the Results

The scoring system is simple: each proper behavior observed receives a score of one point and each incorrect behavior observed a score of zero. Responses to be scored are either "yes/no" or "good/poor." The form was designed so that all the positive responses are in the left-hand response column and all the negative responses in the right-hand column. Thus, after completing and checking the form, the surveyor can add up the number of circled items in the left hand column to get a raw hygienic behavior score for that household for that visit.

The score at this stage is "raw" because the base number of questions is not always the same for each household. The main factor is whether or not there are children in the household. If there are not, then those questions relating to children are not applicable and need to be subtracted from the denominator of the fraction used to calculate the final score. It is practical to use a handheld calculator to calculate the final adjusted score, and it is suggested that one be assigned to each office for the use of agents.

These surveys are carried out at the household level and are to be done in all the communities already in the project or those slated to enter the project. If they are done in communities that have not yet started to receive water and health education, then the information will constitute a baseline for that community. If the programs have already started in the community, then the information will constitute progress measurement data.

The sample of households is to be surveyed several times over the remaining life of the project. It is expected that a trend of increasing scores will be seen in those communities receiving health education inputs. An increase in household scores implies adoption of an increasing number of healthful behaviors promoted by the program.

By adding up the adjusted scores for a community, a mean village score can be calculated with its standard deviation. Again, in time, one would expect to see an increase in the value of the community mean and a decrease in the value of the standard deviation.

3.1.3 The Community Survey

From its inception, the Northern Wells Project has lacked baseline data. According to the health education coordinator, none were collected during the first two years of the project. Unfortunately, there also was no collaboration with the Ministry of Health before the health education component began work in the villages. This was a serious oversight, since the Ministry of Health has been involved in many rural development programs and has experienced personnel at its Health Education Office in Yaounde. However, a baseline survey is now being used by the community development agents for the villages targeted to receive a new potable water supply.

The survey instrument used by the agents is called the Community Survey Form/Fiche d'Etude de la Communauté (Appendix 3). It was designed by the health education program to assess the felt needs and priorities within the community and has sections on location and population; history, religions, beliefs; community organizations; community infrastructure; economic structure; health status of the population; and proposed actions and strategies.

The survey can reveal villager attitudes that might need to be addressed before any project interventions are introduced. For example, in one village, the response to a question regarding the attitude towards education was that "the Whites fool us with their education," and regarding vaccinations that, "vaccinations kill people and above all children." Although these two rather extreme examples do not refer directly to the wells project, they underscore the importance of not assuming that any planned intervention will be welcomed with open arms by all members of a community. A preliminary survey, therefore, is a valuable tool for developing strategies to work successfully in villages. Determining the collective village viewpoint is a valuable means of obtaining the willing collaboration of the community members in local project planning.

The survey is conducted informally by a community development agent during several visits to a target community. Notes are taken discretely during the visit or are made after the agent has left the village; this lessens the suspicion of the informants, who may be upset at the sight of the agent taking notes during their discussions. Questions cover a range of topics from the origin of the population to the months when harvesting is done.

The community survey is important to the project for three reasons:

- it is the first point of contact with the community,
- it guides the development of an appropriate project program within the community, and

- it constitutes baseline information which can be referred to by the evaluation plan in identifying certain changes that have occurred at the village level due to the project.

Ways to Improve the Survey

As it is now conducted, there are a number of problems with the survey. Any survey, no matter how expertly designed, is rendered valueless if it is improperly executed. One of the problems plaguing the project has been the lack of qualified personnel. Because non-health professionals constitute an overwhelming majority of the community development agents responsible for completing the survey, the health education coordinator has been obligated to concentrate his efforts on training the agents in health at the expense of increasing their survey implementation skills.

While it is admirable for the project to have such a detailed overview of a community, the community survey should also provide information of greater direct relevance to the health education component of the project. The consultant recommends that the following community survey revisions be made:

1. greater emphasis should be put on obtaining information about established organizations within the village. It is especially important to identify any women's groups. Village women are key change agents within the community, but they are often under-represented at project health discussions.
2. There should be more direct questioning of villagers regarding their views on disease, their perceptions of health hazards and what they propose to do about them.
3. An attempt should be made to gain the villagers' views on any previous outside intervention efforts conducted in the area. What did the villagers perceive about the rationale, methods, and effects of such projects on their lifestyles.

3.3.4 Forms for Evaluating CD Agent Presentations and Health Education Materials

The health education coordinator, with the part-time help of a health aide from the hospital at Mokolo, is responsible for the supervision of the 20 community development agents. He has been trying to attend the presentations given by the agents in the communities at least 10 times per month. Appendix 4 is a recommended form for evaluating a presentation and the audiovisual materials used.

A checklist for the evaluation of the health education materials is given in Appendix 5.

3.4 The Primary School Pilot Project

On 13 December 1983, an intensive diagnostic and treatment campaign was launched in a primary school in Magoumaz, a village close to the Nigerian

border. Magoumaz, with a population of close to 4,000 people, is isolated at the end of a road and is separated from other communities on three sides by mountains. The campaign was held just before a CARE well near the village school was inaugurated. The plan was to examine and medically treat all the disease symptoms of the primary school children. Then it would be seen if the well water would make any substantial impact on the health of the 110 students.

The students were examined and treated, but no follow-up stool examinations were done due to staffing difficulties. On 8 March 1985 the consultant organized a team of preventive health clinic nurses, one doctor, and the CARE health education coordinator, and returned to Magoumaz, 15 months after the original examinations, to retest as many of the original 110 pupils as possible.

The results showed a 70-75 percent reduction in the prevalence of hookworm and roundworm. A possible explanation for the low reinfection rate appears to be that few of the children now ventured down to the heavily infected and semi-dried up river.

This study generated much interest in the project staff as well as among the local health professionals and there was a desire to repeat it in a more systematic and scientific fashion. Therefore, a protocol was developed for a pilot project to examine the impact of the Northern Wells Project on school populations.

The pilot project consists of a quasi-experimental multiple time-series examination of four separate village schools having ready access to new wells. Two of the schools will have access to a new potable water supply alone and two will have access to water and will also implement an health education curriculum. It is hoped that such a study will allow for the evaluation of the health education component alone.

CARE/Cameroon has already agreed to pick up the additional costs to the project of implementing such a study. The cost has been estimated to be \$5,000. Seven possible school sites have been identified. The water and sanitation related diseases prevalent among the school children in the project area include diarrhea, worm infections, skin and eye infections, louse-borne infections, and mosquito and fly-borne infections.

Officials of the Ministry of Agriculture, the Ministry of Health, and the Ministry of Education have collaborated in working out the arrangements for this study. This is seen as a very positive step. Most of the official clearance needed for the study to go ahead is available at the regional level.

The project will be carried out under the supervision of the health education coordinator. The chief physician of the Preventive Health Clinic will serve as medical advisor. Ministry of Health personnel will carry out the physical diagnoses (to take and examine the stool and urine samples), and community development agents will observe the behaviors of the children with respect to water usage and usage of latrine facilities and will monitor the activities of school health committees. The health education curriculum being used in the test schools is to be reviewed every month. It has been reported that classroom time officially designated for hygiene education has been used for recess periods because the teachers lacked information and knowledge in the area.

The project has faced major difficulties in getting the community development agents to work with the village teachers and pupils. There are two main reasons for this. First, as stated before, because the teachers are better educated and have higher status in the community, the agents are nervous about dealing with them. Second, agents generally do not understand the health education material very well; therefore, they are reluctant to put themselves in front of a class of children whose questions reveal their lack of knowledge.

Through the pilot project, at least four of the 20 community development agents will receive additional retraining in working with school age populations and will be given specific achievable tasks in assisting the school pilot project. The four agents included will have a better understanding of the information they are collecting and what it means. One of the benefits of this pilot project is that it will initiate and measure the effectiveness of a more focused and extensive effort in constructing wells and latrines near rural schools.

It is recommended that the health education coordinator receive further training in data management and epidemiological methods so that he can help to run the study with the physician. It is recommended that he be sent for short-term training to OCEAC (the Coordinating Organization for the Fight Against Endemic Diseases in Central Africa) in Yaounde.

This pilot project has long-term implications for the continuation of the project efforts after the project's official close in 1987 because it involves a long-overdue close collaboration between project personnel and personnel of the Ministry of Health who naturally are interested in many aspects of the project. The Ministry of Health will soon be launching a primary health care campaign in the area and expects to be involved with water supply, latrine construction and health education itself.

3.5 Other Project Evaluation Data

During his field visits, the consultant passed through a village where technical personnel were carrying out an evaluation of the use of the well and pump. A technician was counting the number of people using the facility and estimating the amount of water being collected. The consultant did not ascertain the extent of these evaluation activities and the frequency with which they are carried out. It is very possible that the technical personnel have been collecting data related to water use and well and pump maintenance that would be of prime importance to the evaluation of the health education component of the project.

In its appendices, the 1983 Tomaro and Heilman Report contains copies of health education program evaluation forms. The consultant did not ascertain the extent to which those forms were being used to collect data that could be incorporated into the present suggested evaluation plan.

Chapter 4

THE HANDPUMP MAINTENANCE PROGRAM

4.1 Choice of Pump

In the original design of the Northern Wells Project, CARE was to test the use of several different handpump types to see which was the best for the project. However, CARE very quickly opted to go entirely with the U.S. made Moyno Pump, and for the first five years of the project this was the only pump installed. The maintenance of the Moyno Pumps is technically quite complex and requires the use of special tools and special mechanical skills and is not suitable for a project in which community members are supposed to manage pump maintenance by themselves. This is a serious drawback. In reality, pump maintenance has been carried out by special maintenance teams. There were some other problems but these were resolved with the assistance of the manufacturer.

The project's chief engineer recently tested a British handpump known as the Mono Pump and found it to be more efficient than the Moyno Pump and less expensive to buy and maintain. The project has now switched permanently to Mono Pumps.

4.2 Spare Parts Availability

There is currently a sufficient number of spare parts for both pumps in the Mokolo project warehouse to satisfy the needs of the project until its completion in 1987.

4.3 The Status of Handpump Maintenance Training

Two levels of training are needed to have an effective long-term pump maintenance program. The first level provides technicians with technical proficiency in problem diagnosis, pump-pulling, repairs and replacement, and pump re-installation. This kind of training is already underway. The second level has yet to get underway. At this level, interested villagers need to be taught how to perform inspections, diagnose problems based on sounds and observations. In this way skilled regional technicians can be called before the pump actually breaks down and service is interrupted, carry out simple maintenance, and periodically measure the rate of output of the pump as a check of its operating condition.

The long-term operation of the pumps will be in doubt until the communities see the need to take ownership and responsibility for their continued operation. Since the women have the responsibility of providing water to the home and thus presumably appreciate the benefits of a well and pump, they should be involved in maintenance.

4.4 Long-Term Responsibility for Handpump Maintenance

The question of who has responsibility for the maintenance of the handpumps after the end of the project in 1987 has not as yet been answered. Preliminary hopes of depending on private sector initiative were dampened somewhat when a local company secured exclusive rights to import the Moyno Pumps and then doubled its local price and the price of spare parts overnight.

The project administrator has been trying to work out a cooperative agreement with some other government agencies for assuming long-term responsibility for the pumps. FONADER, an agency in the Ministry of Agriculture, has agreed verbally to take over pump maintenance in one of the three departments of the project, but to date there is no written agreement.

In the meantime the project is training an individual from the Ministry of Agriculture in pump maintenance. This technician-in-training has been put temporarily on the CARE payroll until he has completed the 18 month course.

4.5 Recommendations

1. A good training program to train villagers in routine pump maintenance is needed. Training materials should be suitable for use with illiterate people.
2. The project should explore the possibility of allowing pump and well maintenance to become a women's responsibility.

Chapter 5

BACTERIOLOGICAL TESTING PROGRAM

5.1 Tests Conducted by the Consultant

Periodic bacteriological sampling of the project wells after they had been put into operation was felt by USAID engineers to be a worthwhile measure of project performance. In the scope of work, the consultant was requested to take samples and was supplied with the necessary materials.

Millipore Coli-count Samplers, Millipore Coli-firm Kits and Millipore Membrane Filters with Endo medium were used to test the quality of a randomly selected sample of 14 project wells. A portable Millipore incubator was used to process the samples. The incubator held the temperature within acceptable limits even though the supply of electricity was interrupted several times.

The Coli-count Samplers were used to test for total coliforms. The protocol for taking samples, diluting, and incubating were strictly adhered to; incubation was at 35 degrees centigrade for 48 hours. Unfortunately, the validity of the results obtained are doubtful since it was discovered that the samplers supplied by USAID/Cameroon were 10 months older than their recommended shelf-life. All the samplers gave the same result.

A brand new Coli-firm Kit was hand-carried by the consultant to Cameroon, but unfortunately he did not know that the kit had to be refrigerated and it was kept unrefrigerated at a high ambient room temperature for five days. Thus these results were also suspect.

The Membrane Filter equipment was already in use by the engineering staff of the project and no problem was encountered with this method. It is therefore assumed that the only reliable results were those obtained using the filter.

Total coliform counts were obtained from 1 ml. samples. Sources suspected of being heavily contaminated were diluted 1:10. Even so, some waters were so heavily contaminated that the actual total coliform count could not be determined.

The Membrane Filter method used and the total coliform counts obtained for each sample are presented in Appendices 6 and 7 respectively.

5.2 Water Quality Standards

According to World Health Organization (WHO) drinking water standards, an acceptable un piped water supply should yield a count less than 10 coliform organisms per 100 ml. The WHO recommendation is that any source exceeding this level should be avoided until it has been treated. This standard is an unrealistically high one for areas such as Northern Cameroon. Sampling of wells as a project evaluation measure should not be continued unless samples are also taken from the domestic water storage containers. If the quality of water in the storage containers is found to be as good as its quality at the

pump, the project will know that the health education program has been effective in at least one significant area of sanitation behavior.

5.3 Recommendation

1. If bacteriological testing of well water is continued, samples should also be taken from domestic water storage containers.

APPENDIX 1
Scope of Work

SCOPE OF WORK

1. Review the entire program and plans of the Northern Wells Project.
2. Review in particular the various facets of the health education component.
3. Identify evaluation variables, both process and outcome.
4. Develop an evaluation plan to be reviewed by CARE/Cameroon and the Government of Cameroon and revised.
5. Development of prototype evaluation protocols for use by CARE in evaluating the health education component of the project. These protocols would include sample questionnaires, data collection guides, and data management methods.
6. Assess spare parts supply.
7. Sample certain wells for bacterial quality of water.
8. Prepare a report for CARE/Cameroon and USAID/Yaounde documenting the effort and the results.
9. Debriefing at WASH.

The primary output of this effort is an evaluation plan and attached protocols for the project with particular attention to the health education component.

APPENDIX 2

Household Survey Questionnaire and Manual

MINISTRY OF AGRICULTURE RURAL WATER SUPPLY AND SANITATION PROGRAM
HOUSEHOLD SURVEY QUESTIONNAIRE

SURVEY TAKER:.....DATE :.....
 NAME OF COMMUNITY:.....
 PROVINCE:.....DEPARTMENT:.....
 NAME OF MALE HEAD OF HOUSEHOLD:.....
 ETHNIC RELATIONSHIP:.....
 NAME OF SENIOR WIFE:.....
 TOTAL NUMBER OF PEOPLE LIVING IN THIS HOUSEHOLD =

HEALTH BEHAVIOURS SECTION

Personal Hygiene

Did any of the children have mal-au-ventre or diarrhea yesterday?	NA	no	yes
Are the clothes of the senior wife clean		yes	no
Is she wearing slippers at home		yes	no
Does she have rashes or ringworm on her skin		no	yes
Are all the children wearing sandals	NA	yes	no
Do the children have clean eyes	NA	yes	no
Are the children's clothes clean	NA	yes	no
Are there signs of rashes, lice or ringworm on the children's skins	NA	no	yes

Family Water Storage and Use

Is the domestic water source a protected source		yes	no
Are all water containers covered		yes	no
Does each person use a separate cup or gourd		yes	no
Are the cups or gourds contaminated		no	yes
Is the drinking water dirty		no	yes

House Quality and Hygiene

Is there a dirt floor	no	yes
Are there faeces on the floor of the house	no	yes
Does everyone in the house sleep off the floor	yes	no
Does everyone use mosquito nets at night	yes	no

Cooking Area

Cooking area is clean	yes	no
Plates or cups on the ground	no	yes
Kitchen utensils are on the floor	no	yes
Prepared food is covered	yes	no
Evidence of animals in cooking area	no	yes
Plates are cleaned with soap and water	yes	no
Plates are dried on the floor	no	yes
Plates are dried only on a plate rack	yes	no

Clothes-washing at Home

Is clothes-washing done at home	yes	no
If yes, is there adequate drainage	yes	no
Are there clothes-lines or bush-sticks	no	yes
Are clothes dried on the ground	no	yes
Are the clothes ironed	yes	no

Toilet Habits

Does the household have access to a latrine	yes	no	
Does the household have its own latrine	yes	no	
Condition of latrine	good	poor	
Where do the children of school age go to toilet in the bush or yard	NA	no	yes
only in a latrine	NA	yes	no
Where do the very young children go to toilet in the bush or yard	NA	no	yes

on paper	NA	yes	no
----------	----	-----	----

in a special cup or plastic potty	NA	yes	no
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Cleanliness of the Yard

Is the yard swept clean		yes	no
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Do they throw refuse into bush		no	yes
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Do they use a compost fence		yes	no
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Are there any animals loose in the yard or house		no	yes
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HOUSEHOLD SURVEY MANUAL

MINISTRY OF AGRICULTURE RURAL WATER SUPPLY AND SANITATION PROGRAM REPUBLIC OF CAMEROON

Version 1 16.12.85

PURPOSE OF THE SURVEY

The purpose of the household survey is to measure changes in hygienic and sanitary behaviours targeted by the environmental health education program. By measuring such changes, health educators can see the impact that their activities are having on the community. The results of the survey can also be used by the health educators for planning their activities in the community.

The first section of the survey contains questions about the male and female heads-of-household and the number of people living in the household.

The second section is titled HEALTH BEHAVIOURS SECTION and contains 42 items related to the healthful behaviours existing in the household at the time of the survey visit. The answers to these items can be scored as 1 or 0, with 1 representing the preferred healthful behaviour or condition. The raw score for a family can thus range between 0 and 42 points per visit. However, since not all of the questions may be applicable to each and every family, the score has to be adjusted. The adjustment converts the range of scores to 0 to 100. The scores for a given household can be compared over time to see if consistent changes in behaviours have taken place. The scores can also be used to compare households and, if average scores are calculated, to compare communities or districts.

Calculation of the raw scores should be done by the health educators themselves and the results given to the Health Education Coordinator. The Health Education Coordinator should then calculate the adjusted final score for each family survey. The completed survey forms are kept in the Provincial Office in the community's file.

INSTRUCTIONS

WHO CARRIES OUT THE HOUSEHOLD SURVEY

The household survey is carried out by the Community Development Agent under the supervision of the Health Education Coordinator.

WHO TO INTERVIEW

The person to be interviewed for this survey is the senior wife or senior woman in the household. If you find that you cannot have an undisturbed interview with her alone, then do not proceed with the interview but ask her when would be a better time to come back. Do not under any circumstances interview a male head-of-household unless you come across a situation where a man is living by himself and constitutes the entire household.

A visit to a household should always start with a short introduction:

- a) who you are (if this is the first time you are visiting);
- b) the purpose of your visit - to get to know them, to do a survey, etc.;
- c) why this particular household has been chosen;
- d) state that the information received is confidential and not shared;
- e) state how much of the interviewee's time you are going to take up.

If the interviewee seems uncomfortable about the time, perhaps she had planned to do something. check this out and if so make an appointment to come back at a more suitable time. Never continue an interview if the person is plainly uncomfortable about you being there. If there is a problem with a specific household, discuss it with your supervisor.

WHEN TO USE IT

This survey is designed to be used both as a base-line and a follow-up survey. With a community that has just been selected to receive a well, the survey should be done on the households that have been picked at random by the Health Education Coordinator. The Health Education Coordinator is to choose a random sample of 10 percent of the households in each community in the project. The purpose is to document the hygienic and sanitation behaviours in the community prior to the arrival of your education program inputs. Thereafter, each time you visit the community, you should visit the sample houses to resurvey them so that by the end of a year's activities in the community, each sample household has a base-line measurement plus at least one later measurement so that you can compare scores over time on a household by household and on a community basis.

This form can also be started in communities where you have already been working for some time and where the community has already received its well. Again each randomly selected sample household should be visited at least twice in one year so that scores can be compared. Ideally, a family should be visited every 3 months, but every 6 months will be acceptable, too.

SURVEY CHECKING

When you have completed a survey, always check the form before you leave the house to see that a) all the questions have been answered and b) all the answers are correct and do not need to be changed. Once you have left the house answers cannot be changed. The completed form is to be given to the Health Education Coordinator for review and for calculating the adjusted percentage scores. The checked surveys are then to be placed into the community's file.

SCORING THE SURVEY

There is a maximum raw score of 42 points and a minimum score of 0 for each survey. Any answer in the left-hand column is worth 1 point; any answer in the right-hand column, 0 points. To determine the simple, unadjusted raw score, simply count the number of times a reply in the left-hand column has been circled.

Some questions will not always be applicable. For example, if you see no children during your visit then the questions concerning children are

indicated to be "NA" i.e. not applicable. When the District Coordinator reviews the completed forms, the scored total should be placed over the total number of applicable questions (e.g. 13/42 or 13/33, etc.) A percentage score can then be calculated (e.g. $13/42 = 31$ and $13/33 = 39$). The adjusted percentage scores, taking into account only those questions that are applicable to the household, will vary between 0 and 100.

THE SURVEY

SURVEY TAKER; DATE i.e. day, month, year (e.g. 1 August 1985)

NAME OF COMMUNITY; PROVINCE; DEPARTMENT

NAME OF MALE HEAD-OF-HOUSEHOLD

A household is defined as that number of people sharing a common cooking area. The names of the heads-of-household must be written with great care because they will be the only means of identifying a family since it is not usually possible to write down an address. This means that first names are very important for distinguishing between households that have the same surname in a community. If there is no male head-of-household, leave this blank.

ETHNIC RELATIONSHIP of the male head-of-household.

NAME OF SENIOR WIFE

If there are widows or elderly ladies living by themselves who are also heads-of-household, their names go here.

TOTAL NUMBER OF PEOPLE LIVING IN THIS HOUSEHOLD

This total will be given by adding the numbers of adult men and women and girls and boys.

HEALTH BEHAVIOURS SECTION

PERSONAL HYGIENE

DID ANY OF THE CHILDREN HAVE MAL-AU-VENTRE OR DIARRHEA YESTERDAY?

It is assumed that the informant will have accurate knowledge about her own young children as to whether they have any form of diarrhea or not. In the case of households with several wives, as each wife may only know about her own children, you might first ask the senior wife to ask the other wives for you.

ARE THE CLOTHES OF THE SENIOR WIFE CLEAN?

Do they look recently washed; are they free of dirt and stains; do they look cared-for; does it look as if she takes pride in how she looks? If so, circle "yes".

IS SHE WEARING SLIPPERS AT HOME?

At the time of your visit, if she is wearing some type of footwear effective against hookworm infection around the home, circle the "yes".

DOES SHE HAVE RASHES OR RINGWORM ON HER SKIN?

Can you see signs of skin problems; do you observe her scratching herself frequently during your visit to the household? If so, circle "yes".

ARE ALL THE CHILDREN WEARING SANDALS

This refers to all the children who you see on their feet around the home. If there are no children, circle the answer NA (Not Applicable). If only some of the children are wearing sandals and others are not, then circle the reply "no".

DO THE CHILDREN HAVE CLEAN EYES?

If any of the children's eyes are red with conjunctivitis, if a child is rubbing its eyes frequently, if there are flies around the eyes, if there is pus around the eyes, then answer "no". If none of the children appear to have eye problems, the faces and the eyes look clean as if washed that day, then answer "yes". If you see no children during your visit, answer "NA".

ARE THE CHILDREN'S CLOTHES CLEAN?

If the children look as if they have not washed for several days or if their clothes look very dirty, then circle the answer "no". If you see no children, circle the answer "NA".

ARE THERE SIGNS OF RASHES, LICE OR RINGWORM ON THE CHILDREN'S SKINS?

Answer "yes" if you see signs of skin problems on any of the children you see in the home. If some children are frequently scratching their heads or their bodies, then circle the reply "yes". If you do not see any children during your visit, then circle the answer "NA".

WATER STORAGE AND USE

IS THEIR DOMESTIC WATER SOURCE A PROTECTED SOURCE

Domestic water means water used at home no matter for what purpose. Of interest is where they are getting their water now, at the time of your survey, not at other times of the year. If they are using more than one source, note them down. The best person to ask this question would be the person(s) responsible for fetching the water. If their only source is a protected one, they get 1 point. If any of their sources are unprotected, they get 0 points.

ARE ALL WATER CONTAINERS COVERED?

If any containers used for storing domestic water, whether for drinking or not, are uncovered at the time of your visit, the answer you circle is "no".

DOES EACH PERSON USE A SEPARATE CUP?

Do people drink from the same cup or gourd, in that case reply "no". Only if each person uses a separate cup or gourd when drinking water should you circle the "yes". Where possible, this should be based on direct observation. If this is not possible, you may ask the informant.

ARE THE CUPS OR GOURDS CONTAMINATED?

If the cups or gourds used for taking drinking water out of the water storage container are left sitting on a table or on the floor between uses, one assumes that they become contaminated. If a cup or gourd is kept on a hook on the wall, then one can assume that they will not easily become contaminated.

IS THE DRINKING WATER DIRTY?

Ask which containers are used for drinking water and look inside them. If the water looks dirty or you can see particles indicating that the container is not cleaned out frequently, circle the "yes".

HOUSE QUALITY AND HYGIENE

IS THERE A DIRT FLOOR?

Observe the floor of the house. Is it made of dirt/earth/mud? If so, circle "yes". If the floor is made of cement, tile or wood, then answer "no". If the floor material is made of cement, wood or tile but it is in need of repair with large holes or a broken surface, then answer "yes".

ARE THERE FAECES ON THE FLOOR OF THE HOUSE?

This includes droppings of any sort including those of chickens and ducks.

DOES EVERYONE IN THE HOUSE SLEEP OFF THE FLOOR AT NIGHT?

Off the floor means on beds, cots, or on raised platforms. If anyone sleeps on the floor on mats, the answer is "no". You will have to ask about this.

DOES EVERYONE USE MOSQUITO NETS AT NIGHT?

Observe or ask if people use mosquito nets for sleeping. If everyone does, then circle "yes"; if only some do, then circle "no".

COOKING AREA

IS THE COOKING AREA CLEAN?

For the answer to be "yes", the cooking area should be swept, the ashes and refuse from yesterday removed, no faeces on the floor, and no animals in the cooking area.

ARE THERE PLATES OR CUPS ON THE GROUND?

In the kitchen area or elsewhere in the house. If you see any on the ground, the reply is "yes".

ARE KITCHEN UTENSILS ON THE FLOOR?

These include the rice and sauce spoons and any other utensils used for preparing or stirring food. If any are on the floor, the answer is "yes".

IS PREPARED FOOD COVERED?

Circle "yes" if all the cooked and finished food is covered completely by lids or clean cloths.

IS THERE EVIDENCE OF ANIMALS IN THE COOKING AREA?

Circle "yes" if any animals or their faeces are seen in the cooking area, including chickens, dogs and ducks, unless the animals are caged in some way. If there are chickens in the kitchen area, for example, but they are kept covered by a basket, then the answer can be "no". If there are no other animals seen there during your visit to the cooking area, then the answer is "no". If there is a barrier to keep out animals and it is in place, the answer is "no".

ARE PLATES CLEANED WITH SOAP AND WATER?

PLATES ARE DRIED ON THE FLOOR

If you see plates being dried at floor level, the answer is "yes". If some of the plates are dried on a plate rack but others are dried on the floor, the answer is still "yes". If all the plates are dried in baskets or pans or on a plate rack, then the answer is "no".

ARE PLATES DRIED ONLY ON A PLATE RACK

If all the plates are only dried on a plate rack that is unreachable by animals and birds, then the answer is "yes". If some of the plates are dried in a basket or pan or the plate rack is outside where it can be fouled by bird droppings, then the answer is "no". A plate rack should be indoors in the house or kitchen area protected against dirt and contamination.

CLOTHES-WASHING AT HOME

IS CLOTHES-WASHING DONE AT HOME?

Is there a large cement stone, bench or board on which members of the household wash clothes at home? It is assumed that if clothes-washing is done at home that a) clothes-washing is done more frequently than if one has to go to a stream, swamp or river and b) that lots of water is available close to the house.

IF YES, IS THERE ADEQUATE DRAINAGE?

If there is evidence of standing water or unusually wet ground resulting from clothes-washing at home, circle the answer "no". If clothes-washing is not done at home, and the question therefore does not apply, do not circle "yes" or "no".

WHERE DO CHILDREN OF SCHOOL-AGE GO TO THE TOILET...IN THE BUSH OR YARD?

Answer this by direct observation if possible; otherwise, ask some of the children. If any of the school-age children use the yard or bush at anytime, then the answer is "yes". Only if the children never use the yard or bush should the answer be "no". If there are no children in the family, then the response should be "NA".

ONLY IN THE LATRINE?

For this you will have to ask the children directly. If they only use a latrine, the answer is "yes". If they defecate in the fields or outside a latrine, the answer is "no". If there are no children in the family of school-age, then the answer is "NA".

WHERE DO YOUNG CHILDREN GO TO THE TOILET...IN THE BUSH OR YARD?

Young children refers to those not yet of school-age, i.e., 0 to 5 or 6 years old. Answer this by direct observation if possible. If not, ask an older child about what the youngest children do. If the children can defecate anywhere or their faeces are thrown into the bush, the answer here is "yes". If there are no children of this age in the family, the answer is "NA".

ON PAPER?

If the child defecates on paper and the paper is thrown into the latrine or is burned, then the answer is "yes". If the paper is thrown into the bush or disposed of in some other unsanitary way, the answer is "no".

IN A SPECIAL CUP OR PLASTIC POTTY?

If the children defecate into a special receptacle and the contents are then put into the latrine, then circle "yes". If the contents are disposed of in an unsanitary way, or if the container is used for any other purpose, then the answer is "no".

CLEANLINESS OF THE YARD

IS THE YARD SWEEP CLEAN?

Answered by direct observation. There should be no rubbish visible in the yard.

DO THEY THROW REFUSE INTO THE BUSH?

Use your own observation to answer the question. Even if they also bury, burn or compost, if they also throw into the bush, circle the "yes".

DO THEY USE A COMPOST FENCE?

Use your own observation go get the answer.

ARE THERE ANY ANIMALS LOOSE IN THE YARD OR HOUSE?

APPENDIX 3
Community Survey

FICHE D'ETUDE DE LA COMMUNAUTE

PROGRAMME D'EDUCATION SANITAIRE CARE/DEVELOPPEMENT COMMUNAUTAIRE
- MAYO TSANAGA, MAYO SAVA ET DIAMARE -

PROVINCE : L'Extreme-Nord
DEPARTEMENT : MAYO-TSANAGA
ETHNIE : MAFA
NOM DU VILLAGE : MAGOUMAZ
DATE D'ETUDE : 3/3/85
ETUDE FAITE PAR (L'ANIMATEUR) : Poulda Bougé Félix

I N S T R U C T I O N S

1. Recueillir d'abord ces informations sans les juger, mais les analyser à la fin du recueil pour voir les relations des cause à effet.
2. Cette fiche vous permet de bien connaître votre milieu pour bien fixer les objectifs des différents sujets sur l'éducation pour la santé.
3. Cette fiche doit être remplie en deux (2) exemplaires dont l'un sera conservé dans le dossier de site (village) concerné à la section départementale du développement communautaire de votre ressort (Mokolo, Mora ou Maroua), et l'autre au bureau du programme d'éducation sanitaire CARE-Mokolo.
4. Elle doit être remplie dans chaque village avant le début des activités d'éducation sanitaire c'est-à-dire pendant la phase du creusement du puits.
5. Ces informations que vous allez obtenir auprès des différents membres de la communauté (des villages sites) constituent les informations de base nous permettant d'évaluer efficacement nos activités à court terme, à moyen terme et à long terme.

I- - SITUATION ET POPULATION DU VILLAGE

- 1.1 Limite du territoire :
- Au Nord - GOLDA
 - au Sud - Barrage Mayo-Tsamaga
 - à l'Est - ZIVER et VOUZOD
 - à l'Ouest - LDAMA

Relief du sol :

- Plat
- Montagneux X
- Autre

1.2 Population totale : (Voir bureau de recensement de votre localité).

<u>Sexe</u>	<u>Age</u>			
	0 - 5	6 - 15	16 - 45	45 & plus
Masculin	306	661	541	187
Féminin	266	602	666	245
TOTAL	572	1263	1207	432

} = 3474

II - SITUATION PARTICULIERE DU VILLAGE

2.1 Historique

Origine de la population SOGON au Nigeria partent par Mogadé quartier Madambom sont venus de Vindéki

Origine des Chefs SOGON Canton Mogadé Mogadé. Ils sont les pères du village Sogon parce qu'il ont tué un sorcier

Grands mouvements humains Briquets migrants = 50 ans Guerre avec HEMEDJE

Evenements historiques importants _____

2.2 Religion et Crovances

Chrétien : = Catholique Protestant

Musulman 9 sarés

Autres : païens

Quelles sont les croyances, les coutumes et les principaux interdits de la communauté vis-à-vis :

- a) de la mort sorcellerie, l'autrophage, Médicament
- B) des naissances le nom doit le Baptême de l'enfant est faite par le sorcier
- c) du mariage un autre clan ne doit pas se marier avec les sorcier
- d) des enfants Les enfants ne doivent pas participer à la réunion
- e) de la femme enceinte pas des nuits dehors, ne mange pas la sucrerie pas de relation avec son même avin

- f) de l'éducation C'est une bonne chose le enfant sera comme un bla
- g) de l'allaitement on ne mange pas la panthère, la nourriture est de la pan
- h) du sevrage Il faut 2 ans avant de faire la religion sexuelle.
- i) de l'aliment (nutrition) on ne doit pas manger n'importe quoi com
- j) des moeurs sexuelles on craint une femme qui a perdu son mari ^{le forgeron}
- k) de la prévention des maladies diverses il faut avoir le forgeron ^{le forgeron} d'avance pour vous indiquer la maladie qui vous arrivera.
- l) des soins aux maladies (enfants et adultes) voir Guérillan, forgeron et féticheurs.
- m) des vaccinations fait mourir les gens, fait souffrir les enfants
- n) autres le chef de village ne mange pas avec le forgeron

III - Groupe au village :

- Parti : UNC personne à contacter : chef village
- Comité de Développement : personne à contacter: les leaders.
- Comité de santé (groupe des leaders villageois et leurs noms)

- | | |
|----------------------|-------------------|
| 1- Gondai' Hahad | 9- Gondai' Hahad |
| 2- Galde' Koumtsai | 10- Kouche' Kalda |
| 3- Ngaronu Kaviaou | |
| 4- Ldeuldeuk ouléo | |
| 5- Dzavai' Hawadak | |
| 6- Dakwa Bérinno | |
| 7- Ton goncté quédé' | |
| 8- Blaï' Hahad | |

Le comité de développement ou de santé a-t-il déjà entrepris des actions d'intérêt communautaire ? Si oui lesquelles ?

Construction de l'école, creusement des puits locaux et le puits CARE/DC

Quel était le niveau de participation ?

- des hommes : 60%
- des femmes : 10%
- des enfants et Ecoliers : 0%
- des Elites extérieurs : 0%

IV - Infrastructures d'encadrement et équipement du village

- 1 - Eau Potable Puits locaux (nombre) = 50
- Mayo (nombre) = 4
- Source (nombre) = 20

2 - Routes carrossables 4 Km

- Pistes 38 Km

- Climat : Chaud pendant 3 mois

3 Ecole Primaire

4 - Centre de santé (dispensaire)

5 - Marché (jour) Dimanche

6 - Autres services (Publics ou Privés) : Mission Catholique,
CAREIDO

V - Situation économique du village :

4.1 Culture d'exportation

Culture :

Mil ?

Maïs ?

Arachides ?

Patates ou pommes de terre ?

Fruits ?

Légumes ?

Nyabé ?

Mois de récolte :

Octobre

Août

Septembre

Décembre

-

-

-

4.2 Cultures vivrières

Culture :

Mil ?

Maïs ?

Arachides ?

Patates ou Pommes de terre ?

Fruits ?

Légumes ?

Nyabé ? C'est pas l'époque de récolte cet année sauf en 1985

Sorgho ?

Mois de récolte :

Octobre

Août

Septembre

Décembre

-

-

4.3 Production animale

Quels sont les animaux domestiques couramment élevés dans le village ?

Vaches oui

Cochons non

Moutons oui

Chèvres oui

Poules oui

Anes ou Chevaux non

Quels sont les animaux entrant dans l'alimentation des populations

chèvres, moutons, poules, boeufs

Quels aliments le village importe-t-il de la ville ?

huile arachide, cigares, bière et top poison, beignets -
sucre, bourbon, lait en boîte, taurillon d'arachide

4.4 Autres occupations de la population

Quels sont les domaines où la population dépense le plus son revenu ?

Alcool _____

Mariage _____ X

Nutrition _____ X

Autres cérémonies _____

VI - Etat de santé de la population (indice sanitaire du milieu)

5.1 Quelles sont les maladies les plus courantes dans le village chez :

- Les femmes 17 écoulements, poitrine, rhume
- Les hommes gonorrhée, maux de dos, folie et maux des dents
- Les enfants Ascario, taenia, maux de tête, fièvre
- Les nourrissons diarrhée, vomissements, fièvre

5.2 Que pense la population de ces maladies ?

Sorcelerie diable (Facalao) appelé par les ancêtres qui sont
morts depuis des années pour faire leur travail
diable de montagne et diable de l'eau, nourriture et sans ce sorci

5.3 Où vont les villageois en cas de maladie ? Mépasé

- Chez le guérisseur _____ X

- chez le marabout _____

- au dispensaire _____ X

- restent couchés à domicile sans se soigner _____

5.4 Indices sanitaires du milieu :

Le village est-il assez propre _____ B

propre _____ X

très propre _____

Latrine : - nombre des concessions avec latrines bien entretenues et
couramment utilisées toutes concessions il ya des latrines

- nombre de concessions sans latrine. 0

- Distance entre latrine et la maison (en général) 3 mètres.

APPENDIX 4

Health Education Presentation Evaluation Form

Health Education Presentation Evaluation Form

Presenter Name _____ Job Title _____
 Location _____ Time _____ Date _____
 Subject/Topic _____ Audiovisual aids used _____
 Audience: Total number present _____ (men _____ women _____ children _____)
 Total number of women of childbearing age present _____
 Has this topic been presented in this area before? Yes _____ No _____

<u>Content</u>	<u>Strongly Agree</u>	<u>Agree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
1. Factual information presented was accurate	_____	_____	_____	_____
2. Information was relevant and appropriate for the audience	_____	_____	_____	_____
3. Coverage of the topic area was adequate	_____	_____	_____	_____
4. The content was well organized	_____	_____	_____	_____
5. Content fulfills a significant health information need	_____	_____	_____	_____
6. Content was appropriate. (Check all which apply)	_____	_____	_____	_____

<u>Sex</u>	<u>Age</u>	<u>Groups</u>
_____ Male	_____ Adolescents	_____ General public
_____ Female	_____ Young adults	_____ Health committee members
	_____ Over 21	_____ Students only
	_____ Elderly	_____ Village leaders

7. Overall quality of content was: ___ excellent ___ good ___ fair ___ unacceptable
 8. Additional comments about content quality: _____

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
9. The style of the presentation was interesting and appealing	_____	_____	_____	_____
10. The important points were reviewed and summarized	_____	_____	_____	_____
11. Audience participation was adequate	_____	_____	_____	_____
12. The program message was clear	_____	_____	_____	_____
13. Overall the educational quality of the program was: (check only one)				
_____ Excellent _____ Good _____ Fair _____ Unacceptable				
14. Additional comments about the educational quality of the presentation:				

Evaluator's Name _____ Signature _____

This presentation:	<u>Strongly Agree</u>	<u>Agree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
1. Addresses the benefits of new behaviors	_____	_____	_____	_____
2. Addresses the risks of current behavior (not strong fear message)	_____	_____	_____	_____
3. Provide specific behavior steps for the audience to follow	_____	_____	_____	_____
4. Provide a range of behavior choices	_____	_____	_____	_____
5. Dispels misconceptions regarding the subject	_____	_____	_____	_____
6. Provide up-to-date and factually accurate information	_____	_____	_____	_____
7. Provides a sufficiently thorough treatment of the subject	_____	_____	_____	_____

Style

1. The concepts and terms are clearly defined and conveyed	_____	_____	_____	_____
2. The number of concepts were limited and easily remembered	_____	_____	_____	_____
3. The presentation is of manageable length too long _____ too short _____	_____	_____	_____	_____
4. The presentation is engaging and interesting	_____	_____	_____	_____
5. There is a suitable mix of lecture and example	_____	_____	_____	_____
6. The narration, dialogue and examples are believable	_____	_____	_____	_____

Overall Recommendation

Given the target audiences and general purposes (noted above), I would:

- Highly recommend
 Recommend the presentation
 Recommend the presentation with reservations
 Not recommend the presentation

Comments: _____

Name _____ Position _____ Date _____

Audiovisual materials Evaluation Form
CARE/Mokolo

Title: _____
Subject area: _____ Format: _____
Length: _____ Produced by: _____

Target Audience

For what group is this presentation appropriate?
age _____ education _____ ethnic group _____
sex _____
Other target audience characteristics _____

(Note:) In judging the target audience, the following factors should be considered:

1. What level of language will be used.
2. The degree of sophistication of the materials or concepts.
3. The people used as subjects or examples; are they appropriate?
4. What types of activities are used as examples (cost, accessibility)?
5. What scenes are being used in examples?
6. If women of childbearing age do not attend the initial presentation, how can a second session be promoted to include their attendance?

Person Presenting Information

1. Minimal requirements necessary to present materials (e.g., literacy, local language, etc.) _____
2. Special or additional props necessary to reinforce major points _____
3. Suggestions for the presenter _____

Content

1. Purpose of the presentation is to:
_____ a. motivate audience to change by providing introduction to the subject
_____ b. provide new skills through a specific behavior change program
_____ c. reinforce previous behaviors

Specify precisely how this material/presentation could be used _____

APPENDIX 5

Health Education Material Evaluation Checklist

A Checklist for the Qualitative Evaluation of CARE/Cameroon
Health Education Materials
One Time, for HEED Coordinators

1. Do the health education materials presently used adequately meet the needs of the specific target populations? Why/why not?
2. Besides providing factual information, do the materials used assist the community development agents in addressing local attitudes and values before attempting to teach necessary skills or promote and encourage healthy behavior change?
3. Do the materials allow the community members to test their knowledge while they still are actively involved in the learning process?
4. Do the materials promote two-way communication between the community development agent and the villagers? Why/why not:
5. Besides addressing the many waterborne related illnesses associated with the use of dirty (or misuse of clean) water and poor sanitation habits, do the materials offer recommendations for changing locally specific behaviors and the possible outcome of those healthy behaviors? Why/why not?
6. Are the materials designed around a positive approach to knowledge, attitude, or behavior change?
7. Do the materials assist the community development agent in how to personalize behavior change so as to allow differing population groups the opportunity to focus their efforts on an locally relevant aspect of reducing their risk to a community-identified health problem?
8. Does the community development agent understand the specific behaviors/attitudes that the different health education materials are trying to influence?
9. Although the factual information of the health education materials may be relatively clear to the project's community development agent and the community receiving the information, are the learning objectives for the various materials clearly outlined for review before the village presentations are made?

Note: "Community Development Agent" was used in this check list because they are the primary providers of health education for the project. Questions in this check list also are relevant to other project field representatives such as school teachers, village leaders, and village health committee members.

APPENDIX 6

Membrane Filter Analysis Protocol

Steps in Membrane Filter (MF) Coliform Analysis

1. Samples kept cool (but not iced) 2-6 hours before filtration.

2. Samples filtered as follows:

-0.1 ml using 0.5 x .01 ml graduations pipette, with sterile buffer dilution water used to make up to convenient filtration volume and to wash down filter between replications (about 5 ml total dil. water). 2 replications

-1.0 ml using exact same technique

-stainless steel Millipore vacuum filter apparatus sterilized by intense, brief heat (as for forceps) between different samples

-filters were 0,45 μ Millipore glass fiber filters, presterilized.

3. Samples incubated as follows:

-filters placed in individual Millipore sterilized plastic petri dishes containing a filter pad soaked with 2 ml MEMCO media obtained from Millipore vials (expiration date August 1985)

-plates were incubated at $35.5^{\circ}\text{C} \pm 0.5^{\circ}$ for 24 or 48 hours using Millipore field incubator on constant supply 220V AC current verified with independent thermometer

APPENDIX 7

Bacteriological Sampling Results

BACTERIOLOGY SAMPLING OF 14 SOURCES

<u>Well Site</u>	<u>Sample in ml.</u>	<u>Membrane Filter Coli</u>	<u>Total Coliform</u>	<u>Coliform Confirmation</u>
Talakatch	1.0	5	5	Yes
	1.0	4	0	No
	0.1	0	0	
	0.1	1	0	
Mogode	1.0	6	17	No
	1.0	5	21	
	1.0	4	-	
	0.1	3	2	
	0.1	1	0	
Djinglia	1.0	5	7	No
	1.0	5	7	No
	0.1	0	6	
	0.1	1	0	
Sabongare	1.0	tntc*	tntc	No
	1.0	tntc	tntc	
	6.0			
	0.1	5		
Katansa Well	1.0	50	5	No
	1.0	47	5	
	0.1	3		
	0.1	11		
Magave Curo Guele	1.0	4	1	Yes
	1.0	3	7	
	0.1	1		
	0.1	0		
Mokolo	1.0	0	0	-
	100.	1	0	No
	200.	1	0	-
Berawa	1.0	1	1	
	1.0	-	1	
	0.1	0	-	
	0.1	0	-	
Tokombere Ecole	1.0	0	1	
	1.0	13	7	
	0.1	8	-	
	0.1	1	-	

* tntc - too numerous to count

BACTERIOLOGY SAMPLING OF 14 SOURCES (cont.)

<u>Well Site</u>	<u>Sample in ml.</u>	<u>Membrane Filter Coli</u>	<u>Total Coliform</u>	<u>Coliform Confirmation</u>
Curo Eoki	1.0	35	8	Yes
	1.0	31	8	
	0.1	6	-	
	0.1	5	-	
Higawa	1.0	40	tntc	
	1.0	36	4	
	0.1	2	-	
	0.1	3	-	
Magoumaz Stream	1.0	tntc	tntc	Yes
	0.1	26	-	No
	0.1	20	104	-
Magoumaz Well	1.0	6	0	No
	1.0	5	0	
	0.1	3	0	
	0.1	2	0	
Magoumaz (house randomly selected)	1.0	92	10	Yes
	1.0	103	13	-
	0.1	8	-	No

APPENDIX 8

School Health Impact Survey Results, Magoumaz
1983-1985

ENQUETE SUR L'ETAT SANITAIRE DES COLIERS DE MAGOMA 2

9.3.85

- Affections cutanées
- Maladies à transmission hyrique.

DATE : 13 DECEMBRE 1983

NOM ET PRENOMS	Age	Sexe	Localité	Classe	Examens	PARASITES					
						Clinique	Amibe	Tricho- monas	Sal. Col.	Gier- lia	Asca- ris Anky- lostom
52 Koule Méréguam	11ans	♂	-12	CEI	RAS	RAS	RAS	RAS	RAS	RAS	
53 Santara Mamai	11ans	♂	-11-	CEI	RAS	RAS	RAS	RAS	RAS	RAS	
54 Festoma Wabao	11ans	♂	-12	CEII	RAS	RAS	-	-	-	-	
55 Medaka Wabao	10ans	♂	-11-	CEI	Plaie	RAS	-	-	-	-	
56 Beld Belma	10ans	♂	-11-	CEI	Plaie	RAS	-	-	-	-	
57 Machoché Yagai	11ans	♂	-11-	CEII	RAS	RAS	-	-	-	-	
58 Agolok Baitick	10ans	♂	-11-	CEII	Plaie	RAS	-	-	-	-	
59 Koukoye Zangoua	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	-	
60 Katakam Makorai	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	-	
61 Zawai Agai	11ans	♂	-11-	CEI	RAS	RAS	-	-	-	-	
62 Haida Mahamad	10ans	♂	-11-	CEII	Plaie	RAS	-	-	-	-	
63 Yakadam Zahogri	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	-	
64 Agache Begech Matakou	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	-	
65 Niche Grandai	10ans	♂	-11-	CEII	RAS	RAS	-	-	-	-	
66 Nijé Wabao	10ans	♂	-11-	CEI	RAS	RAS	-	-	-	-	
67 Noyaha Baké	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	+	
68 Wschelem Susmanou	11ans	♀	-11-	CEI	RAS	RAS	-	-	-	-	
69 Medwechi Wabao	10ans	♂	-11-	CEI	RAS	RAS	-	-	-	-	
70 Tchélése	11ans	♂	-11-	CEI	RAS	RAS	-	-	-	-	
71 Midaho Wabao	13ans	♂	-11-	CEII	RAS	RAS	-	-	-	-	

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105	METEWECHAWAADA	14	MAX	Magouma	CEI	AAS	X	X				X
106	YAYA BATENA	13	-11-	Sougoile	-11-	AAS		X				X
107	BAYA JIVELIN	14	-11-	-11-	-11-	AAS	AAS					X
108	TOLDEHERE	10	-11-	Magouma	-11-	AAS	X					X
109	MIDAO-WALA	12	-11-	-11-	-11-	AAS	AAS					X
110	MOMANDAN KISHO	13	-11-	-11-	-11-	AAS	AAS					X
111	Dipolawa Digo	11				CHI						

27	Fouadagoua	Bihadai	12ans	♂	-11-	CE II	RA
28	Hamidou	Boubakari	13ans	♂	-11-	CE II	RA
24	Touldem	Builbai	10ans	♂	-11-	CMI	RA
25	Gandhi	Kochep	12	♂	-11-	CMI	RA
26	Chuche	Zoubai	18ans	♂	-11-	CMI	RA
27	NGOTSHO	mehecho	13ans	♀	-11-		RA
28	Kagoram	keurum	12ans	♂	-11-	CE II	RA
29	Tchuet	Kelwed	13ans	♀	-11-	CE I	Pla
30	Fanta	Aakka	13ans	♀	-11-	CE II	RA
31	Kouldai	Agai	11ans	♂	-11-	CMI	RA
32	Volime	Bilbai	10ans	♂	-11-	CE I	RA
33	Kejike	Boubakari	11ans	♂	-11-	CE II	Pla
34	Goujok	Stouba	14ans	♂	-11-	CE II	RA
35	PANDA	Kochep	10ans	♂	-11-	CE II	RA
36	Filam	Yamai	13ans	♂	-11-	CE II	RA
37	Dantjai	dekoloch	10ans	♂	-11-	CE II	Pla
38	Agai	MARRA	11ans	♀	-11-	CE I	RA
39	Hecheket	Waiwawa	10ans	♂	-11-	CE II	RA
40	KOKOM	Nguekam	11ans	♂	-11-	CE II	RA
41	Mounagai	Albele	11ans	♂	-11-	CE II	RA
42	FEKouel	Koumie	10ans	♂	-11-	CE II	RA
43	Zavai	Boukoulai	10ans	♂	-11-	CE I	RA
44	Hwa	Zambra	11ans	♂	-11-	CE II	RA
45	wetcherem	Kondai	10ans	♀	-11-	CE II	RA
46	Koyak	Gratak	10ans	♀	-11-	CE I	RA
47	MARAIWA	viche	11ans	♀	-11-	CE I	RA
48	Zogom	KALTA	11ans	♂	-11-	CE I	RA
49	Zogom	Petibe	10ans	♂	-11-	CE II	Pla
50	Bouba	Agai	10ans	♂	-11-	CE II	RA
51	Kroukrou	Makoché	11ans	♂	-11-	CE II	RA

ENQUETE SUR L'ETAT SANITAIRE DES ECOLIERS DE MAGOUMA 2

$K+ =$
 $AS + AN =$
 flagrantyl donnee =
 contrainte donnee =

- Affections cutanées
- Maladies à transmission hydrique.

DATE : 13 MARS 1985
 13 MARS 1985

71 élèves examinés
 $K+ = 10$
 $AS + AN = 4$
 flagrantyl
 contrainte

NOMS ET PRENOMS	Age	Sexe	Localité	Classe	Examens cliniques	PARASITES					Coati	
						Amibe	Trichomonas	Sal. Col.	Giarlia	Ascaris Ankylostom		flagrantyl
1. SAKATAI Gueme	14ans	♂	Magoouma	CMI	Plum S	K +	+	RAS	RAS	RAS		
2. BANOU LOU LOU	14ans	♀	Magoouma	CMI	RAS	K +	+	RAS	RAS	RAS		
3. SOULAI HAIMA	12ans	♀	"	CMI	RAS	+	+	"	"	"		
4. WEDJANI BEKOUON	10ans	♂	"	CMI	Plum OBT	K +	+	"	"	"		
5. GOTTON BAWADAI	13ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
6. PLESEK NGAROMA	14ans	♂	"	CMI	"	RAS	RAS	RAS	RAS	RAS		
7. Zoubi BANGHA	13ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
8. Bamba BANGHA	14ans	♂	"	CMI	RAS	+	+	RAS	RAS	+		✓
9. MIFTAKON KALAZAVAI	16ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
10. HDEKONGA CHEWET	16ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
11. GUILANO BJORDE	14ans	♂	"	CMI	Plum	+	+	RAS	RAS	RAS		
12. KADI DIKRI	13ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
13. GAOZAI NZAVOUA	16ans	♂	"	CMI	RAS	RAS	RAS	RAS	RAS	RAS		
14. GOKAI BEURIME	16ans	♂	"	CMI	RAS	+	+	RAS	RAS	RAS		
15. BAWMA ZACHAI BARONA	15ans	♂	"	CMI	RAS	RAS	"	"	"	"		
16. GOLAAM BELAI	15ans	♀	"	CMI	RAS	RAS	"	"	"	"		
17. Zoumikai	14ans	♀	"	CEII	RAS	RAS	"	"	"	"		
18. TAGOHO NASTO	11ans	♀	"	CEII	Plum	+	+	"	"	"		
19. GRADACK RICHKOT	14ans	♂	"	CMI	RAS	RAS	+	"	"	"		
20. BERDIN CHEWOUNE	16ans	♂	"	CMI	RAS	RAS	+	"	"	"		
21. BANGHA MATAKON	13ans	♂	"	CEII	RAS	RAS	RAS	RAS	RAS	RAS		

18 PEUKPEUK	12	Max	Magama	CHI	RAS	AAS					
19 XKIDE DIKAI	11	-11-	-11-	CMII	epidemiology	AAS					
20 XTAGOHO WARRA	10	Fem	-11-	CHI	Plais + epida	nyayox					
21 GUILIKAI MAHAL	14	Max	-11-	-11-	Plais						
22 XGRADAD RECHEKE	13	-11-	WAI	Magam	-11-	epidemiology					
23 XGHOZAI NZAYOI	14	-11-	HBichi	CMII	AAS						
4 XNDERTEN CHEWENE	16	-11-	ZIBH	CHI	AAS	AAS					
5 TEFKAI KELEVE	9	-11-	BAWALA	CHI	AAS						
6 XGOAKAI BEVIHE	14	-11-	woula	CMII	AAS						
7 XBOURKWA HATAKAM	18	-11-	Magama	CHI	epidemiology	AAS					
8 XFDUDA ONKWA DIEJAI	10	-11-	-11-	CETI	epidemiology	AAS					
9 XHAHIDOU BOUBAKAI	12	-11-	-11-	-11-	AAS	AAS					
10 DAYVOYAK KELEVET	12	-11-	-11-	-11-	LEISHN.						
1 XTOULDEM GUIBAI	12	-11-	BIJE	-11-	AAS	AAS					
2 XGANDAI KOCHF	8	-11-	NDOUGA	-11-	AAS						
3 XCHEWELE ZEBAI	10	-11-	LIBAM	-11-	epidemiology	inx					
4 XNGOTCHOP MEHEJE	10	-11-	WAKHOU	-11-	AAS	AAS					
5 KOLAGAI MAFTAKOI	18	Fem	Magama	-11-	AAS	AAS					
6 TOLTAI YAGHI	10	-11-	TEGou	-11-	AAS						
7 KALDAOSSA	11	Max	-11-	-11-	Plais	AAS					
8 XZAGORAM DEUREM	11	-11-	MBIJE	-11-	AAS	AAS					
9 XBANOU LEOU LEOU	12	-11-	BAOLAH	-11-	epidemiology	epidemiology					
0 XTCHIVET KELEVET	10	Fem	GRAEMAI	-11-	AAS						
1 HAIMAI BELDE	12	Max	TEGou	-11-	AAS						
2 XFANTA DAGHA	11	Fem	IBIJE	-11-	AAS	AAS					
3 YAGAI DIGAI	12	MAX	-11-	-11-	AAS						

44

WANDALA SOAHA

62	SILOUA TAGUEDA	12	Max	Songoule	CEI	GALE	RAS						
63	XIVA ZAMBA	11	-11-	Magoumaz	-11-	AAS	RAS	X					
64	SALIDOU BAVA	10	-11-	Songoule	-11-	AAS RAS	RAS						X
65	XWATCHEDEM KONDAL	10	-11-	Magoumaz	-11-	AAS	RAS						
66	XDAOYAK GAADAK	9	Fem	Songoule	CEI	AAS	RAS					X	X
67	XMEVAIWA VICHAN	9	-11-	Magoumaz	-11-	AAS	AAS						
68	XZAGOM KALDA	10	Max	Songoule	-11-	POUXHAI	RAS						
69	XZAGOM PETERE	10	-11-	Magoumaz	-11-	AAS RAS	AAS						
470	XBOUBA DIGAI	9	-11-	-11-	-11-	POL. F. POUXHAI	AAS						X
471	XGOUAKDAI MAGOUCHE	10	-11-	Songoule	-11-	AAS RAS	RAS						X
472	XKAULE MELEGUEM	10	-11-	-11-	-11-	AAS RAS	RAS						X
473	XGIBAI DELIA	10	-11-	Magoumaz	-11-	AAS	AAS						X
474	LAGOUA VIOK	10	-11-	Songoule	-11-	AAS	AAS						X
575	XSAWADA DANAI	10	-11-	-11-	-11-	AAS	AAS						X
576	XFEOUTE ME WARHO	10	-11-	-11-	-11-	AAS	AAS						X
577	XMEDEKE WASSA	9	-11-	-11-	-11-	POUXHAI	RAS						X
578	SOULEHE WELEME	9	-11-	-11-	-11-	AAS	RAS						X
579	SALI KOUZED	10	-11-	-11-	-11-	RAS	RAS				X		
580	XBELE NDELME	9	-11-	Magoumaz	-11-	AAS	RAS						X
581	XMAGOUCHE YAGAI	10	-11-	Songoule	-11-	AAS	RAS						X
582	XDEGOLOK BAITEVE	9	-11-	-11-	-11-	POL. F. POUXHAI	AAS						X
583	XKONA KOLONGAI	10	Fem	Magoumaz	-11-	AAS	RAS						X
584	XAKOYA ZANGOUA	10	-11-	-11-	-11-	AAS RAS	RAS						X
585	XDASSA KON MAKORE	10	-11-	Songoule	-11-	AAS RAS	RAS						X
686	XZAVAI DIGAI	10	MAX	Magoumaz	-11-	TRIQUERAS	RAS						X
687	FANTA KLAFDA	10	Fem	-11-	-11-	POUX	RAS						X

ENQUETE SUR L'ETAT SANITAIRE DES ECOLIERS DE M A G O U M A Z

- Affections cutanees
- Maladies a transmission hydrique.

D A T E : 13 DECEMBRE 1983

NOMS ET PRENOMS	Age	Sexe	Localité	Classe	Examens cliniques	PARASITES					Co t
						Amibe	Trichomonas	bal. Col.	Giardia	Ascaris Ankylostom	
44 ADJOU LAI DIGAI	10	MAX	ZABA	CE II	AAS	AAS					
45 WATHEREN ZAMBA	13	Fem	goulbato	-11-	AAS	AAS					
46 WA BAD GAABAI	12	MAX	BAKATO	-11-	AAS	AAS					
47 GOLIMENDEJBAI	9	-11-	Sougoulo	CE I	AAS						
48 KEGKE NDEUVAHAI	10	-11-	NDouyga	-11-	AAS	AAS			X		
49 NGOLDE NGOL NGODA	10	-11-	Gnamangai	-11-	AAS				X		
50 NGOJER HAI'BAI	10	-11-	Madambou	-11-	AAS				X		
51 PAMO A KOCHF	9	-11-	LEUBAI	-11-	AAS	AAS			X		
52 XFILEM YAHAI	12	-11-	Hayoumay	-11-	AAS				X		
53 XNDA MCHAI DEKOLECH	9	Fem	Sougoulo	-11-	AAS	AAS			X		
54 XDIGAI MASSARA	10	MAX	-11-	-11-	AAS				X		
55 XHECHEKE GAI'BAVA	9	-11-	Hayoumay	-11-	AAS	AAS			X		
56 XKAKOM GUESSAN	10	-11-	Sougoulo	-11-	AAS				X		
57 MOUSSA NGOYH	10	-11-	-11-	-11-	AAS	AAS			X		
58 XMEUNAGAI KEMBOR	10	-11-	-11-	-11-	AAS	AAS			X		
59 XPEKOLEF KOUSSIE	10	-11-	-11-	-11-	AAS	AAS			X		
60 XZAVAI BOUKOULAI	9	-11-	Hayoumay	-11-	AAS	AAS			X		

ENQUETE SUR L'ETAT SANITAIRE DES ECOLIERS DE M A G O U M A Z

- Affections cutanées.
- Maladies à transmission hydrique.

DATE : 13 DECEMBRE 1963

NOMS ET PRENOMS	Age	Sexe	Localité	Classe	Examens cliniques	PARASITES				DEPAR
						Amibe	Trichomonas	Bal. Col.	Giardia	
412 88 RATANG JOELLE	9	Fem	Magoumaz	CEI	RAS	RAS				
412 99 ROKAYA DAGRA	9	MAX	"	"	Placis inf.				X	
412 90 XHAKDA MAHOSSAD	10	"	"	"	PLACES				X	
483 91 YAKADON ZOOGAI	9	Fem	"	"	RAS DMS	RAS			X	
493 98 DEGECH MATAKON	9	"	"	"	RAS	RAS				
513 93 NGOSSAHA GAROUA	12	"	"	"	RAS					
513 94 TCHOULDAI' CHANGUELE	10	"	"	"	RAS	RAS			X	
513 95 ROCHADE ZENAHADÉ	13	"	"	"	RAS					
513 96 DARVEUK MAHOSSAD	9	"	"	"	POUX	RAS			X	
513 97 BEKWEM VICHE	10	"	"	"	RAS					
513 98 VICHE GANDAI'	10	MAX	"	"	RAS				X	
513 99 NJIDE WABAD	9	"	"	"	RAS				X	
513 100 NGOYAHA DAKAA	9	Fem	Sougouli	"	RAS	RAS				
513 101 WACHEREN OUSMANOU	10	"	"	"	RAS		X			
513 102 ZOUHTEGAI' KASBAI'	12	"	Magoumaz	"	RAS	RAS				
601 103 DAOUYAN DAKAA	12	"	Sougouli	"	RAS	X				
104 DEHVICHE NZAKOUA	11	"	"	"		X				

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X

X

X