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FOR HEALTH PROJECT



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**STRATEGY FOR IMPLEMENTATION
AND EVALUATION OF THE TOGO
RURAL WELLS AND SANITATION
PROJECT**

WASH FIELD REPORT NO. 27

NOVEMBER 1981

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at Chapel Hill.

Prepared For:
USAID Mission to the Republic of Togo
Order of Technical Direction No. 45

WATER AND SANITATION
FOR HEALTH PROJECT



COOPERATION AND
RESEARCH CENTER

OPERATIONAL DIVISION
U.S. Agency for
International Development

November 9, 1981

Dr. John Lundgren
Mission Director
USAID
Lome, Togo

Attn: Agma Prins

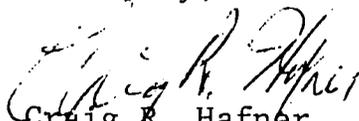
Dear Dr. Lundgren:

On behalf of the WASH Project I am pleased to provide you with fifteen copies of a report entitled "Strategy for Implementation and Evaluation of the Togo Rural Wells and Sanitation Project" by Felix Awantang. This report is based on his visit to Togo from July 21 to September 20, 1981.

This assistance is the result of a request by the Mission in June 1981. The work was undertaken by the WASH Project on July 2 by means of Order of Technical Direction No. 45, authorized by the USAID Office of Health in Washington.

If you have any questions or comments regarding the findings or recommendations contained in this report we will be happy to discuss them.

Sincerely,


Craig R. Hafner
Acting Director
WASH Project

CRH:jml

cc: Mr. Victor W.R. Wehman, Jr.
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WASH FIELD REPORT NO. 27

TOGO

STRATEGY FOR IMPLEMENTATION AND EVALUATION
OF THE TOGO RURAL WELLS AND SANITATION
PROJECT

Prepared for the USAID Mission to the Republic of Togo
under Order of Technical Direction No. 45

Prepared by:

Felix Awantang, M.S., M.P.H.

November 1981

Contract No. AID/DSPE-C-0080
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SUMMARY AND RECOMMENDATIONS

Summary

The Togo Rural Water Supply and Sanitation project paper states the purposes of the project to be:

- 1) the provision of an adequate supply of safe water to approximately 128,000 people for drinking and other domestic purposes and
- 2) the development and implementation of a program of health education and sanitation in the project region to enhance the beneficial effects of the new water supplies. Project activities organized around these purposes are expected to result in improved health conditions and a general improvement of the quality of life for project beneficiaries.

The project, as currently conceived, consists of a well drilling component and a health education and sanitation component.

In response to a request from the USAID Mission a WASH consultant spent two months in Togo to lay the groundwork and begin to implement the project. During this time he:

1. Assessed present project plans, resources and constraints;
2. Established lines of responsibility and authority;
3. Developed an activity sequence for each of the two regions in which the project is to operate; and
4. Developed a preliminary evaluation plan including the design of questionnaires.

Recommendations

1. It is recommended that Travaux Publiques send five agents to inspect and determine the acceptability of all the villages on the "definitive list" (Appendix J). In a meeting of September 4 (see draft minutes, Appendix D) there was general agreement that this was to be done but there was hesitation on the part of Travaux Publique. It is recommended that officials of the Travaux Publique be pursued aggressively until the issue is resolved and that it be resolved as soon as possible.

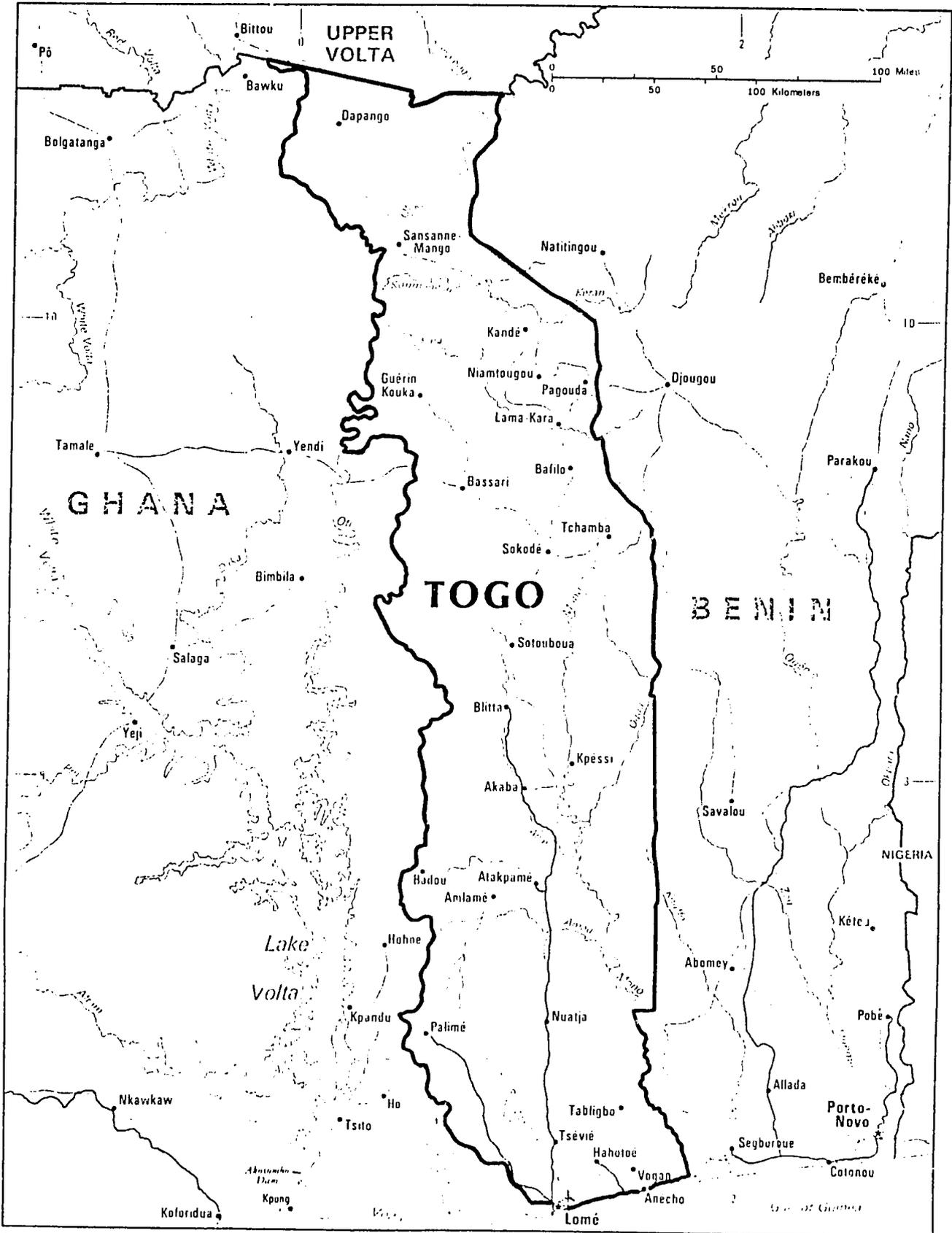
2. It is recommended that the Public Health Advisor, the Regional Project coordinator and the Regional Sanitation Director discuss together and further clarify how social promotion agents will be supervised and how their different skills will be integrated for the successful operation of the project.
3. It was agreed, in principle, to assign nurses with clinical skills to certain tasks during the health and sanitation surveys. It is recommended that individuals with clinical skills be nominated to coordinate the clinical components of the survey across the medically autonomous prefectures, as well as to establish operational definitions that will be used during training.
4. It is recommended that a detailed health and sanitation survey be performed of a randomly chosen subset of project villages. A questionnaire for this purpose and a statistically valid sample of villages has been prepared. A methodology for village level surveys has also been developed (see Appendix H).
5. A water use survey is recommended (see Appendix H).
6. It is recommended that during training the questionnaires (Appendix H) be given a brief field test.
7. It is recommended that the surveys be performed within the shortest time possible and preferably simultaneously for all prefectures. This haste is particularly important for the health and sanitation survey because the intent of certain components of the survey is to determine the prevalence of certain health conditions.
8. It is recommended that health center data be analyzed for water-related diseases despite the inherent limitations of strictly numerator data from scattered populations for evaluating the impact of localized improvements (see Appendix K). Data analyzed for at least five health centers have shown mixed trends. An increase in the data base may reveal seasonal trends in the reporting of diseases. The exercise has educational value for field agents and should be helpful for interpreting data obtained from the detailed survey. It may serve then as a rough external verifier of survey findings. A form has been designed for collecting such data, and decisions and problems associated with this activity were discussed in the field.
9. It is recommended that during the life of the project priority be given to health, water, and sanitation-related projects over projects in other sectors. Undermining the project purpose is possible if too many worthwhile but unrelated projects are undertaken.

10. It is recommended that an immediate decision be made on which of the management and operational indices developed by John Austin will be used. Activity logs can then be developed for use by field agents for their individual activity and for monitoring the use of project vehicles.

ACKNOWLEDGEMENTS

Appreciation is extended to the USAID Mission in Lome, the Togo Ministry of Social Affairs and Peace Corps Togo for their support in the carrying out of this assignment and the writing of this report. Special thanks are expressed to Dr. John Lundgren, USAID Mission Director, Mr. Ron Philips and Mrs. Elam of Peace Corps, Lome, Mr. Jato Tcha-Tokay and Mr. Takouda Bouili the National Project Coordinator and Director General of Social Affairs respectively. Special thanks are also extended to the Regional Social affairs directors, Mr. Dogbeavou of the Plateau Region and Mr. Ouro Bawinay of the Savanna Region and finally to WASH Project staff. Without the kind support of these individuals and their associates this effort would not have been possible.

Togo



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- Road
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Chapter 1

BACKGROUND

The Togo Rural Water Supply and Sanitation project was initiated in 1977 by the U.S. Agency for International Development (USAID) in response to an expressed need in this sector by the Togolese Government. The project as currently conceived consists of two major components: a well drilling component and a health education and sanitation component. The well drilling component of the project is to be implemented by the Ministry of Mines, Energy and Hydraulic Services within the framework of a multidonor well drilling program that involves the Fonds European de Development (FED), Banque Ouest Africaine de Developpement (BOAD) and the Federal Republic of Germany. The AID wells project, while part of the multidonor wells program, is also supposed to be synchronized with the health education and sanitation component of the project, which is to be executed by the Ministry of Social Affairs in collaboration with the Ministry of Health (Division of Sanitation and Hygiene) and the Peace Corps.

The project has been designed to last over a period of approximately four years. It has been phased for execution into two parts corresponding to the two geographical regions that will benefit from the project. Project activities (drilling, health education, and sanitation) will start in the Plateau Region located in the south of the country this Fall (1981)*. Project activities are scheduled to start in the sahelian Savanna Region located about 450 kilometers north of the Plateau Region in 12 to 18 months.

The major elements of this project are well drilling, installation and maintenance, creation of village health committees, latrine construction, collection of baseline data, health education for villagers, training of personnel, evaluation and a variety of other mini projects at the village level to be identified and undertaken by the villagers themselves. The WASH project was asked to provide technical assistance in all the above activities except well drilling, installation and maintenance, which is to be handled separately by the Ministry of Mines, Energy and Hydrology.

The USAID Mission requested assistance in the implementation of the health and sanitation component of the project and the services of the WASH Project were requested under Order of Technical Direction No. 45, dated July 2, 1981 (see Appendix A). The first person to visit Lome and Benin spent two weeks

*For a Plan of Activities for the Plateau Region see Appendix E.

developing materials pertaining to the administrative, managerial and fiscal management of the project. He also laid the groundwork for future WASH consultants. This consultant spent two months in Lome working on the preliminary implementation of the program including training, evaluation, collection of baseline data and the health aspects of the project while waiting for the long-term public health advisor for the project to arrive in Lome.

This report represents a summary of the activities of the second visit. The consultant was initially to have spent the two month period working on the Togo Project and a similar project under the management of USAID/Lome in neighboring Benin. Because of the late arrival of the Benin public health advisor, however, he spent most of his time working on the Togo project.

Chapter 2

ASSESSMENT OF RESOURCES, ACTIVITIES AND PROCEDURES

2.1 Latrine Construction

The Division of Sanitation and Hygiene in the Ministry of Public Health is responsible for sanitation and hygiene activities in Togo. This division will provide most of the technical assistance in latrine construction and general sanitation. Depending on the local circumstances these latrines will vary in number of squatting holes from one to six.

Social, technological and cost considerations make the choice of excreta disposal systems for the project a very limited one. A variety of disposal technologies which would indeed enhance the health objectives of this project cannot be considered because of socioeconomic constraints. Disposal systems reeliminated for consideration include the wet off-site treatment and disposal systems (sewerage), wet on-site treatment systems (aqua privies) and dry off-site treatment and disposal systems (bucket latrines). Thus the only options left for consideration are the dry on-site treatment systems. Even within this category, composting latrines appear to be too costly and culturally unacceptable. The dry pit latrine (and its variations) is the only alternative left for consideration.

The dry pit latrine is not new to the rural areas of the project zone. During discussions with Mr. Zozo the Sanitary Engineer responsible for sanitation problems in the Plateau Region area, it was indicated that these latrines are routinely installed in villages which receive sanitation services. Standard designs and cost estimates are available and are attached. Mr. Zozo who is an employee of the MOH is a member of the Regional Advisory Technical Committee for the project. The cost of a latrine varies between CFA 20,000 and 40,000 or approximately US\$7,400 to 14,800 (approximately CFA 270 = US\$1.00). These latrines are conventional unventilated pit latrines with substructures and superstructures.

A realistic assessment of how adequately this level of technology of excreta disposal will contribute towards enhancing the two primary objectives of the project (i.e. health improvement and community development) can be considered in two parts. The first part deals with the health improvement potential of the pit privy as it is known from experience all over the world.

In a document entitled, "Extraits et Plan d'Operation des Activites Socio-Sanitaires" a well-latrine ratio was established for the project. Specifically five latrines were perceived for every well (or 325 persons) or one latrine per approximately seven families.

Table 1. Distribution of Wells and Latrines in the Two Project Zones.

	Total	Zone A (PLATEAU)	Zone B (SAVANNA)
wells	400	250	150
latrines	2,000	1,250	750

The assumption that complementary health education and sanitation activities to a water project will maximize the health benefits of the project is true in principle. One must, however, cast the complementary inputs into quantitative terms. Most of the participant villages appear to have a population more than 1,500 and each village will be receiving a single well. Five demonstration latrines for five households in such a village can hardly be considered adequate for an impact on current environmental pollution by excreta. Even if health education activities succeed in persuading latrine recipients to use these facilities religiously, health improvements will probably be discernable only for certain categories of diseases (intestinal worms, especially Ascaris Lumbricoides, Ancylostoma duodenale, Nector Americanus, etc.) if a far greater percentage of the participating village population actually possesses and uses latrines. It is evident that the latrine input of the project falls far too short to result in any sustainable, discernable health benefits.

Funds for the latrine component of the project are limited, and the problem that has to be addressed is how to increase the sanitation (latrine) impact of the project per village. It was suggested to Mr. Zozo and Mr. Dogbeavou that one possibility would be to provide only latrine sub-structures to interested families, i.e. materials for a ring beam and a squatting slab. It would then be up to the family to put up whatever superstructure it can afford. The advantage of this alternative is that the "latrine impact" on the community can go beyond the initial five families. One disadvantage of this suggestion, however, is that it further limits varieties of pit latrine that can be considered. It will not be possible, for instance, to use the VIP--the most elementary and sanitary of the pit latrines. If a villager cannot afford a solid superstructure then the installation of a ventilation pipe will be impossible and the pipe vent could become an unhygienic feature of the latrine if it is not properly sealed. It remains desirable, however, to allow those families who can afford it to "try out" a ventilated pit latrine.

The second consideration is that of the pit latrine itself as an acceptable level of technology from which health benefits can be realistically expected. The pit latrine, like the well,

constitutes the lowest level of sanitation technology acceptable. "Realistic expectations" is a phrase that usually addresses use problems and usually alludes to the fact that even if the best of latrines were provided, problems of non-usage for whatever reasons would further reduce the potential of this level of technology to contribute to the health benefits of the project. It is understood that the suggestion to provide only substructures in certain cases in an attempt to stretch the latrine impact of the project leaves the pit latrine more vulnerable to its traditionally notorious problems of unsanitary and unhygienic upkeep, a characteristic that could actually aggravate the problems the project set out to solve.

These problems and constraints greatly weaken the possibility that positive health benefits will be discernable at the end of the project with the current level of technology and project inputs.

If the health objectives of the project are unattainable because of the foregoing problems and constraints, the project nevertheless provides a means for community development activities, i.e. it provides the practical medium through which some villages may be inspired to take their communal destiny into their hands and try to control some of the forces that make village life a drudgery from the point of view of poverty and illness.*

2.1.1 Latrine Construction in the Plateau Region

In the Plateau regions the numbers of latrines to be constructed per village and per prefecture for the life of the project have already been determined. Experience from the field would suggest that advance and meticulous planning with villagers is essential if the annual latrine targets are to be achieved.

Problems frequently cited for slowing up latrine construction include:

- a) late and unpredictable arrival of essential materials such as cement or slabs
- b) the process of organizing villages to make the pits and procure other materials is usually very slow

*A definite but unknown proportion of every participating village will also benefit indisputably from energy and time savings associated with drawing water.

In the course of the first year, approximately 312 latrines will have to be constructed in all five prefectures if the final objective of 1,250 latrines is to be achieved by the end of the life of the project.

Considering the current reasons given for delays, it will be essential to stockpile essential materials in a central warehouse in Atakpame from which these materials can be distributed to the prefectures by project vehicles. A materials budget for the first year of the project has been prepared and submitted to Lome (see Appendix F). The provision of materials and technical assistance to agents in the villages in a timely and efficient manner may not be possible if transportation resources are not adequate and are not properly organized.

To simplify logistic problems, certain standard components of latrines could be mass-produced in Atakpame and then shipped to the villages where they are required. Two carpenters could, for instance, produce all the latrine lids, doors and rafters to standard measure in Atakpame. This would obviate the need to circulate a team of carpenters through 250 villagers as had been previously suggested.

On the other hand, supervisory bricklayers will need to go to as many villages as possible where their assistance is required. Initial project documents indicated that two bricklayers will be required for the entire Plateau Region. This number of bricklayers would appear to be low. A minimum of one bricklayer per prefecture would appear to be essential for providing adequate technical back-up to villagers in an entire prefecture.

The cost of maintaining a central circulating team of bricklayers and carpenters as proposed is likely to be too high and therefore unjustifiable. The proposed alternative is to employ bricklayers who will live in prefecture headquarters and work in close collaboration with the supervisory teams who are better placed to know at all times when and where their assistance is required.

2.1.2 Latrine Construction in the Savanna Region

Implementation of the project in the Savanna Region has been postponed for about 12 to 18 months. As a result of technical, cultural and logistic factors the project in this area presents an almost entirely different set of problems from those encountered in the Plateau Region. During a three day visit to Dapaong discussions were held with the Sanitation Engineer and the Social Affairs Director for the region. Contact was also made with the Regional Medical Officer. During these discussions major constraints were identified as follows.

Although only 750 latrines were programmed for the Savanna Region, compared to 1,250 for the Plateau Region, the cost may be equal to if not more in the Savanna Region than for the Plateau Region. The increased costs are not related to the distance of this zone from Lome (615 km) but to the hydrogeological nature of the soils which dictates a more expensive latrine. Soils in the Dapaong area are very unstable and prone to cave-ins. Current practice in latrine construction requires the entire depth of the latrine be lined with a durable wall to prevent the walls from caving in. Cement blocks are used for this purpose. In some areas where stones are available, this wall can be constructed of stone, but the sanitation engineer believes this is a much slower process and on a cost basis ends up utilizing more cement. Cost estimates for latrines in this area are included (Appendix G). Two alternatives were considered during a meeting on September 3 with project officers on ways to minimize the effect of this problem on the project.

Alternative one: Limit the number of latrines to the original latrine budget for the zone and let the eventual number of latrines be determined by the current cost estimates of a single latrine. The impact of this alternative decision would be a drastic reduction in the number of latrines to be constructed for the area. Another effect would be a reduction in the number of tangible activities around which health education discussions will be structured, given the fact that the well drilling schedule is very uncertain.

Alternative two: A contingency and inflation factor was built into the project budget to allow for such problems. The latrine budget could be readjusted to maintain the original number of latrines and therefore the original sanitation and health impact of the project. It is recommended that the second alternative be implemented considering the tenuous relationship that already exists between the levels of water and sanitation technologies and health in this project. Any reduction in the number of latrines further reduces the likelihood of any community health benefits as a result of the project.

For climatic reasons and because of agricultural practices the only practical period for considering community participation in the sanitation program is from November to March--a total of five months. Postponing project implementation for this region means that only a total period of 2-1/2 to 3 years will be available to implement the project in this zone requiring the construction of at least 250 latrines per year (or within five months) if original project targets are to be achieved. It is, of course, conceivable that this level of output is possible. Enormous amounts of logistic resources would have to be used to achieve the initial objectives almost certain to be contrary to the developmental and community participation objectives of the project. The usual rationale for these

projects has been to run them "lean" so that after project termination there will not be an organizational collapse because of the expiration of the project agreement or withdrawal of foreign technicians.

The sanitation engineer in the Savanna region considers the use of a mobile team essential for latrine construction in this area. Current latrines projects are implemented with the aid of one mobile team made up of two bricklayers (macons), two iron cutters (ferrailleurs), two carpenters (menuisiers), and two laborers (manoeuvres).

With one such team from 15 to 20 latrines are constructed annually. All labor for pit excavation is provided by the beneficiaries. To build 750 latrines over four years (190 latrines per year) the sanitation engineer estimates that at least eight mobile teams with the above composition will be necessary.

Because of the settlement patterns both the project director and the sanitation director believe all latrines and wells will best serve the entire rural population if they are built in schools, markets and dispensaries since there are hardly any communal villages in the Savanna Region as there are in the Plateau Region. Communal latrines are also a viable option in the compost villages of the Plateau Region.

2.2 Health Education in the Plateau Region

Health education will be an ongoing activity. The strategy should emphasize an appropriate mix of activities and discussions over time. What is the appropriate time, for example, to discuss fecal contamination of the village environment and its relation to health problems?

This topic could be discussed for 10 to 20 minutes in the morning of the day that villagers are organized to prepare the latrine pits. Who might be the most appropriate person to carry out the brief discussion? It would appear that the village nurse (for those villagers with dispensaries) would be ideal to talk on the subject for a very brief period before work proceeds on the excavation. The chances are that the nurse has met most of the households at the dispensary where they bring their recurrent fecal-related infections. A brief discussion on the need for latrines as a measure for controlling disease would be appropriate before the villagers start working. Academic and disease-specific discussions are better reserved for situations in which the audience is captive such as in waiting rooms at the health center. The use of storytelling and dramatization of disease transmission, course, and prevention should be encouraged.

2.3 Community Development

A review of project documents and initial discussions with project officers indicate that emphasis is being placed on two of the primary objectives often inherent in water and sanitation projects. These are:

- 1) A water and sanitation project for community development.
- 2) A water and sanitation project for health improvement.

Project officers have stressed the importance of the community development and self-help characteristics of the project. This emphasis has repercussions for the overall evaluation of the project and also affects the degree to which the health goal can be achieved. From the community development perspective, project activities constitute a medium through which villagers will be encouraged and motivated to organize themselves for the solution of the many problems that affect their daily lives. The project emphasizes the institutionalized processes of problem identification and setting of priorities, collective decision-making and the use of extra-village resources in the form of technical assistance or material resources available from the government. Water and sanitation activities constitute only two of a variety of activities that can be used to achieve the goals of this first objective.

The two objectives are compatible and legitimate in a development project. Health objectives, however, may not be attainable within the project period, especially in view of the time needed for the community development process so necessary for the attainment of these objectives. The only possible exception is Guinea worm which can be controlled simply by making available a new and adequately protected water supply for all uses and the termination of all contacts with the old sources. Furthermore the fact that the level of water supply and sanitation technology deemed appropriate for the project is quite low further reduces the probability that health effects will be perceived in a follow-up evaluation. There is a need, therefore, to keep the community development process focused on water supply and sanitation-related objectives to satisfy the dual purpose of the project.

In the Project Plan for the Benin project, for example, it is indicated that after a series of four village meetings the health team will determine and indicate to the drilling team whether a particular village is ready for a well or not. Villages determined by the health team to be not ready after this long interactive process will be skipped but with the possibility that they will have a well if they subsequently

meet the necessary organizational criteria. This implementation strategy seeks to institutionalize good community development processes, but results in a complex implementation schedule for the drilling contractor, increases in drilling costs for the same number of wells, and, ultimately, a financially inefficient project. Perhaps one initial meeting for explaining conditions for participating in the project followed by a deadline which gives the village some time for deliberation is enough. Villages that cannot decide or that decide negatively by the deadline should be skipped entirely. In this way, most project resources will be concentrated on villages actually involved in the project and not on villages which are uncertain about participating. This problem does not exist in Togo where villages to receive wells have been identified prior to project implementation.

Other concerns to be taken into account in any strategy for implementation which emphasizes community development include participatory research. In the Togo project, the project officers envisage maximum involvement of villagers and their health personnel in the collection of baseline data. While this is commendable, it will require a questionnaire that is very simple and also a literate individual (school teacher perhaps) in the village. Problems of interpretation of the questionnaire among villages may arise and quality control of the information collected will be more difficult. (For an approach to collecting baseline data and copies of questionnaires developed for this project, see Appendix H.)

The above considerations and constraints notwithstanding, the initial questionnaire will seek information on the levels of community consciousness and overall development in project villages prior to the introduction of project activities. It will be important to know, for example, if the villagers have planned and implemented projects on their own. It will also be necessary to learn about:

- a) The past use of extension agents in health, agriculture and other sectors;
- b) The number and kind of projects accomplished;
- c) Current or past ways of maintaining community facilities such as water sources, markets, school, bridges, etc. where these might be present;
- d) Decision-making processes - consultative or autocratic (made by the village chief);
- e) The existence of a successful "village son" in the government who is instrumental in assisting and educating the villages in available resources for self-help projects, etc.;

- f) The number of community activities undertaken for the past 12 months;
- g) Cash contributions for community project;
- h) The existence of a party cell, church, a development committee or any other form of organization that may be instrumental in initiating village projects.

Baseline information along these lines will be useful in a follow-up determination of success or failure. Villages which already have a sophisticated leadership are likely to convert project inputs into discernable health benefits faster than villages with little community development experience.

2.4 Administration and Organization

Table 2 is meant to emphasize one point, i.e. the purpose of the project is to improve health and sanitation conditions in 250 villages. The raison d'etre of the organizational structure is to move material resources and technical skills to activate village projects as efficiently as possible.

The supervisory agents are expected to be well informed technically but will spend most of their time managing activities and providing logistical support to the isolated social promotion agents (Agents de la Promotion Sociale -- APS). They will be responsible for ensuring that activities are carried out in the right sequence in all villages and that deadlines are maintained. They will also be responsible for collecting data generated in the villages and transmitting it back to the control agency or agencies.

2.4.1 Social Promotion Agents

Social Promotion Agents will be instrumental in:

- 1) Creation of village health committees
- 2) Identification of village leaders
- 3) Local training of village leaders as required
- 4) Execution of health education lessons
- 5) Organization of materials collection schedules (stone, sand, etc.) for each of 10 villages in accordance with well drilling and latrine construction schedules
- 6) Integration of appropriately technical assistance from sanitation agents into village project schedules

Table 2

Ministry of Social Affairs
Personnel Categories and Activity Areas in
Order of Priority

<u>Personnel Category</u>	<u>Prioritized Activity</u>	<u>Activity Site</u>
15 supervisory agents	1) Supervision of APS 2) Technical assistance to APS agents 3) Logistic support 4) Training of APS as required	Supervisory team for 3 per 5 prefectures.
50 APS agents	1) Technical assistance to village leaders 2) Logistic support to village leaders 3) Supervision of village leaders 4) Training of villages as required	One per 10 villages
250 villages leaders	In collaboration with APS agents, and village health committees, village leaders: 1) Identify projects 2) Provide technical assistance 3) Promote market sanitation 4) Oversee water source improvement 5) Integrate nutrition projects with water supply and sanitation efforts	One village leader per village health committee

- 7) Maintenance of project records as required
- 8) Execution of the general village survey, the detailed survey, and the water use survey
- 9) Ensuring that quality control is maintained during data collection
- 10) Coordination of survey schedules with nurses participating in the surveys.

Horizontal Integration of the Activities of Sanitation Agents and Those of the Social Promotion Agents

At the village level the project will be executed by sanitation agents (employees of the Ministry of Health) and social promotion agents who are employees of the Ministry of Social Affairs. Social promotion agents currently outnumber sanitation agents in the Plateau Region by a ratio of about two to one in the rural areas. The sanitation agents are distributed as follows:

Ogou prefecture	5
Amou prefecture	2
Wawa prefecture	4
Kloto prefecture	12 (5 urban)
Haho prefecture	9 (4 urban)

There exists at the present time a commendable collaborative spirit between sanitation and social promotion agents. It is important that this spirit be maintained. The following scheme has been discussed with Mr. Zozo, the Sanitation Inspector of the region, and he endorses it.

- Sanitation agents will provide technical assistance in latrine construction to the social promotion agents and village leaders.
- They will assist social promotion agents in the choice of latrine sites.
- They will be in contact with the prefectural brick layers to inform them, via the supervisory teams, where their assistance is required.
- One sanitation agent will probably be providing technical assistance to more than one social promotion agent and/or more than one village. It will be recalled that a few villages currently have both a sanitation agent and social promotion agents while others have only one of each type of personnel or no agent at all. Mr. Zozo estimates that one sanitation agent can simultaneously provide technical assistance

to eight to ten latrine projects if transportation is provided. The current understanding is that approximately seven motorbikes will be provided to sanitation agents. The rest will probably have to share transportation resources with social promotion agents who have motorbikes.

Whatever the case, there is a need for the Public Health Advisor (Agma Prins), the Regional Coordinator (Mr. Late), and the Regional Sanitation Inspector (Mr. Zozo) to work out a non-conflicting supervisory schedule that best utilizes the skills of both sanitation agents and social promotion agents for the benefit of the villages.

2.4.2 Organization of Village Health Committees in the Plateau Region

The first major activity to be undertaken by project staff should be the creation of village health committees in the 250 villages of the Plateau Region. It is recommended that this activity be commenced simultaneously in all five prefectures so that village leaders can be quickly identified. During the process of organizing village committees and identifying their leaders, the general questionnaire which is intended for all 250 villages should also be executed (see Appendix H). Social promotion agents in collaboration with potential village leaders should fill out these forms for each of their 10 villages.

Some villages in the Plateau Region have existing health committees. In Nyamassila, for instance, there already exists a village health committee organized by the Ministry of Health. A sanitarian also lives and works in this village. In such villages initial project activities would consist primarily of reviving or enhancing the function of these committees, identifying their leaders, and taking an inventory of village projects worth undertaking during the life of the project. The purpose of the project and its conditions for participation can also be explained to the villagers at this time.

In villages where no organization exists these activities will take a much longer time. It is suggested that when the terms of the project have been explained to the villagers a deliberation period of about a week be given to the village authorities to allow them to make up their minds if there are any doubts as to whether they want to participate. It is expected that the entire activity of setting up village health committees will not exceed four weeks.

Training of Village Health Committees

During the four weeks of September when the formation of village health committees is underway, senior project staff in collaboration with project supervisors should be making preparations for the training sessions which will commence after the formation of the committees. The supervising teams will be expected to spend most of their time assisting the APS agents in organizing the village health committees during the month of September. All logistic arrangements such as identification of training sites, procurement of training demonstration materials (stones, gravels, etc) should be made prior to the termination of the first activity.

Five staggered regional training sessions are suggested. The first training session will probably be in the Haho prefecture (Notse) where it is believed well drilling will begin. These sessions should be organized by the central project managers but their execution should be left primarily to the local health, social affairs and sanitation technicians or any other competent individuals capable of speaking the local language. The content of the training will, however, be determined beforehand and should remain the same for all the training sessions. It has been suggested that part of the training consist of demonstration exercises in the making of concrete slabs for latrine construction. Central authorities in Atakpame should be responsible for procuring the water, sand, stones, and forms required for these demonstrations. It is suggested that the training sessions should not exceed two to three days.

In Notse where drilling is likely to begin, the trainees can return to their respective villages and start organizing the villages to implement activities identified and ranked according to priority during the formation of the committees.

Although it is possible to organize simultaneously training sessions in all five prefectures, too much stress on the central managers is a likely result and might also reduce the quality of the training. It is suggested that these sessions be staggered. When the training session in Notse is underway, it would be appropriate to start plans for the second session in the next prefecture. It is also suggested that the sequence of training in the prefectures should precede the drilling sequence if this is known. It is thought at this time that the drilling team will go from the Haho to the Ogoou prefecture. The second training session should therefore be organized in Ogoou. Because of the staggered training plan, villages which have finished the formation of their committees but not yet engaged in training should be encouraged to start procuring materials for latrine construction and well perimeter construction.

It is anticipated that training in all five prefectures will last from five to six weeks.

While village leaders are vital to the success of this project, it should be kept in mind that they are not salaried employees and have no legal obligation to perform duties within the project except by virtue of the trust bestowed on them by their fellow villagers. It should also be understood that they, like their fellow villagers, still have to plant, cultivate, harvest and perform other normal daily village tasks. It becomes necessary, therefore, not to overburden these individuals or make unreasonable time demands of them.

Village leaders will however be indispensable to the following activities:

- 1) Execution of the general, detailed, and water-use surveys (see section 2.6.2 below)
- 2) Determination of convenient project schedules
- 3) Dissemination of village announcements
- 4) Identification of village projects and priorities
- 5) Assistance in execution of health education lessons

Characteristics of Village Health Committee Leaders

Village health committee leaders will be democratically elected representatives of their villages who will assume leadership roles in identifying village projects and planning them for execution by the villagers themselves. During discussions with the regional project director in Atakpame the director indicated that it is essential for project success to have villagers democratically elect their leaders. Village chiefs in the project area are a mix of state-appointed and state-paid chiefs and traditional chiefs who are unpaid and do not constitute part of the official administrative structure. The director indicated that frequently villagers perceive the appointed chiefs as outside agents interested primarily in furthering their personal interests. Because of the democratic choice process and the mix of types of chiefs, village health committee leaders will probably be delegated by popular chiefs too old to participate, be illiterate, have possibly a few years of schooling, live in the village, and represent the real choice of the village population. There could also be some chiefs themselves on the committees.

These village leaders will constitute the interface between the various paid government agents and the rest of the population which must plan and fend for itself daily. As an inter-

face group, the quality and type of training provided to these village leaders is critical to the achievement of the health and community objectives of the project.

Training Needs of Village Health Leaders

Their needs fall into the categories of:

- a) inspiration and encouragement
- b) knowledge
- c) skills
- d) resources

Training of village leaders should, therefore, be organized to respond to these needs which represent the minimum ingredients required to elicit action leading to social change.

Inspiration

Inspiration that propels the average person into action is best derived from peers. The most effective peers for this purpose are those who are succeeding in changing things with comparable resources and despite comparable obstacles. An organized sharing of ideas and problems among such peers is bound to motivate the as yet unmotivated. This approach suggests training sessions that bring together the village leaders for a two- to three-day training session on a canton, sous-prefecture or prefecture basis. Since the project covers about 250 villages, it will not be logistically possible to perform this training at the same place and time. Moreover, language problems may hinder such large scale and logistically difficult training sessions. A training session that brings together 15 to 20 village leaders who speak the same language would be more manageable.

In the Plateau Region with 250 participant villages in the project five or ten different training sessions could be organized. One or two training sessions (depending on prefecture population distribution) would be organized per prefecture. Ten training sessions would probably reduce logistical problems per training session but increase logistical costs for overall training. Since the project success depends largely on this unpaid group of workers, the costs and efforts required for this training would seem justified. With ten training sessions, the length of training time could be slightly reduced.

Knowledge

Village leaders will acquire new ideas from their peers and instructors. Instructors will probably be best for providing specific technical knowledge and resource information. An exploration of the range of feasible projects, local materials and resources for different projects should constitute a subject for interchange of information among students and between students and instructors.

Skills

Some basic technical and organizational skills will be required to transform inspiration and knowledge into a worthy project. In this project the basic skills required are those for mixing and making concrete slabs for latrine construction, water sources protection, latrine superstructure construction (including design in some cases), latrine maintenance, and promotional techniques for personal and household hygiene. Because of time and logistical constraints it will not be possible to provide all the skills leaders may want to acquire. During a training session groups made up of four village leaders each can be assigned to one professional bricklayer who will instruct them on the recipe for making a slab and actually go through the process of making one. For demonstration purposes, all the required materials can be purchased and brought to the training site beforehand.

The agents will also need problem identification skills at the community level. This would include project identification, project prioritization, and individual project planning. Finally skills in promoting behavioral change with regard to water protection and personal hygiene should be included.

Resources

Village leaders need to know how to use technical resources available to them through government agencies. Material resources are usually more difficult but not impossible to get. Training should emphasize problem identification by sector and the identification of appropriate sectoral agents to contact for assistance. It is also important to educate village leaders on the workings of a bureaucracy, the rules, procedures and hierarchies, sectoral turfs, etc. that usually slow up projects. This knowledge should give enthusiastic village leaders realistic time perspectives for planning projects.

No training session can be designed to cover everything everyone would like to know. However, if the village leaders leave the sessions with the knowledge that they will still be in contact with agents who can help solve problems and channel requests, then the training session will have been helpful.

Potential Areas for Village Project

Problems as they occur to most villagers have no sectoral delimitations. Nevertheless, village leaders must understand and appreciate the fact that these problems become sectoralized as one seeks assistance from government agencies in their solution. Most village problems will fall into any one of the following categories:

- 1) Health: sickness and the need for a health center.
- 2) Food: problems of food production and storage.
- 3) Water and Sanitation: The need for a permanent and good water source.
- 4) School: parents perceive the education of their children as one of the most effective ways to provide them with a future free of drudgery.
- 5) Accessibility: Road and bridge problems that hamper the movement of people and goods.

The training sessions should seek to establish some competence within the framework of these problem areas for the village leaders. Although this project is concerned primarily with water, sanitation and health, a competent village leader should know how to help a community resolve problems in the other areas or, at the very least, he should be able to make and keep contact with the proper government agency.

Training Methods

The illiteracy of most village leaders may severely limit training methods. Whether the training is carried out in French or in a local language does not really matter. Perhaps the most important thing not to do is to lecture extensively. Trainees should work in small groups of four or five. They should be given topics and questions and asked to work out solutions during these group discussions. Instructors should serve as time keepers and guides to prevent discussions from degenerating into arguments or to prevent participants from drifting away from the assigned topic.

A teaching example for group discussions could be: Do I know my village well enough to describe it for planning purposes? The learning objective for such a session would be to identify the most common descriptive variables for project development and discuss why they are important, e.g.

- What is the population of the village?
- How many major families constitute the village?

- What are the common diseases?
- What is the age structure of the village population and its importance in development projects?
- Where are the water sources and how many are there?
- How do people make money, etc.?

Most village leaders will probably indicate that they are quite familiar with the villagers' problems. The question is often whether or not their viewpoint on priorities represents that of the majority of villagers. Will they be willing to abandon their own priorities and adopt that of the villagers? These questions should stimulate the trainees to appreciate the need for problem census-taking before a meeting, so that an objective priority list of problems is established. The questions should also assist them in planning village meetings.

The training methodology should emphasize:

- a) Structured peer discussions with learning objectives
- b) Demonstrations, such as latrine building and/or cement mixing
- c) Problem simulation and resolution with possible use of popular theatre, storytelling, and other such techniques.

Inspiration and learning will most likely occur if the trainees actually participate in the discussions.

Specific Project Objectives

A portion of the training should be devoted to dealing with the water, sanitation and health objectives of the project. The assumptions made in the project should be brought out for discussion and critique (for a detailed description of suggested health education strategy and content, see Appendix I).

Basically the project hopes to reduce the labor and time put into procuring water for household use. It is also hoped that with an increased quantity of better quality water, there will be a reduction of certain diseases. These diseases fall into several categories: diarrheas, skin and eye diseases, Guinea worm, where it exists, intestinal worms, and undernutrition as a result of repeated diarrhea.

Why cannot the project hope to reduce some important water-related diseases such as malaria and schistosomiasis?

The trainees should have some knowledge of what it takes to comprehensively control diseases:

- 1) Medical control measures
- 2) Health education control measures (i.e., through behavioral change)
- 3) Environmental control measures

For many diseases in the project villages all these three measures have to be applied in a carefully organized sequence in order to comprehensively control these conditions.

2.5 The "Definitive List" of Villages

Discussions with the regional project director on August 13 revealed that the "definitive list of villages" (see Appendix J) is indeed not definitive--a revelation which renders the first random sample of villages chosen of doubtful value for survey execution. Although it is maintained that the list is not definitive, the regional director believes about 90 percent of the villages on the list will finally be included in the project. The process of choosing villages for inclusion in the project is a long and decentralized one requiring continuous negotiations between three parties representing slightly different interests.

Travaux Publiques: The interests of the drilling team are to have the project villages as close together as possible and as accessible as possible to main roads. These are legitimate business concerns which would reduce drilling costs but which are not necessarily responsive to the actual needs of the population in the area.

Regional Political Authorities: The Regional Technical, Social and Health Committee, represented by the prefects office, is interested in an equitable distribution of the wells between the political jurisdictions in the project area, bearing in mind that some prefectures face more serious water problems than others. The eastern Haho prefecture for example is a very needy area.

The Regional Technicians: The regional technicians for their part maintain that the local populations should be allowed to participate democratically in the decision making process to the maximum extent possible. This, they state, is the only way voluntary participation from the villagers can be assured. They repeatedly gave examples of problems with working through state-appointed chiefs who are frequently rejected by their own people.

The definitive list that now exists is definitive only from the point of view of political and need criteria. Perhaps the most decisive criteria in the determination of who gets a well

are the hydrogeological ones. If the drilling team determines that it cannot drill a well in a village on the definitive list then another village may have to be substituted.

Additionally, the regional director indicated after the definitive list had been published that the "large villages" (apparently villages with populations greater than 4,000) will probably be eliminated because they properly fall under urban water project schemes.

These problems render the application of standard sampling techniques to an unknown universe difficult. Nevertheless, if it is assumed that about 90 percent of the villages on the definitive list will end up participating in the project, then a random sample based on this initial list would probably be 90 percent "acceptable" although not statistically correct. A second issue is that the initial sample was drawn on a population proportionality basis. The regional director believes the sample should probably reflect the distribution of wells as politically determined and not necessarily the population size. One advantage to this weighting is that the sampling would be concentrated in areas where the water, sanitation and health needs are the greatest, if indeed this variable has been a significant one in the distribution of wells in the project region. The tentative distribution of wells by prefecture is shown in the following table.

Table 3.

Number of Wells, Proportion of the Population Served, and Proposed Sampling Proportion by Prefecture.

	<u>No. Wells</u>	<u>Pop. Prop.</u>	<u>Well Proportional Sampling Sites</u>
AMOU	50	3	6.0
OGOU	60	4	7.2
WAWA	30	9	3.6
KLOTO	50	6	6.0
HAIHO	60	8	7.2
TOTAL	250	30	30 sites

2.6 Surveys for Baseline Data

The distribution of wells between the five prefectures within the Plateau Region was determined by a regional Technical, Social and Health Committee. Three sets of questionnaires (Appendix H) were developed for an initial evaluation of these project villages:

1. A general questionnaire to collect basic information from all project villages. This general questionnaire seeks to collect information in the areas of water resources, sanitation, organizational resources and community development experience and will be used as village health committees are formed.
2. The second questionnaire is much more detailed and designed to collect information from a subset of 30 randomly chosen villages. The questionnaire is designed to collect detailed information in health (diarrheas, skin and eye diseases, intestinal worms, and Guinea worms) water facilities, sanitation facilities and community development experience.
3. A third questionnaire was developed to collect water-use data in the homes.

The regional project director with his staff would like to have these initial surveys done. The second and third questionnaires are designed for administration to a randomly chosen sample of villages (first stratum) and randomly chosen set of family (second-stratum). A random choice of these subsamples requires prior knowledge of the universe population.

2.6.1 Detailed Surveys

In the Plateau Region the detailed surveys will be performed only in 30 villages which have already been chosen at random (Ogou 7, Haho 7, Wana 4, Amou 6, Kloto 7) and will therefore, not involve all the village leaders and perhaps not all the social promotion agents. However, all supervisors and their respective social promotion agents and village leaders will be expected to collaborate closely in those villages that have been chosen for the detailed survey. The quality of the data derived from this survey is crucial, and it is suggested that this particular activity receive as much attention as possible from the project supervisors.

Because the questionnaires for the detailed survey are more complicated it is suggested that the questionnaire be explained to survey participants during training so that they are thoroughly familiar with it before they have to fill it out in the villages. During training the questionnaires should be field tested and decisions made on the wording of all questions that may prove problematic.

Medical officers in all five prefectures have agreed to permit specific nurses to participate in administering the clinical portions of the questionnaires. Because the prefectures are medically autonomous it has been suggested that a nurse be nominated to coordinate this activity across prefectures.

With the possible exception of the Haho prefecture, it is recommended the detailed survey be performed in all five prefectures simultaneously and within as short a period as possible (1st and 2nd weeks of November 1981). If drilling is proceeding in the Haho prefecture at this time, the social promotion agents may be too busy with the well perimeter to undertake this activity at the same time. If this should occur the timing of the survey is left to the discretion of project managers, but it is recommended that the survey be performed as soon as possible before or after the drilling.

2.6.2 Water-Use Surveys

Project objectives as they relate to water were expressed in terms of the number wells per village. In the Plateau Region it was determined that 250 villages would participate in the project with each of the villages receiving one well, in the Savanna Region 150 villages. In both regions current water supplies are so deficient in quality that it can be safely assumed that drilled and properly capped wells will produce water which is significantly safer. It was determined, therefore, that monitoring the quality of the water produced as part of project activities is probably not a critical activity.

A determination of water quantity trends or impact before and after the installation of the wells was, however, considered important for the following reasons:

- a) Only one well was being provided per village.
- b) It is conceivable that the total amount of water currently available per capita could actually decrease with the installation of the well. This could happen especially if villages are encouraged through health education lessons to use the well water exclusively or primarily in lieu of other sources.
- c) It would be necessary therefore to verify that there was indeed an increase in water quantity alongside the assumed quality improvements. Such knowledge would provide a better justification for seeking to define the health benefits anticipated from improved water supplies. In the course of this determination it would be further possible to refine the expression of water needs in terms of liters per capita rather than wells per village.

Some field technicians have responded to the idea of a water use survey within the framework of this project with a justified cynical or non-committal response. This response is understandable given the endless number of studies these

personnel are requested to perform with no clearly defined purpose and few obvious benefits accruing to interviewees. (A case in point is a 103-question survey currently in progress which is causing considerable anguish among field personnel.)

Notwithstanding these field problems it should be noted that the Government of Togo, within the framework of activities for the International Decade for Water and Sanitation, currently has posters all over Togo proclaiming the statement of Dr. Halfdan Mahler, the WHO Director General, that "the number of faucets (or taps) per 1,000 inhabitants is a better health indicator than the number of hospital beds." This statement is loaded with assumptions about the relationship between health and water and sanitation, all of which are well known in principle and which are built into the objectives of this project. If the above statement could be scaled down to reflect the social and economic conditions in rural Togo, it would probably read something like "the number of inhabitants per well or the number of liters of water per person per day is a better health indicator than the number of hospital beds."

For a variety of reasons, the Government seems to be committed to a well program in the rural areas even in areas where hydrogeological conditions would indicate otherwise. Under these local conditions, the assumptions inherent in the statement of the WHO Director General are more tenuous and ought to be verified for the numerous wells programs being planned in Togo within the context of its national development plans and the Decade.

The information to be derived from a verification activity within the local programs will be useful not only in testing the assumed water-health relationships but will be invaluable in selecting technologies for future programs. It is within this framework that the water-use survey is strongly recommended for this project in spite of the problems that will be associated with its execution.

The Government has as its ultimate objective the provision of one water collection point per 500 persons or approximately two water points per average village.

Data established by CIEH (Comite Interafricain d'Etude Hydraulique) of Upper Volta indicate the following average daily needs for the average African Village (Table 4).

Table 4. Average Daily Water Needs in an African Village

Per person	20.0 liters
Per head of cattle	20.0 liters
Per sheep or goat	3.6 liters
Per square meter of irrigated garden	<u>6.0 liters</u>
Total	49.6 liters

The above needs are considered minimal, and it is not clear whether 20 liters per capita per day was determined as the minimum amount to bring about improved health benefits. The sanitary engineer for the Savanna Region indicated during discussions in Dapaong that 15 liters per capita per day is a more realistic objective for Togo for the International Decade.

How Can Water Quantity be Determined?

Only a water use survey can provide information that will clarify the various questions surrounding this parameter (see sample survey questionnaire, Appendix H). Some of these questions include:

- What is the quantity of water currently available to the average family in the project village?
- What is the effect of time and distance on the effective quantity available?
- How much inter-family and inter-seasonal variation is there in the quantity of water used?
- How are livestock, and garden irrigation needs, if any, currently satisfied?

The introduction of a well into a project village will change the dynamics of water use in the village but the direction and magnitude of change will not be the same for every village household. The water-use survey will seek to confirm that there has been indeed an increase in water quantity. It is reasonable, however, to anticipate rare situations in which the project will be providing significantly less water per capita (albeit of better quality) than was initially available to the village from the polluted source.

Among new and old sources and depending on how far each source is from any given family,

- some families will satisfy all their water needs from the new source
- some families will use the new source for particular purposes (drinking and cooking) and the old source for other purposes (laundry, bathing, etc.)
- some families will continue to use the old source for all their water needs. Only a pre- and post-project water-use survey will determine within any given village the number of persons who benefited from the well.

2.7 Well Construction in the Plateau Region

The construction of concrete perimeters around wells has to be closely synchronised with well drilling. When the drilling team moves into a village, or even prior to that, villagers may have to suspend temporarily other project activities such as latrine construction in order to attend to this activity. Project supervisors will be responsible for keeping in touch with the drilling team so that villagers are prepared with requisite materials (stones, gravel, etc.) before the drilling team moves into any village. It is important to have the well properly sealed and surrounded by a concrete perimeter before villagers begin using it.

2.8 Baseline Epidemiological Data

One of the expected outcomes of the project is measurable improvement in the health status of people in the project area. Because of the sparseness and unevenness of available epidemiological data, a basic village health survey as well as a survey of health center data is proposed (a rationale and approach to the gathering and analysis of such data are discussed in Appendix K). The data should aid in the identification of specific health problems to be addressed by the project as well as provide a basis for mid-project and terminal evaluations of the project (see Chapter 3 below).

2.9 Other Projects

The Associate Peace Corps Director and the Plateau Project Director have expressed a strong interest in undertaking any feasible projects that villagers are committed to implement. During visits to several villages in the project area, it became evident that these "other projects" which may not be health, water or sanitation related are quite varied. In one

village in the Wawa prefecture, for instance, villagers were involved in a small poultry project. In another village in the Savanna region, social promotion agents and villagers were growing vegetables for sale in Lama Kara. In yet another village community effort was centered around a coffee nursery.

As long as villagers find these projects useful and are supporting them the present project should support and encourage them. It must be remembered, however, that too many other sectoral projects could have the effect of diluting and diffusing efforts aimed at achieving the water health and sanitation objectives of this project. This point has been brought to the attention of the Togolese project director in the Plateau region. This issue does not seem to constitute a problem to Togolese officials who insist on maintaining a long-term perspective on these projects. This activity could, however, be a problem to American project evaluators who are likely to concern themselves exclusively with the specific project purpose as stated, project inputs, and expected outputs.

A compromise suggestion is to give priority to water, health and sanitation projects in the villages during the life of the project. Other projects should still be considered depending on their urgency.

Chapter 3

EVALUATION

The health education and sanitation component of these projects is intended to provide the complementary inputs to the well drilling activity (both spring captation and well drilling in Benin) with the purpose of achieving the maximum possible health benefits in the participating villages. From this perspective, success or failure in these projects will be considered in terms of the translation of inputs into health output benefits for participating villagers.

3.1 Constraints Affecting the Conversion of Resource Inputs into Health Output Benefits

The assumption that improved water supplies can indeed lead to improvements in certain water related health problems is probably generally true. In practice, however, health benefits in any of the categories of water related diseases have been observed to be strongly related to the level of water supply and sanitary developments in question. House water connections for example and public standpipes have been observed to reduce the incidence and prevalence of diarrheal diseases. In the Togo project, we are dealing with wells, a level of water supply technology for which evidence for immediate health benefits (except for Guinea worm, schistosomiasis, and possibly typhoid and cholera) is inconclusive.

The level of complementary sanitation technology deemed socio-economically appropriate for the Togo project (pit latrine) is such that poor user habits could easily negate not only the health benefits of the technology itself but also that of the new water supply system. In addition, the life of the project is very short (48 months) and makes the interpretation of any observable health benefits difficult, especially for those diseases with seasonal cycles.

The assumption that there will indeed be an improvement in water quality and quantity (for at least a majority of the villages) should be verified. If the wells program provides benefits only in time and energy savings (with no overall quality and quantity improvements) for all categories of water needs (drinking, washing, etc.) leading to a complete abandoning of the old sources, then the only health benefits that can be reasonably anticipated are a reduction of the incidence, but not necessarily the prevalence, of Guinea worm and schistosomiasis both of which are present in the Togo project zone. The possible elimination of all new cases with no reduction of prevalent cases at the end of the project would be due to the fact that medically untreated carriers would still be shedding eggs of the worms by the time the terminal evaluation of the

health effects of the project is due. This is especially true for schistosomiasis. There remains however the very real possibility that even schistosomiasis incidence will not be affected unless project inputs can achieve a real separation of children from contaminated water sources.

If there are multiple improvements in water quality, quantity and time and every savings, it would then make sense to look for health benefits (even for this level of water supply technology) among the various categories of water related diseases.

3.2 Evaluation Strategy

A pre- and post-evaluation strategy is recommended for the project. A wide range of evaluation criteria has been developed and recommended to the project managers. Criteria have been developed in health, sanitation, water use habits, project operations, and fiscal and administrative operations. Evaluation criteria in health, sanitation and water use habits are all evident in the questionnaires developed and recommended for use in the project (see Appendix H). These criteria have been restated as indices at the end of this section. Evaluation criteria in fiscal and administrative operations and other intermediate process indicators were developed and recommended for use during the first visit to Togo (see the Austin Report).

The implementation plan offered for adoption also has built into it specific annual targets that will be helpful for an on-going evaluation. Both a mid-project and a terminal evaluation using the criteria mentioned above are desirable. The evaluation activities themselves will have the effect of reinforcing project activities in the villages and thereby increasing the ultimate total benefits. No expectations which will not be fulfilled will be raised in non-project villages. A follow-up evaluation for these projects presents certain problems, however. The health benefits anticipated in this project are predicated in part on the availability of a new water source to the villagers. With perhaps the exception of Guinea worm, all other potential health benefits will become evident only over a considerable time period, especially if it turns out that health education interventions are be critical for changing water-use habits. The time element becomes critical in the evaluation of the project. Some villages will have had a well for over two years while others will have had it for only a few months. Implementation of sanitation activities is likely to be simultaneous in all participating villages.

From this perspective, it may not be reasonable to compare the health benefits in villages that have had a new and adequate water source for only about three months with villages that

have had the same facilities for about 18 months. One way to dampen the effect of this time factor at the terminal evaluation would be to compare villages which had an operating well at mid-project life. Assuming that temporal extraneous variables have been screened to ascertain that perceived benefits are indeed attributable to project activities, it can further be assumed that the later group of villages will eventually obtain the same health benefits after the official termination of the project, assuming continued health education activities by the Togolese social promotion agents.

3.2.1 Health Criteria for Pre- and Post-Evaluation

- a) Prevalence of diarrheal diseases

$$\frac{\# \text{ persons with diarrheal diseases}}{\text{Total population examined}}$$

Data to further refined according to:

- 1) children being breast fed with diarrhea
- 2) weaned pre-schoolers
- 3) school age children

- b) Prevalence of skin, and eye diseases

$$\frac{\# \text{ persons with eye and skin infections}}{\text{Total population surveyed}}$$

Data can be analysed into male and female rates.

- c) Guinea worm prevalence

$$\frac{\# \text{ persons with Guinea worm}}{\text{Total number of persons surveyed}}$$

- d) Schistosomiasis

$$\frac{\# \text{ persons with urinary schistosomiasis}}{\text{Total number of persons surveyed}}$$

- e) Intestinal parasites

$$\frac{\# \text{ of children with intestinal parasites}}{\text{Total number of children surveyed}}$$

Data here can be refined into type of parasite and parasites as a function of the anemia status of the child.

f) Hemoglobin status of children

$$\frac{\# \text{ children with low hemoglobin (e.g. } < 70\%)}{\text{Total } \# \text{ of children surveyed.}}$$

g) Malnutrition

$$\frac{\# \text{ of children with visable clinical signs of malnutrition}}{\text{Total number of children surveyed.}}$$

3.2.2 Sanitation criteria

a) Latrine ownership and use at beginning of project and after

$$\frac{\# \text{ of latrines owned and in use}}{\text{Total } \# \text{ of compounds surveyed}}$$

b) Sanitary characteristics of latrines before and after

- cover for hole
- depth
- distance from water source
- cleaning - frequency of cleaning
- cleanliness
- upstream or downstream from water sources

c) Garbage pits before and after

$$\frac{\# \text{ of garbage pits}}{\text{Total number of compounds surveyed}}$$

d) Water sources improved apart from new well before and after

$$\frac{\# \text{ of other water sources improved}}{\text{Total number of water sources}}$$

e) Drainage and Market Sanitation projects

$$\frac{\# \text{ Drainage and market projects before}}{\text{Total number after project}}$$

3.2.3 Intermediate Process Indicators

This indicator would compare the number of general requests for assistance before the project and the number after the project is initiated.

3.2.4 Managerial Evaluation

The initial questionnaire will seek to establish benchmark data for a follow-up evaluation on the health and community development impact of the project. Information that will determine whether the project was fiscally and administratively efficient will be gathered throughout the life of the project. The WASH report prepared by John Austin provides elaborate criteria for this kind of evaluation. To this end, an activity and resource log should be prepared for all project personnel for the life of the project. The collection and provision of this information is essential to understanding how efficient the project was.

Chapter 4

CONCLUSION

Initial plans were to have this consultant spend a period of two months working on the Togo and Benin Projects. Because of the problems associated with the Benin Project the consultant spent most of his time working only on the Togo Project. On arrival in Lome, the consultant was informed by the Project Training Director, Mr. Ron Philips, that training needs were already being met adequately and as such the consultant did not have to devote much of his time to this activity. The consultant, therefore, devoted most of his time to developing the questionnaires, developing an activity plan and trying to get all major project managers to agree on a common operations plan. Some training material was developed and a sample of villages to be surveyed in detail determined. Major potential issues and problems were discussed with the project managers and those requiring resolutions were identified for attention.

The one week overlap between this consultant and the USAID Public Health Advisor for the project provided adequate time for discussion of all issues and problems requiring immediate attention.

More work could have been done on resolving some of the outstanding problems of the project in the Savanna Region but the decision by project managers to delay implementation of the project in this region for 12 to 18 months made this activity a little premature.

Prior to his departure from Lome the following had been accomplished and were in readiness for project implementation:

- Vehicles had been assigned officially to the project zones (Appendix L).
- Some central personnel had been transferred to the project zone.
- All Peace Corps volunteers had been trained and assigned to their posts.
- Questionnaires for the collection of initial baseline data had been developed.
- A work plan had been proposed and discussed conjointly by all project managers.
- A materials requirements list for first year activities had been prepared and submitted to the Central Office by the Regional Project Directors (see Appendix F).

The long awaited Public Health Advisor had arrived and had found adequate lodging.

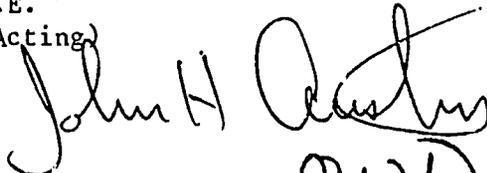
It is the opinion of this consultant that the project should be able to operate smoothly for the next 12 months without much outside support.

APPENDIX A

WATER AND SANITATION FOR HEALTH (WASH) PROJECT
ORDER OF TECHNICAL DIRECTION NUMBER 45

July 2, 1981

TO: Dennis Warner, Ph.D., P.E.
WASH Project Director (Acting)

FROM: DS/HEA: John H. Austin
Environmental Engineer 

THRU: DS/HEA: Victor W.R. Wehman, Jr., P.E. R.S.
AID WASH Project Manager 

SUBJECT: Provision of Technical Assistance Under Scope of Work for
USAID/Togo and Benin

REFS: 1) LOME 02174, (Para 1, 2 and Attachment 1 - Statment of Work),
2) COTONOU 0719, (Para 1), 3) LOME 02939, (Para 5) and Austin memo
March 19, 1981 to Lundgren

1. WASH contractor requested to provide technical assistance to USAID/Lome as per REFS. 1, 2, and 3 Scope of Work, and background material in REF 4.
2. WASH contractor authorized to expend up to 140 person days effort over a 15 month period to accomplish this technical assistance effort.
3. Contractor to provide draft interim and final reports to Mission on Scope of Work elements at times to be determined, before leaving Mission. Contractor to make arrangement for local secretary and typewriter to accomplish reports on project elements. If Mission unable to provide these services, then contractor should have consultants take typewriter on their trips..
4. Contractor to coordinate directly with USAID/Lome (Dr. John Lundgren, Mission D n Phillips (Associate Director, Peace Corps)). In addition, the following must be kept appraised of the nature of this effort, travel schedules, progress of effort and times of major activities:
 - a. Dr. Jim Shepperd (AFR/DR/HP)
 - b. Mike Speers, Project Officer (AFR/DR)
 - c. Bernard Lane, Desk Officer (AFR/DR)
 - d. Barbara Gardner, Peace Corps (Togo/Benin, Desk Officer)
 - e. Jim Bell, Peace Corps (Water Supply and Sanitation)
5. Contractor authorized up to 135 days of domestic and international per diem for this effort.
6. Contractor authorized up to 4 round trips travel from consultants home base through Washington to Lome, return to Washington for debriefing and return to their home base.

7. Contractor should insure a timely and thorough briefing and debriefing for Africa Bureau and DS/HEA personnel upon return to Washington, D.C. before and after each trip as required. Contractor to provide detailed interim debriefing on status of project upon return from second trip of consultant. Full scale debriefing for Africa Bureau, DS/HEA and Peace Corps personnel anticipated.
8. Contractor authorized to pay local expenses in Togo and Benin for local hire of secretary, interpreter, xeroxing, car rental or other miscellaneous expenses. As much as possible, Mission should use project resources for these. Local expenses NTE \$1,000 without notification and approval of DS/HEA project manager.
9. Contractor authorized 20 round trips within Togo/Benin to project sites, if required, from Lome to site and return to Lome, if necessary, to carry out mission.
10. Mission should be contacted immediately and technical assistance initiated as soon as possible and convenient to Mission/GOT and GOB.

JHA:ja:7/ /81

BENIN

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FM AMEMBASSY LOME
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INFO AMEMBASSY COTONOU

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AIDAC

AID/W FOR AFR/DR (BARNES) DS/HEA (AUSTIN)

E.O. 12065: N/A
SUBJECT: BENIN RURAL WATER SUPPLY (698-0201)
- HEALTH COMPONENT

REF:

1. SUMMARY: THIS MESSAGE HAS THREE PURPOSES. FIRST, IT TRANSMITS INFORMATION IN PIO/T FORMAT TO ENABLE AFR/DR EXECUTE A CONTRACT FOR THE SERVICES OF A HEALTH SANITATION ADVISOR/MANAGER FOR THE HEALTH COMPONENT OF SUBJECT PROJECT. SECOND, IT RECOMMENDS THAT, IF POSSIBLE, THE SAME CONTRACTOR SELECTED FOR THE TOGO WATER PROJECT (REPORTED TO BE NELLUM ASSOCIATES) BE INVITED TO REVIEW PIO/T SCOPE OF WORK WITH VIEW THAT A NEGOTIATED CONTRACT BE CONCLUDED. THIRD, IT REQUESTS WASH PROJECT RESOURCES BE MOBILIZED TO ASSIST THE LONG-TERM HEALTH ADVISOR DURING PROJECT START-UP PERIOD.

2. SINCE BOTH PROJECTS BEING MANAGED BY OAR/LOME, RECOMMEND TOGO HEALTH CONTRACTOR BE HIRED FOR BENIN HEALTH COMPONENT FOR THE FOLLOWING REASONS: A) AS PER DESCRIPTION BELOW, THE BENIN HEALTH PROJECT IS VERY SIMILAR TO TOGO PROJECT; B) PROXIMITY OF BENIN AND TOGO PERMITS EASY CONSULTATION BETWEEN HEALTH ADVISORS TO BOTH PROJECTS AND EXCHANGES OF IDEAS BENEFITTING BOTH PROJECTS; C) CLOSE COOPERATION OF THE TWO HEALTH ADVISORS WOULD PERMIT SHARING OF EDUCATIONAL AND OTHER RESOURCES AS NECESSARY; D) CONTRACT MANAGEMENT BY OAR/LOME WOULD BE SIMPLIFIED.

3. FOLLOWING IS PIO/T FOR HEALTH/SANITATION ADVISOR KEYED STANDARD PIO/T FORMAT:
BLOCK 1: BENIN; BLOCK 2: PIO/T NO. 680-0201-3-10004;
BLOCK 3: CHECK ORIGINAL; BLOCK 4: 680-0210, BENIN RURAL WATER SUPPLY (HEALTH/SANITATION ADVISOR);
BLOCK 5: 72-1111021.8; BLOCK 6: 140-52-680-00-69-11;
BLOCK 7: IMPL. DOCUMENT; BLOCK 8: 9-30-85;
BLOCK 9: AID/W - AAA/AFR/DR; BLOCK 10: 680-0201, DATED 8/30/1980; BLOCK 11.A: CHECK AID CONTRACT (HB 14);
BLOCK 11.B: N/A; BLOCK 12.A. (2) DOLS 490,000.
BLOCK 12.A. (4) DOLS 490,000. BLOCK 13: NONE BLOCK 14.A.: AUTHORIZED AGENT IS REQUESTED TO EXECUTE A CONTRACT OR A WORK ORDER UNDER THE APPROPRIATE INDEFINITE QUANTITY CONTRACT FOR THE SERVICES OF A VILLAGE HEALTH EDUCATION SPECIALIST. THE SCOPE OF WORK FOR TECHNICAL SERVICES PROVIDED AS ATTACHMENT NO. ONE. ESTIMATED BUDGET IS PROVIDED AS ATTACHMENT NO. TWO.
BLOCK 14.B.: WAAC, HEDSO/WA, AMERICAN EMBASSY B.P. 1712, ABIDJAN, IVORY COAST; BLOCK 15: AS REQUIRED BY AFR/DR;
BLOCK 16: COOPERATING COUNTRY AGREEMENT CONTAINED IN

ORIGINAL OF PROAG REFERENCED ABOVE BLOCK 17: BY AAA/AFR/DR. BLOCK 18: SEE STATEMENT OF WORK AS ATTACH 1 BELOW; BLOCK 19.A: SOLID ABILITY TO READ, WRITE, AND SPEAK THE FRENCH LANGUAGE AT THE FSI-3 LEVEL; BLOCK 19.B: SECURITY CLEARANCE WILL NOT BE REQUIRED; BLOCK 19.C: DUTY POST WILL BE KANDI, PEOPLES REPUBLIC OF BENIN (SEE ATTACH 3 LIVING CONDITION BELOW). INITIAL TOUR WILL BE FOR 24 MONTHS RENEWABLE FOR A SECOND 21 MONTH TOUR. BLOCK COMD: DEPENDENTS WILL NOT BE PERMITTED (EXCEPT AT CONTRACTOR'S EXPENSE) SEE PARA FIVE BELOW; BLOCK 19.E: N/A. BLOCK 19.F: CHECK HAS BEEN OBTAINED. BLOCK 19.G: 44 HOUR WORK-WEEK AUTHORIZED. QUALIFICATIONS: TECHNICIAN SHALL HAVE AT LEAST A MASTER'S DEG E IN PUBLIC HEALTH. MUST HAVE HAD 3 YEARS WORK EXPERIENCE IN RURAL AREAS OF DEVELOPING COUNTRIES - IDEALLY IN WEST AFRICA. MUST BE ABLE TO PLAN THE VILLAGE HEALTH EDUCATION IMPROVEMENT PROGRAM, THE REQUIRED TRAINING PROGRAM DEVELOPMENT OF TRAINING MATERIALS, AND THE EVALUATION OF THOSE ACTIVITIES. BLOCK 20: PROJECT RPER - BENIN RQJAL WAYER SUPPLY WFD SANITATION (AUGUST 1980); THE HEALTH ANALYSIS PREPARED IN JUNE 1978 FOR PROJECT DESIGN; THE PROJECT AGREEMENT DATED 030 AUGUST 1 980. THESE DOCUMENTS ARE AVAILABLE IN AID/AFR/CWA AND AID/AFR/DR/CAWARAP. BLOCK 21: DETAILED BUDGET PROVIDED AS SECTION D. DETAIL STATEMENT OF WORK PROVIDED AS SECTION B BELOW.

A. ATTACHMENT ONE,
- STATEMENT OF WORK:
THE FIRST COMPONENT OF THIS PROJECT CALLS FOR THE INSTALLATION OF 225 DRILLED TUBEWELLS EQUIPPED WITH PUMPS IN APPROXIMATELY 100 RURAL VILLAGES IN THE BORGOU REGION OF BENIN AND SPRING CAPTATION IN THE ATACORA REGION. THE SECOND COMPONENT CALLS FOR IMPROVING HEALTH EDUCATION AND SANITATION IN THE VILLAGES WHERE WELLS HAVE BEEN INSTALLED UNDER THE PROJECT IN NORTHERN BORGOU PROVINCE.

Revised 5 May 1981 JEC

*WENHARD
AUSTIN*

Vic.

I suggest that you tell Barnes, AFR/DR that Austin on TDY this week but we will have him - could meet week.

10C

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AIDAC

AID/W FOR AFR/DR (BARNES), DS/HEA (AUSTIN)

THE CONTRACT TECHNICIAN WILL WORK WITH THE SECOND COMPONENT
OF THIS PROJECT AND WILL PROVIDE TECHNICAL ASSISTANCE
IN THE DEVELOPMENT, IMPLEMENTATION AND EVALUATION OF THE
VILLAGE HEALTH EDUCATION COMPONENT OF THE PROJECT.
UNDER THIS CONTRACT, ADVISOR WILL BE REQUIRED TO:

- 1) VISIT THE REGIONS AND SOME OF THE VILLAGES WHERE NEW
- SOURCES OF SAFE WATER WILL BE OR ARE BEING DEVELOPPED AND
- MAKE PRELIMINARY ASSESSMENTS AS TO: CURRENT LEVELS OF
- VILLAGERS' AWARENESS OF CLEAN WATER AND ITS RELATION-
- SHIP TO GOOD HEALTH; ON-GOING PRACTICES WHICH COULD SERVE
- TO NEGATE POTENTIAL HEALTH IMPROVEMENTS ARISING FROM THE
- INTRODUCTION OF SAFE WATER SOURCES; PRESENT LEVELS OF
- CAPABILITY OF THE VARIOUS BENINESE GOVERNMENT PERSONNEL
- WHO WILL BE INVOLVED IN VILLAGE-LEVEL HEALTH EDUCATION
- AND SANITATION IMPROVEMENT EFFORTS TO MAKE AN EFFECTIVE
- CONTRIBUTION TO THE EFFORT. DURING THE PLANNING STAGE
- CLOSE COLLABORATION WILL BE MAINTAINED WITH THE PEACE
- CORPS AND INSTRUCTIONAL MATERIALS, SURVEY INSTRUMENTS,
- EVALUATION INSTRUMENTS WILL BE DESIGNED BY THE HEALTH
- CONTRACTOR IN COLLABORATION WITH THE PEACE CORPS VOL-
- UNTEERS AND BENINESE COUNTERPARTS ASSIGNED TO THE PROJECT.
- 2) BASED ON THE ASSESSMENT (AND ON INFORMATION PROVIDED
- FROM GPRB AND USAID SOURCES) AND WORKING WITH COLLEAGUES
- FROM THE MINISTRIES OF HEALTH, SOCIAL AFFAIRS AND OTHER
- CONCERNED AGENCIES, ASSIST IN THE DEVELOPMENT OF A COM-
- PREHENSIVE PLAN FOR CARRYING OUT A BASIC AND ELEMENTARY
- HEALTH EDUCATION/SANITATION IMPROVEMENT PROGRAM IN THE
- VILLAGES TO BE PROVIDED WITH NEW SOURCES OF SAFE WATER.
- THE PROGRAM IS TO BE AIMED AT: A) RAISING VILLAGERS'
- AWARENESS OF THE INTERRELATIONSHIP BETWEEN UNHYGIENIC
- PRACTICES AND UNSANITARY CONDITIONS ON THE ONE HAND AND
- DISEASE AND DEATH ON THE OTHER; B) MOTIVATING VILLAGERS
- TO CHANGE INAPPROPRIATE PRACTICES; AND C) HELPING THEM
- TO DO SO. IN ADDITION THE TECHNICIAN WILL WORK CLOSELY
- WITH THE PEACE CORPS ASSOCIATE DIRECTOR AND PEACE CORPS
- VOLUNTEERS ENGAGED IN PREVENTIVE HEALTH ACTION ACTIVITIES
- IN THE COMMUNITIES. ASSISTANCE WILL BE GIVEN IN TRAINING
- PEACE CORPS VOLUNTEERS AND THEIR COUNTERPARTS AS WELL AS
- ASSISTING THEM WITH THEIR ACTIVITIES IN THE FIELD. THE
- ACTIVITIES OF CONSULTANTS SUPPLIED BY THE WASH PROJECT
- WILL BE COORDINATED BY THE TECHNICIAN.

- THE PLAN WILL SPECIFY THE KINDS OF PARTICIPATION THAT
- WILL BE REQUIRED OF VILLAGERS, HEALTH AND OTHER WORKERS,
- OFFICIALS AND POLITICAL LEADERS. IT WILL INCLUDE A
- PLAN FOR IN-SERVICE EDUCATION OF THE PERSONNEL OF THE
- MINISTRIES OF HEALTH, SOCIAL AFFAIRS AND OTHER AGENCIES
- WHO WILL BE INVOLVED IN THE HEALTH EDUCATION/SANITATION

- IMPROVEMENT ACTIVITIES. IT WILL DEFINE SANITATION
- STANDARDS REQUIRED TO ASSURE THAT WATER SAFETY IS MAIN-
- TAINED IN THE VILLAGE SITUATION. IT WILL DESCRIBE HOW
- THE HEALTH EDUCATION/SANITATION IMPROVEMENT COMPONENT
- OF THE PROJECT WILL BE MANAGED AND WILL SPECIFY RESPON-
- SIBILITIES OF COLLABORATING MINISTRIES, AGENCIES, AND
- PERSONNEL. IT WILL SPELL OUT THE PHASING, TIMING, AND
- SYNCHRONIZING OF ACTIVITIES OF THIS COMPONENT WITH THE
- OTHER COMPONENTS OF THE PROJECT. IT WILL OUTLINE PLANS
- FOR ON-GOING, MID-POINT, AND FINAL EVALUATION OF THIS
- COMPONENT OF THE PROJECT (THE EVALUATION PLAN WILL
- IDENTIFY SPECIFIC OBJECTIVES OF PROJECT ACTIVITIES,
- BENCHMARKS OF PROGRESS, BASELINE DATA TO BE GATHERED,
- ETC.)

- 3) ASSIST THE MINISTRY OF HEALTH TO DETERMINE TRAINING
- NEEDS AND TO DEVELOP INITIAL AND SUPPLEMENTARY TRAINING
- PROGRAMS TO PREPARE THE PERSONNEL WHO WILL ACTUALLY CARRY
- OUT THE HEALTH EDUCATION AND SANITATION IMPROVEMENT
- ACTIVITIES AT THE VILLAGE LEVEL AS WELL AS IN THE SCHOOLS
- TO CARRY OUT THEIR DUTIES EFFECTIVELY. THE PERSONNEL TO
- BE TRAINED INCLUDE SOCIAL AGENTS, CULTURAL EXTENSION
- AGENTS, TEACHERS AND MOH PERSONNEL ASSIGNED TO AREAS
- WHERE NEW SAFE WATER SOURCES ARE BEING DEVELOPED.
- THE CONTRACTORS WILL REVIEW DIFFERENT TRAINING METHODS,
- DETERMINE THE MOST APPROPRIATE METHOD, ESTABLISH COURSE
- CONTEXT, AND DEVELOP MATERIALS REQUIRED FOR THE TRAINING.
- THE CONTRACTOR SHOULD USE EXISTING MATERIALS AS MUCH AS
- POSSIBLE INITIALLY, BUT SHOULD AIM TO DEVELOP LOCAL
- CAPACITY FOR MATERIALS DEVELOPMENT AS SOON AS POSSIBLE.
- THE CONTRACTOR WILL TRAIN THE MOH PERSONNEL AND WORK WITH
- THEM TO CONDUCT THE TRAINING PROGRAMS. THE CONTRACTOR
- WILL MONITOR THE PERFORMANCE OF THE PERSONNEL CARRYING
- OUT THE VILLAGE-LEVEL HEALTH EDUCATION AND SANITATION
- IMPROVEMENT ACTIVITIES. BASED UPON THEIR OBSERVATIONS,
- THE CONTRACTOR WILL MODIFY TRAINING PROGRAMS AND PLANS AS
- APPROPRIATE. THE TRAINING PROGRAMS WILL BE BASED ON THE
- PERFORMANCE OBJECTIVE APPROACH TO TRAINING.

- 4) ASSIST IN CARRYING OUT THE MID-POINT EVALUATION OF

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AIDAG

AIO/W FOR AFR/DGY (BARNES), DS/HEA (AUSTIN)

- THE PROJECT. THIS IS SCHEDULED TO BE CARRIED OUT ABOUT 18 MONTHS FOLLOWING THE INITIATION OF THE VILLAGE HEALTH EDUCATION/SANITATION IMPROVEMENT ACTIVITIES (OR, ABOUT SIX MONTHS AFTER THE CONTRACTOR COMPLETES THE INITIAL PHASE OF THEIR WORK). IT WILL ENTAIL REVIEW AND ANALYSIS OF DATA GATHERED, FIELD OBSERVATIONS, INTERVIEWS WITH PROGRAM MANAGERS AND VILLAGERS, AND WORK WITH THE EVALUATION COMMITTEE (TO BE ESTABLISHED BY THE GPRB) TO FRAME CONCLUSIONS AND RECOMMENDATIONS AND TO PREPARE A REPORT. VILLAGERS, AS WELL AS PROJECT STAFF, WILL PARTICIPATE IN THE EVALUATION PROCEDURE.

- 5) THE CONTRACTOR WILL UTILIZE THE PROJECT PAPER AS THE DOCUMENT FOR THE WORK. IT IS ESTIMATED THAT THE SERVICES OF THE CONTRACTOR WILL BE REQUIRED FOR A TOTAL OF 45 MONTHS. THE CONTRACTOR WILL RECEIVE FIVE DAYS OF ORIENTATION CONSULTATIONS WITH AIO/W AND WASH BEFORE DEPARTURE FOR BENIN AND WILL DE-BRIEF AIO/W PERSONNEL UPON EACH RETURN FROM BENIN.

B. ATTACHMENT TWO,

- LIVING CONDITIONS AT DUTY POST:
- KANDI IS A TOWN OF 3000 PEOPLE. 550 KM NORTH OF COTONOU. AVAILABLE HOUSING IS VERY MODEST WITHOUT ELECTRICITY OR RUNNING WATER. FACILITIES FOR CHILD HEALTH CARE AND SCHOOLING ARE NOT AVAILABLE. (12,54--59' 23) 73 3/03:535 59 SPEND AN AVERAGE OF 15 DAYS/MONTHS IN SMALL RURAL VILLAGES AT SOME DISTANCE FROM KANDI AND ANOTHER 5 DAYS/MONTHS ON MISSIONS TO COTONOU OR ELSEWHERE. LIVING CONDITIONS IN VILLAGES ARE PRIMITIVE.

- DUE TO THE PAUCITY OF EDUCATIONAL AND HEALTH FACILITIES IN THE PROJECT AREA, AND FREQUENT TRAVEL REQUIRED OF HEALTH ADVISOR, SEPARATE MAINTENANCE IN THE U.S. WILL BE PROVIDED FOR ELIGIBLY FAMILY MEMBERS. NO PROJECT FUNDS WILL BE MADE AVAILABLE FOR EITHER THE TRANSPORT OF FAMILY MEMBERS TO BENIN OR THEIR SUPPORT IN BENIN; DEPENDENTS OF HEALTH ADVISORS PRESENT IN BENIN WILL BE CONSIDERED UNOFFICIAL AND ON THEIR OWN.

- THE STANDARD WORK WEEK IN THE ADMINISTRATIVE CENTERS IS FORTY HOURS, SEVEN HOURS PER DAY MONDAY THROUGH FRIDAY AND FIVE HOURS ON SATURDAY. THE WORK WEEK IN THE FIELD CAN BE ALTERED, WITH THE AGREEMENT OF THE BENINESE COUNTERPARTS, TO FIT WORKING CONDITIONS. THE HEALTH ADVISOR WILL WORK AN EXTRA EIGHT HOURS EVERY TWO WEEKS WHICH WILL RESULT IN 26 DAYS ADDITIONAL LEAVE PER YEAR. HEALTH ADVISOR WILL BE ALLOWED AN ANNUAL ROUND-TRIP TICKET TO U.S., AT WHICH TIME HE/SHE MAY TAKE HIS/HER

REGULARLY ACCRUED LEAVE PLUS THE 26 DAYS OF ADDITIONAL LEAVE. AS A GENERAL RULE LEAVE WILL BE TAKEN DURING THE PROJECT AREA PLANTING SEASON. EXACT TIMING OF VACATIONS IS SUBJECT TO THE APPROVAL OF THE USAID PROJECT MANAGER AND THE GPRD PROJECT DIRECTOR.

- KANDI IS A THREE HOUR DRIVE FROM THE PROVINCIAL CAPITAL, PARAKOU. WHEN IN COTONOU THE HEALTH ADVISOR WILL HAVE ACCESS TO THE EMBASSY COMMISSARY AND MEDICAL FACILITIES ON THE SAME BASIS AS OFFICIAL AMERICAN EMPLOYEES. THE COMMISSARY HAS A LIMITED SELECTION OF AMERICAN CANNED GOODS AND MEAT. THE EMBASSY HAS A NURSE WHO IS PRESENT ONE DAY A WEEK AT THE EMBASSY BUT AVAILABLE WHEN NEEDED. THE STATE DEPARTMENT REGIONAL DOCTOR IS STATIONED IN LAGOS, NIGERIA AND MAKES REGULARLY SCHEDULED VISITS TO COTONOU. HEALTH ADVISOR WILL HAVE POUCH PRIVILEGES FOR FIRST CLASS LETTER MAIL ONLY. PROJECT VEHICLE WILL BE AVAILABLE TO HEALTH ADVISOR FOR OFFICIAL USE, WHICH INCLUDES TRAVEL BETWEEN WORK SITES AND REGIONAL CENTERS OR COTONOU.

C. ATTACHMENT THREE,

- ILLUSTRATIVE BUDGET:

(A) SALARIES

- 1) VILLAGE HEALTH

- EDUC. SPEC. (45 MONTHS) DOLS 132,000 DOLS 132,000

(B) POST-DIFFERENTIAL (25 PERCENT)

33,000

(C) OVERHEAD (100 PERCENT)

132,000

(D) OTHER ALLOWANCES

- (COLA, LOA, FURNISHING, SMA)

- 18,000 45,000 15,000 18,000

95,000

(E) TRAVEL & TRANSPORTATION

- 1) INTERNATIONAL

- A) AIRFARE (5 TRIPS) 10,000

- B) STOP OVER PER DIEM 1,000

- C) TAXIS 500

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AIDAC

AID/W FOR AFR/DR (BARNES), DS/HEA (AUSTIN)

-	D) EXCESS BAGGAGE	500	
-			12,000
-	2) U.S.:		
-	A) AIRFARE	1,000	
-	B) WASHINGTON PER DIEM	1,000	
-	C) TAXIS	300	
-			2,300
-	3) IN COUNTRY		
-	A) TRANSPORTATION	2,250	
-	B) PER DIEM	14,000	
-		16,250	31,550
-	(F) AIR FREIGHT		
-	(500 LBS X 2 DIRECTION)		3,500
-	(G) SECRETARIAL SUPPORT		3,000
-	(H) OTHER DIRECT COSTS		
-	1) DBA INS.		
-	(0,00714 X DOLS 60,500	1,500	
-	2) MEDICAL EXAMS, SHOTS		
-	PASSPORTS & VISAS	400	
-	3) MISCELLANEOUS	1,250	3,150
-	SUBTOTAL		DOLS 434,200
-	10 PERCENT FIXED FEE		DOLS 43,420
-	CONTINGENCY		DOLS 12,380

4. BASED ON THE COMPLETED PROJECT PLAN FOR HEALTH COMPONENT RECENTLY SUBMITTED BY HEALTH PLANNING CONSULTANT, OUR FORESEES NEED FURTHER DETAILED SPECIFICATION/ELABORATION SPECIFIC ELEMENTS THIS PLAN, I.E. EVALUATION CRITERIA AND CURRICULUM MATERIALS FOR TRAINING VILLAGE LEVEL HEALTH WORKERS. FOR THIS PURPOSE AND ALSO TO FACILITATE THE INTEGRATION OF THE WORK OF THE FULL-TIME HEALTH ADVISOR, WE RECOMMEND THAT A CONSULTANT FROM WASH COME TO BENIN APPROXIMATELY ONE MONTH AFTER THE ARRIVAL IN BENIN OF THE WATER PROJECT HEALTH ADVISOR TO ASSIST LATTER IN THE FOLLOWING TASK:

- A) THE DEVELOPMENT OF A PROJECT EVALUATION INSTRUMENT (QUESTIONNAIRES, DATA COLLECTIONS SHEETS, ETC.) AND METHODOLOGY WHICH WILL SERVE THE DUAL PURPOSE OF GATHERING BASELINE DATA FOR MEASURING IMPACT OF HEALTH PROJECT ACTIVITIES ON THE HEALTH STATUS OF PROJECT VILLAGES IN THE LONG TERM AND OF INITIATING VILLAGE LEVEL UNDERSTANDING OF, AND INVOLVEMENT IN, COMMUNITY ANALYSIS FOR THE PLANNING OF SMALL SCALE VILLAGE LEVEL

B) THE DEVELOPMENT OF CURRICULUM MATERIALS FOR THE TRAINING OF VILLAGE HEALTH WORKERS AND OF GPRB CIVIL SERVANTS, SUCH AS PRIMARY SCHOOL TEACHERS, WHOSE PARTICIPATION IN VILLAGE LEVEL HEALTH ACTIONS MAY BE SOLICITED.

C) THE WASH CONSULTANT SHOULD HAVE EXPERIENCE IN EVALUATION TECHNIQUES AND IN DEVELOPMENT OF HEALTH TRAINING MATERIALS. WE SUGGEST THAT DR. RAY ISELY WOULD BE AN EXCELLENT CHOICE. HIS PARTICIPATION IN THE BENIN WATER PROJECT WOULD BE NECESSARY FOR AT LEAST ONE MONTH AND, PROBABLY, NOT MORE THAN SIX WEEKS.

5. IN ORDER TO GIVE HEALTH ADVISOR NECESSARY TIME TO ESTABLISH REQUIRED CONTACTS WITH MOH OFFICIALS AND TO BECOME FAMILIAR WITH PROJECT PLANS AND NEEDS, WASH CONSULTANT SHOULD NOT ARRIVE SOONER THAN ONE MONTH AFTER ARRIVAL OF HEALTH ADVISOR IN COTONOU. ALSO, IN ORDER TO START PROJECT ACTIVITIES AS SOON AS FEASIBLE WASH CONSULTANT SHOULD ARRIVE NO MORE THAN SIX WEEKS AFTER ARRIVAL OF HEALTH ADVISOR IN BENIN. BEGINNING OF FIELD ACTIVITIES DEPEND ON ASSISTANCE OF WASH EVALUATION CONSULTANT. STRONGLY SUGGEST HEALTH ADVISOR MEET WITH WASH CONSULTANTS IN WASH, D.C. PRIOR TO DEPARTURE TO BENIN.

6. PLEASE ADVISE WHEN PIOT FINALIZED AND CONTRACTING ACTIONS BEGUN. JOHNSON

It may take some time to recruit the water project health advisor. Living conditions @ duty post are primitive. Also they want no dependents. Also flight from...

PAGE 01 COTONO 00719 131437Z 2260 054490 AID216J
ACTION AID-35

COTONO 00719 131437Z 2260 054490 AID216J

REVIEW OF PL 460 PROGRAM IN APRIL, AS REQUIRED BY BENIN
AUDIT REPORT 80-24.

ACTION OFFICE AFCW-DJ
INFO ARAF-01 AFRA-03 AFDR-06 IG-01 POC-02 IGPP-01 C-01 CALI-02
CMGT-02 CPS-02 CTR-02 DSHE-01 CH8-01 PVC-02 AFOA-01
/031 AS 113

8. PEACE CORPS RURAL WORKS 698-0410 AIP/IRT CANCELLED.
9. UNITARIAN UNIVERSALIST SERVICE COMMITTEE (UUSC)
CANCELLED.

INFO OCT-01 /036 W
-----315105 131439Z /34

10. INTERNATIONAL PROJECT, FAMILY PLANNING INTERNATIONAL,
INTRAH, JHPIEGO POPULATION PROGRAMS. NO NEW PROJECTS
WILL BE CONSIDERED FOR BENIN. BULLINGTON

R 131405Z APR 81
FM AMEMBASSY COTONOU
TO SECSTATE WASHDC 3381
AMEMBASSY ABIDJAN
INFO AMEMBASSY LOME

W B Amar

UNCLAS COTONOU 0719

BENIN OTD (Futer)

AIDAC

DEPT FOR AFR/W CWA AFR/DR AFR/RA

ABIDJAN FOR BRADSKY, MULCAHY, WAGNER

E.O. 12055: N/A
SUBJECT: BENIN STATUS REPORT

REF: COTONOU 0049 PRIOR STATUS REPORT

HAVE JUST COMPLETED AN EXTENSIVE REVIEW OF ALL AID ACTIVITIES
IN BENIN WITH CHARGE, AND PROJECT MANAGERS.

1. BENIN RURAL WATER 680-0201. ALL FUNDS OBLIGATED, AND CPS. 4.1, 4.2 AND FIRST HALF OF 4.3 MET. AFTER REDSO CLEARANCE ON PROCUREMENT PLAN RECEIVED (LAST HALF OF CP 4.3) PIL NO. 1 WILL BE ISSUED. PROCUREMENT TEAM HAS RETURNED FROM SUCCESSFUL U.S. VISIT TO SER/COM, UND/COF, MANUFACTURERS. PIO:XS AND PIO/TS DRAFTED AND AWAITING REDSO CLEARANCE. PROJECT MANAGER HAS VISITED ALL SPRING CAPTATION SITES, AND WILL SOON BE VISITING SEVERAL OF THE VILLAGE REGIONS DESIGNATED AS POSSIBLE WELL SITES. PSC HEALTH CONSULTANT WILL SUBMIT ASAP/HEALTH-SAITATION PLAN, WHICH WE PLAN TO INVITE WASH TO COMPLETE AN ON SITE REVIEW.
2. CRS COYA PRODUCTION/NUTRITION 680-0207. FIELD DEMONSTRATIONS WILL BEGIN ASAP AT DISTRICT LEVELS AND NATIONAL SEMINARS AT REGIONAL LEVEL COMPLETED VERY SUCCESSFULLY.
3. PARAKOU-MALANVILLE ROAD. 680-003/4 RECEIVED GPRB MAINTENANCE PLAN AND REDSO HAS RECOMMENDED TO ASSISTANT ADMINISTRATOR/AFRICA FOR CLOSURE OF RECOMMENDATION NO. 2 OF BENIN AUDI REPORT 80-24.
4. COTONOU BRIDGE/DAM 680-W-005. REDSO ENGINEERING WILL TI COTONOU TO UNDERTAKE COMPLETION REPORT AND DISCUSS REQUIREMENTS FOR PROJECT EVALUATION. OLD BRIDGE HAS REOPENED AS OF 01 APRIL 81.
5. ROAP. SOCIO-ECDHOMIC STUDY 698-0415.04. FIELD INTERVIEW STAFF HAS BEEN TRAINED/SELECTED/INSTALLED, AND HAVE BEGUN FIELD STUDY WITH PRINTED QUESTIONAIRES AS OF 01 APRIL 31. SOURCE/ORIGIN PROPRIETARY WAIVER FOR COMPASSES RECEIVED. CERTIFICATION SYSTEM FOR MASI VOUCHERS ESTABLISHED.
6. AHDP. FY 81 TRAINING PLAN APPROVED AND DOLS 65,000 ALLOTTED. OBLIGATION OF FUNDS WILL BE COMPLETED ASAP. THE THREE AFRAD SCHOLARSHIPS RESERVED FOR BENIN HAVE BEEN TURNED BACK TO AAI DUE INABILITY OF BENIN TO COMPLETE FILES.
7. PL 460 TITLE II. NEW CRS DIRECTOR HAS ARRIVED, AND PREPARED THIRD QUARTER CALL FORWARD OF 450 MT. OUTREACH PROPOSAL APPROVED AND RELEASE OF APPROX. DOLS 250,000 REQUESTED. OAR WILL COMPLETE SEMI ANNUAL

Togo

UNCLASSIFIED
Department of State

INCOMING TELEGRAM

PAGE 01 LOME 02939 121039Z
ACTION AID-35

7902 026634 AID1028

LOME 02939 121039Z

7902 026634 AID

ACTION OFFICE AFDR-05
INFO AAAF-01 AFRA-03 AFCW-03 STA-10 AADS-01 DSAG-02 DSHE-01
OSRD-02 ENGR-02 IT-06 CM3-01 AFCA-01 AGRI-01 RELO-01
MAST-01 /042 A4 712

INFO OCT-01 /036 W

-----333715 121039Z /34

R 121031Z JUN 81
FM AMEMBASSY LOME
TO SECSTATE WASHDC 1988
INFO AMEMBASSY ABIDJAN
AMEMBASSY COTONOU

UNCLAS LOME 02939

AIDAC

ABIDJAN FOR REDSO
COTONOU FOR GUILD

E.O. 12865: N/A

SUBJECT: TOGO WATER SUPPLY AND SANITATION PROJECT (693-0210)
- HEALTH EDUCATION SPECIALIST

REF: LOME 2802

1. REGRET TO ANNOUNCE THAT BECAUSE OF SUDDEN ILLNESS IN HER FAMILY, JEANNE MCCORMACK MUST LEAVE TOGO UNEXPECTEDLY AND HAS ADVISED OAR SHE WILL NOT, REPEAT NOT, BE ABLE TO ACCEPT OFFER OF PUBLIC HEALTH ADVISOR POSITION.

2. OAR WISHES SUBMIT ALTERNATE CANDIDATE AGMA PRINS WHOSE QUALIFICATIONS AS SUMMARIZED BELOW APPEAR IMPRESSIVE. MS. PRINS HAS JUST FINISHED PREPARING THE HEALTH SECTOR PROJECT PLAN FOR THE BENIN RURAL WATER SUPPLY PROGRAM, AN ACTIVITY IN MANY RESPECTS SIMILAR TO THE TOGO PROJECT. ESTIMATED AVAILABILITY IN TOGO SEPTEMBER ONE.

3. PAST EXPERIENCE INCLUDES PLANNING AND EVALUATION COMMUNITY LEVEL PRIMARY HEALTH CARE PROGRAMS FOR USAID AND P.C. IN BENIN, SENEGAL AND CAMEROON. TRAINED P.C.V.S FOR BOTH RURAL AND URBAN PRIMARY HEALTH CARE AND HEALTH EDUCATION PROJECTS IN SENEGAL, BENIN AND GAMBIA. DIRECTED AND CONDUCTED LANGUAGE AND TECHNICAL TRAINING AND MANAGED BUDGET OF EIGHT TRAINING PROGRAMS FOR P.C.V.S IN SECONDARY EDUCATION, RURAL DEVELOPMENT, AGRICULTURE, APPROPRIATE TECHNOLOGY AND HEALTH IN W. AFRICA. TAUGHT FOR THREE YEARS IN CAMEROON SECONDARY SCHOOLS. LANGUAGE SKILLS INCLUDE FLUENT FRENCH, DUTCH, GERMAN AND YESKOS (W. AFRICAN PIDGIN ENGLISH). BORN IN INDONESIA, MS. PRINS HAS LEARNED TO COMMUNICATE IN MORE THAN 10 LANGUAGES INCLUDING SPANISH
UNCLASSIFIED

SWAHILI, BAHASSA-INDONESIA, WOLOF, ETC. EDUCATION INCLUDES MPH COLUMBIA U., MAY 1981 AND B.A. AFRICAN AREA STUDIES, U. OF MICHIGAN, ANN ARBOR, 1971. SHE IS U.S. CITIZEN, BORN JUNE 30, 1949, MARITAL STATUS SINGLE.

4. PRINS NOW IN COTONOU, BUT EXPECTS DEPART JUNE 13 FOR UPPER VOLTA. WILL STAY THERE UNTIL JUNE 30 AND MAY BE REACHED C/O JIM SEYLER APCD OUAGA. FROM JULY 1 TO 15 MAY BE REACHED C/O JOHN GRUWELL USAID/DAKAR. ETA US JULY 15 AT 171 BAYBERRY LANE, WESTPORT, CONN. 06830, TEL. 203-226-0359. WOULD LIKE TWO YEAR CONTRACT WITH ONE YEAR RENEWAL OPTION, SALARY RANGE DOLS. 700-800 PER WK., PLUS USUAL AID BENEFITS. TERMS SUBJECT TO NEGOTIATION. NEEDS FIRM COMMITMENT NELLUM BY JUNE 20. WILL POUCH LETTER AND COPY CV TO NELLUM JUNE 15.

5. WHILE EFFORTS TO SECURE CANDIDATE FOR PUBLIC HEALTH ADVISOR POSITION FOR TOGO PROJECT ARE GOING ON, P.C. TOGO ENTERING CRITICAL PHASE OF PREPARATION ITS HEALTH EDUCATION COMPONENT, INCLUDING FORMAT, TRAINING PROCEDURES AND MATERIALS. OAR/LOME AND PC/TOGO THEREFORE JOINTLY REQUEST ASSISTANCE DR. RAY ISELY OF WASH, OR OTHER EQUALLY QUALIFIED WASH OFFICER TO ASSIST ASAP BY PROVIDING SERVICES AGREED WITH JOHN AUSTIN OF DS/HEA (AID/W) SOME TIME AGO NAMELY: DEVELOP OVERALL STRATEGY; ORDER AND SEQUENCE OF EVENTS; DEVELOP TRAINING PROGRAM AND TRAINING OF TRAINERS, PROCEDURES AND MATERIAL; DEVELOP MANAGEMENT PROCEDURES AND PREPARE EVALUATION PROCEDURES. DESIRED ETA IS JUNE 15 OR SHORTLY THEREAFTER BUT NOT FIRST WEEK JULY. JOHNSON

*Received DS/Hea (Johnson)
6/16/81
Passed to WASH & Austin
6/16/81*

APPENDIX B

Intinerary

- July 3-15 - Briefing, Washington, D.C.
- July 21 - Arrive Lome, Togo 10:30 a.m.
- July 21-August 1 - Work in Lome
- August 2-5 - Visit to Plateau and Savanna Regions
- August 6-9 - Work in Lome
- August 10-21 - Work in the Plateau Region
- August 22-29 - Work in Lome
- August 31-September 3 - Work in Savanna Region
- September 4 - Meeting in Lome of Project Managers
- September 5-9 - Work on Draft Reports - Met with USAID and PC Benin
- September 10 - Travel to Benin
- September 11 - Return to Lome
- September 12-19 - Work in Lome
- September 20 - Depart Lome
- October 2 - Arrive in Washington, D.C.
- October 5-14 - Final Report Preparation in Washington, D.C.

APPENDIX C

Persons Interviewed

Ministry of Social Affairs

Mr. Takouda Bouili
Secretary General Social Affairs

Mr. Jato Tcha-Tokay
National Project Coordinator

Mr. Namangue B.
Deputy Director-Community Development

Mr. Dogbeavou
Regional Director Social Affairs-Plateau Region

Mr. Late Koffi
Regional Project Director-Plateau Region

Mr. Ouro Bawinay
Regional Director of Social Affairs-Savanna Region

Ministry of Health

Dr. Aliko Kodjo
Chief Medical Officer
Ogou Prefecture

Dr. Amessa Etouglo
Chief Medical Officer
Amou Prefecture

Dr. Napo Dabou Tafamba
Chief Medical Officer
Kloto Prefecture

Dr. Quashare
Chief Medical Officer
Wawa Prefecture

Dr. Gaibor
Chief Medical Officer
Haho Prefecture

Mr. Zozo Kossi
Chief of Sanitation Division
Ministry of Health
Plateau Region

Chief Medical Officer
Savanna Region

Mr. Kloutse
Sanitary Engineer
Savanna Region

Nurse at Oga Health Center

Nurse at Kpahoue Health Center

Nurse at Ezime Health Center

Nurse at Nyamassila Health Center

Nurse at Dalia Health Center

Sanitation Agent at Nyamassila

Political and Other Officials

Mr. Piliis
Ministry of Plan
Regional Director of Planning Atakpwame

Mr. Monyeko Ahiatsi
Prefect of Amou Prefecture

The Prefect
Ogou Prefecture

The Prefect
Savanna Prefecture

Peace Corps

Mr. Ron Philips
Associate Director
Peace Corps Lome

Mrs. Elam
Associate Director
Peace Corps Lome

Mr. Dean Crist
Peace Corps Director

USAID

Dr. John Lundgren
USAID Mission Director

Mr. Saul Sherman
USAID Project Manager

Mr. George Branston
USAID Benin
Rural Wells Project

Mr. Paul Guild
USAID Benin Program Manager

Dr. John Sonnenman
USAID Health Contractor

Agma Prins
USAID Project Contractor for the Water and Sanitation Project

A T A K P A N E**P**ROCES VERBAL DE REUNION

Le Vendredi 4 septembre 1981, s'est tenue dans la salle de conférence de la Direction Générale des Affaires Sociales, une séance de travail qui avait pour ordre du jour : la mise au point définitive du programme d'exécution du Projet Socio-sanitaire US A I D N°699-0210.

Cette séance de travail a été ouverte par Mr TOUKOUDA BOUILI, Directeur Général des Affaires Sociales à 9h 25 mn.

Etaient présents :

MM TAKOUDA BOUILI, Directeur Général des Affaires Sociales,
S. SHERMAN, Conseiller Technique US AID Lomé,
Félix N. AVANTANG, Consultant US AID
RW Phillips, Corps de la Paix
ZOGO Kossi, Chef Service Assainissement, Région des Plateaux
LATE Koffi Noamesi, Chargé de liaison des Secteurs Sociaux Atakpané
NAMANGUE Eguinani, Adjoint au Directeur de la Division Développement Communautaire.

Abordant l'ordre du jour, Mr Takouda BOUILI a souligné que cette rencontre entre les responsables directs du projet a une importance capitale d'autant plus qu'elle permettra à l'assistance d'être mise au courant des missions effectuées par Mr AVANTANG Félix, Consultant du Projet dans les Régions des Plateaux et des Savanes dans lesquelles seront exécutées les travaux. Il a également demandé aux participants d'apporter leurs suggestions constructives au vue du document qui leur a été soumis.

Prenant à son tour la parole, le Consultant n'a pas manqué de souligner sa satisfaction quant à l'état d'avancement des travaux préparatoires sur le terrain. Cependant il a demandé qu'une tournée technique des agents des Travaux Publics et autres services intéressés devra être entreprise au cours des semaines à venir. Elle permettra de faire des recherches des nappes frénatiques et de mieux statuer sur les villages à retenir pour le projet. Car sans ce travail, les sites et villages retenus pourraient nous réserver des déceptions et surtout au niveau des populations bénéficiaires au cas où les recherches ne seront pas fructueuses. Au lieu de former une équipe unique par toute la Région, il a également souhaité que les Travaux Publics mettent à la disposition du Projet (5) cinq agents de prospection à raison d'un par préfecture afin que les activités ne soient pas

trop perturbés. Il a ensuite souligné que si les travaux de prospection devront durer deux à trois semaines, un réajustement sera apporté à l'ensemble du planning et qu'en cette période nous pourrions procéder à la mise en place des Comités de villages qui s'occuperont de l'exécution du projet. A cet effet les moyens logistiques (véhicules et motos) devront être sur le terrain à temps pour faciliter le bon déroulement des activités.

Mr ZOZO Kossi de l'Assainissement quant à lui précautionne que le recrutement des maçons, menuisiers et ferrailleurs devra se faire à temps compte tenu de la spécificité des tâches à accomplir par eux et le rôle d'initiateur qu'ils seront appelés jouer auprès des villageois. Aussi une formation à leur intention soit à Lomé soit à un niveau régional s'impose bien qu'ils aient déjà exercé ces métiers. Il a demandé que les moules et les cadres pour la fabrication des dalles soient commandés au Service National d'Assainissement à Lomé au cas où le stage de formation des artisans ci-dessus mentionnés serait retardé étant donné les moyens dont nous disposons avant le début des travaux.

Répondant à une question de Mr ZOZO ayant trait à l'animation et à la sensibilisation des populations, Mr LATE a précisé que cela relève du domaine des activités dévolues aux agents de promotion sociale et qu'aucune difficulté apparente n'est à craindre car les Affaires Sociales sont en place depuis un bon moment et sont en contact avec les intéressés.

A une autre question relative à la gestion financière et à la décentralisation posée par Mr Zoze et Awantang, Mr BOUILLI a apporté des éclaircissements en affirmant que les dispositions sont déjà prises quant aux achats de matériaux; l'envoi des véhicules et autres moyens logistiques. Il n'a pas manqué de souligner que les matériaux se trouvant au niveau des régions seront achetés sur place afin d'éviter les frais de transport qui coûtent excessivement chers ces temps-ci et que seuls seront achetés à Lomé ceux faisant défaut dans les régions.

Mr Sherman a préconisé qu'une décentralisation au niveau régional serait souhaitable et que les bons de commande pré-établis seront envoyés dans les régions ou préfectures afin de diminuer la rupture des stocks et éviter par là des blocages éventuels au cours des travaux.

Il a tenu à informer l'assistance de l'arrivée le mercredi 9 septembre 1981 de l'Expert du projet et qu'un arrangement dès les premiers jours pour une tournée régionale est en cours de préparation.

Dans les divers, Mr Namangue a répondu à des questions de Philips relatives à l'assurance, immatriculation des véhicules et moteurs qu'utilisent les volontaires Américains du Corps de la Paix et aussi du lieu de résidence de l'Expert.

Pour les assurances les démarches sont entamées et aboutiront sous peu et que l'Expert sera à cheval sur Lomé et Atakpamé ; cependant elle résidera plus au niveau régional.

L'assistance a demandé au Directeur Général des Affaires Sociales de prendre attache avec la Direction du Service des Travaux Publics et de l'hydraulique afin d'obtenir l'appui des agents dans les semaines à venir. Ceci afin d'éviter qu'il n'y ait trop de retard pour le choix définitif des villages et respecter aussi le calendrier des opérations à mener.

Mr BOUILLI a rassurer les participants qu'il mettra en oeuvre tous les moyens pour le bon démarrage des activités et a promis confier cette tâche à son Adjoint qui fera le nécessaire dès la semaine prochaine.

La séance fut levée à 11h30m./-

Lomé, le 4 Septembre 1981

Le Rapporteur de séance

Koffi Noamesi LATE

BEST AVAILABLE DOCUMENT

1 CREATION SANTE = CREATION COMITE SANTE MALADES, YOUNG ENQUETE GENERALE
 2 ENQUETE DET = ENQUETE FAMILLE 30 VILLAGES SEULEMENT - MAN 2, OZOU 2, WAWA 4, AMOU 6, KLOTO 6
 3 TRUALE PUIS = AMENAGEMENT AMELIORATION DES PUIS FRES - UN ACTE DE
 4 PUIS ET = TRUALE PUIS, AMELIORATION DES PUIS FRES - UN ACTE DE
 5 PUIS ET = TRUALE PUIS, AMELIORATION DES PUIS FRES - UN ACTE DE

ACTIVITE EN EXECUTION
 ACTIVITE EN EXECUTION COURANT
 ACTIVITE TEMPORAIREMENT SUSPENDUE
 ACTIVITE EN EXECUTION DES AUTRES ACTIVITES

PROFECTUAIRE	1971												1972											
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	AVR	MAI	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	AVR	MAI	JUN	JUL	AUG
HA HO FORAGE CREATION C.SANT FORMATION ENQUETE DET AMENAGE PUIS CONST. LATRINE EDUCATION SAN AUTRE PROJETS	60 PUIS												75 LAT											
OGOU FORAGE CREATION C.SANT FORMATION ENQUETE DET AMENAGE PUIS CONST. LATRINE EDUCATION SAN AUTRE PROJETS	60 PUIS												75 LAT											
WAWA FORAGE CREATION C.SANT FORMATION ENQUETE DET AMENAGE PUIS CONST. LATRINE EDUCATION SAN AUTRE PROJETS	30 PUIS												36 LAT											
AMOU FORAGE CREATION C.SANT FORMATION ENQUETE DET AMENAGE PUIS CONST. LATRINE EDUCATION SAN AUTRE PROJETS	50 PUIS												63 LAT											
KLOTO FORAGE CREATION C.SANT FORMATION ENQUETE DET AMENAGE PUIS CONST. LATRINE EDUCATION SAN AUTRE PROJETS	50 PUIS												63 LAT											

APPENDIX E

BEST AVAILABLE DOCUMENT

REGION DES PLATEAUX

A T A K P A M E

Programme USAID

Projet de construction de 312 latrines à une place

Devis quantitatif

Devis Estimatif

Désignation des ouvrages	Quantité		Prix Unitaire	Total
<u>Maçonnerie</u>	6552p	327,6		
Pour une latrine à une place de 4m profond	312 x 31	328T	1190	7.796.88 f
<u>Ferrailage</u>				
Fil de fer recuit (rouleau)		15	1.425	21.375
Fer de 10mm-barre de 12mm ²	312x2	624	1.560	973.440
Fer de 8mm-barre de 12m =2	312x2	624	1.075	670.800
Fer de 6mm- barre de 6 6	312x6	1.872	320	599.040
				2.264.655
<u>Menuiserie</u>				
Planches IROKO: 1 planche=3 portes d'où imprévus	312/3	104	1.800	187.200
		100	1.800	180.000
Bois blancs pour coffrage (pas indispens.)	312	312	1.500	468000
Cockert(1/latrine : 5m)	312	312	500	156.000
Tôle ondulée galvanisée	312x3	936 frs (46,8) II46 (ou 47 paquets)		1.072.656
Pointe de tôle 1kg/latrine	312kg	312	530	165.360
pointe de 6mm I/2k/latrine	312/2	156 (32 paquets)	300	46.800
pointe de 3mm I/2kg/latrine	312/2	156=32 paquets	300	46.800
targuette 2/latrine	312x2	624	560	174.720
fil de fer galva n°17		20 rouleaux	1.675	33.500
				2.531.156
Pour 312 latrines tout en dur.....				12.592.571

MINISTÈRE DE LA SANTÉ PUBLIQUE
 SERVICE D'ASSAINISSEMENT
 RÉGION DES PLATEAUX
ATAKPAME

6 places

PROJET DE CONSTRUCTION D'UNE LATRINE

Devis estimatif pour K 2020

Désignation des Ouvrages	Unité	Quantité	P R I X	
			Unitaire	T O T A L
<u>MACONNERIE</u>				
Ciment	Tonne	3	21.800	65.400
Sable	m ³	30	2.000	60.000
Gravier	m ³	5	2.000	10.000
<u>Ferraille</u>				
Fer rond de 10 m/m	Barre	12	1.163	13.956
Fer rond de 8 m/m	Barre	8	490	3.920
Fer rond de 6 m/m	Barre	17	295	4.915
Fil de fer recuit	rouleau	1	1.500	1.500
<u>Menuiserie</u>				
Planche bois blanc (coffrage)	m/L	0	200	10.000
Planche Iroko	m/L	20	400	8.000
Coker	m/L	15	90	1.350
Tôle ondulée galvanisée	Feuille	5	3.426	17.130
Fil de fer galvanisé n° 17	rouleau	1	1.500	1.500
Targette	kg	2	1.925	3.850
Pointe de tôle	kg	1	530	530
Pointe de 3	Paquet	1	1.500	1.500
Pointe de 8	Paquet	1	1.500	1.500
Pointe de 10	Paquet	1	1.500	1.500
			<u>T O T A L</u>	<u>203.265</u>

II DEVIS ESTIMATIF

1) Pour une latrine à 1 place tout en dur :

<u>Maçonnerie</u> =	21 paquets =	22.880 Francs	
<u>Menuiserie</u> =	3 Feuil-tôle =	3.438	
	1 Coker =	450	
	1 bois iroko =	2.000	
	1 roui fil re-		
	cuit =	1.500	
	1 rouleau fil		
	galvanisé =	1.500	
	1 kg pointe à		
	tôle =	530	
	1 kg pointe à		
	6 mm =	300	
	1 kg pointe de		
	3 mm =	300	
	2 Targettes =	560	
			= 10.578

FERRAILLAGE

1 fer rond de	=	.	
8 mm =	490		
2 fer rond de			
6 mm =	270		
2 fer rond de			
10mm =	2.330	=	3.390
T O T A L =	36.768	=	<u>36.768</u>

2) Pour une latrine semi dur-semi banco c'est à dire revêtement intérieur au-dessus de peu de ciment

maçonnerie =	9,98 x 1.000 =	9.980 Francs
menuiserie =		10.578 Francs
ferrailage =		2.390 Francs
		<u>= 21.968 Francs</u>

3) Pour une latrine sans revêtement intérieur, avec murs en banco et dalle en ciment.

maçonnerie =	3.000 Francs
menuiserie =	10.578 Francs
Ferrailage =	3.390 Francs
	<u>16.968 Francs</u>

LATRINE A 1 PLACE - B

I Donnée Quantitatif

MACONNERIE

Nombre de briques pour le revêtement intérieur

Sur 1m de profondeur et de largeur = $5 \times 3 \times 4 = 60$ briques

Sur 4m de profondeur = $60 \times 4 = 240$ briques = 4 paquets

Nombre de briques pour la superstructure

Sur 2 m de haut = $60 \times 2 = 120$ briques + 24 = 144 briques
soit 4,8 ou 5 paquets

Pour le jeu de dalles et la pose = 1 paquet

Nbre. de paquets de ciment pour l'élévation des murs int. et ext.

C'est égale à la moitié du nombre de paquets de ciment utilisés pour la fabrication des briques :

$$\text{Soit } \frac{9 + 5}{2} = 5,5 \text{ paquets ou } \underline{7 \text{ paquets}}$$

Nbre. de paquets de ciment nécessaires pour 1 latrine à 1 place

$$4 \text{ p} + 5 \text{ paquets} + 1 \text{ p} + 7 \text{ paquets} = \underline{21 \text{ paquets}}$$

- NB pour 1 côté de mur extérieur il faut $15 \times 3 \times 2 = 90 \text{ b.} = \underline{20}$
- pour le cas où il n'y aurait que le revêtement intérieur à faire en ciment il faudra 9 paquets
- pour le cas où on aura que la longrine à faire, il faut 3 paquets

FERRAILLAGE

Il faut prévoir 1/2 rouleau de fil de fer recuit

1 fer rond de 8 mm _____ 1 fer de 8

1 1/2 fer rond de 6 mm _____ 1 1/2 fer de 6

NB pour un jeu de dalle il faut : 1 fer de 8 et 1 1/2 fer de 6

Pour la longrine = 2 barres de 10 mm + 1 barre de 8 et 1 1/2 de 6

MENUISERIE

1 COCKER de 5 m

3 Feuilles de tôle (2 pour la couverture et 1 pour la porte)

1 bois iroko pour la porte

1 Kg pointe de tôle

1/2 Kg pointe de 6mm

1/2 kg pointe de 3mm

2 targettes (intérieur et extérieur)

1 1/2 rouleau fil de fer galvanisé n° 17.

CONSTRUCTION DE LATRINE A SIX PLACES DANS LA REGION
DES SAVANES par M. KLOUTSE

Devis Estimatif DESCRIPTIF

Le présent ouvrage est une latrine à fosse sèche à 6 places.

1.- La fosse (finie)

Dimensions :

Longueur	6m
Largeur	0m,90
Profondeur	3m,50

La fosse recevra un revêtement intérieur en parpaings de 15 plein pour empêcher l'éboulement de la fosse. Deux murs d'étayage seront faits en parpaings de 15 pour soutenir le revêtement.

2.- Les dalles

Dimensions :

Longueur	1m,20
Largeur	1m,00
Epaisseur	0m,06

Les dalles seront préfabriquées en béton armé dosé à 400kg de ciment par m³ coulé, pour pouvoir soutenir sans danger l'utilisateur.

3.- La fondation

Une fondation de 0m,30 x 0m,25 en béton non armé dosé à 350kg, servira de sous-bassement au mur de la superstructure.

4.- Le mur

Le mur sera construit en banco et crépi en terre de barre mélangée à de ciment.

5.- La toiture

La toiture sera en chevrons de 10 maintenu sur les murs par un fer de \emptyset 6, et en tôle ondulée galvanisée.

6.- Les portes

Les portes seront faites en tôle; les cadres devant leur servir de support seront faits en bois blanc et les cadres qui rentreront dans les murs seront en iróco.

° Observations

1°) Le délai d'exécution d'un tel ouvrage est d'environ 12 jours répartis comme suit :

- 4 jours : fabrication de parpaings.
- 3 jours : mise en place du revêtement intérieur et de la fondation.
- 3 jours : élévation des murs en banco
- 2 jours : crépissage des murs.

2°) Une équipe mobile d'exécution se compose de

- 1 chef d'équipe
- 2 maçons
- 2 ferrailleurs
- 2 menuisiers
- 2 manoeuvres.

DEVIS ESTIMATIF D'UNE LATRINE A SIX (6) TROUS

(Détails de calcul

I. VOLUME

(1) Fondation

$$\frac{(6,80 \times 2) + (1,20 \times 2)}{(0,3) (0,25)} = 1,2m^3$$

(2) Revêtement intérieur

$$\frac{(6,30 \times 2) + (0,90 \times 4)}{(0,15) (3,5)} = 7,77 \text{ soit } 8m^3$$

(3) Dalles

$$\frac{(1,20) (1) (0,06)}{1} \times 6 \text{ dalles} = 0,432m^3 \text{ soit } 0,5m^3$$

II. MATERIAUX

(1) Agrégat

a) Gravier (Fondation et dalles)

$$(1,2 \times 0,5) (0,800) = 1,36m^3$$

b) Sable (Fondation et dalles)

$$(1,7) (400) = 0,68 \text{ soit } 0,7m^3$$

c) Sable parpaings

$$8 \times 1.000 = 8m^3$$

Total b + c = 8,7m³

(2) Ciment

a) Fondation

$$0,350T \times 1,2 = 0,420T$$

b) Dalles

$$0,400T \times 0,5 = 0,200T$$

c) Parpaings de revêtement intérieur

$$0,250T \times 8 = 2T$$

d) Crépissage (en terre + ciment)

estimé à 0,250T.

Total a+b+c+d = 2,870T

(3) Fer

a) Dalles

(1x6) + 1 = 7 barres Ø 8

(2x6) + 1 = 13 " Ø 6

b) Maintien charpente en place (contre le vent)

Ø 6 = 4 barres

(4) Bois (chevrons et planches bois blanc)

a) Cadre de porte (1 chevron pour 2 portes)

6 portes = 3 chevrons

b) Toiture = 3 chevrons

c) Planches bois blanc = 2 planches

(5) Quincaillerie

a) Tôles

9 (couvertures) + 6 (portes) = 15 feuilles

b) Pointes à tôle = 2 kg

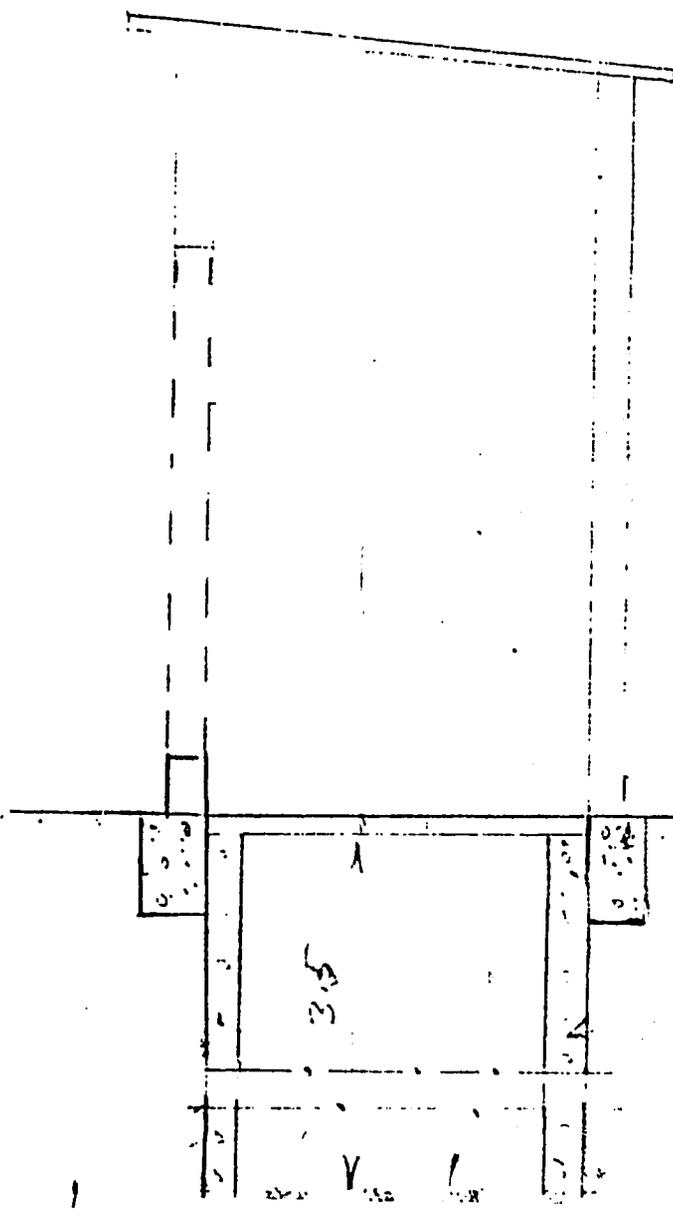
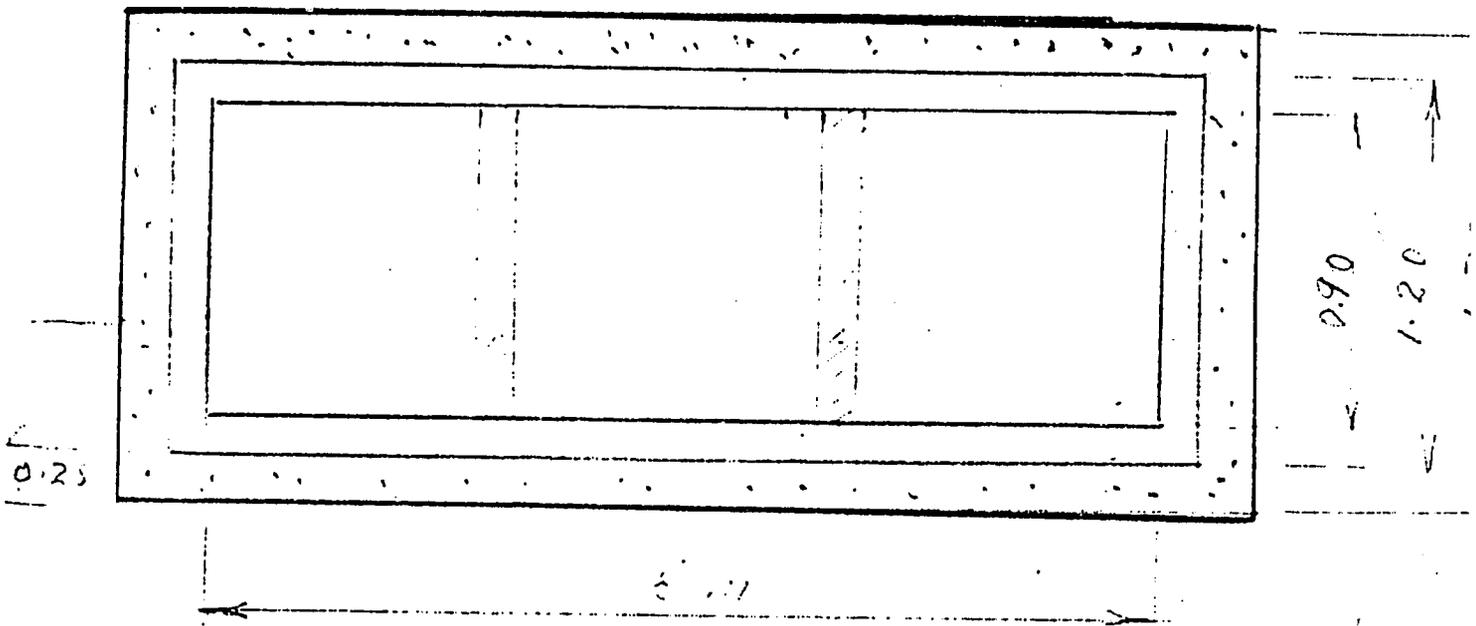
" de 70 = 2 kg

" de 60 = 2 kg

" de 30 = 2 kg

DEVIS QUANTITATIF - ESTIMATIF

DESIGNATION	UNITE	QUANTITE	PRIX UNITAIRE	MONTANT
CIMENT	Tonne	3T	23.800F	71.400F
SABLE	Voyage	2	6.000F	12.000F
GRAVIER	Voyage	1	15.000F	15.000F
FER Ø 8	Barre	7	865F	6.055F
FER Ø 6	Barre	17	355F	6.035F
FIL DE FER RECUIT	Rouleau	1	1.500F	1.500F
<hr/>				
<u>BOIS.</u>				
<hr/>				
Chevron	U	6	2.000F	12.000F
Planche (bois blanc)	U	2	2.000F	4.000F
<hr/>				
<u>QUINCAILLERIE.</u>				
<hr/>				
Tôle ondulée (galvanisée) Paq.		1	20.230F	20.230F
Pointes à tôle	Kg	2	700F	1.400F
Pointe de 70	Kg	2	450F	900F
Pointe de 60	Kg	2	450	900F
Pointe de 30	Kg	2	450	900F
Paumelles	U	12	175	2.100F
Targettes	U	12	250	3.000F
<u>T O T A L</u>				<u>157.420F</u>



Foundation

Manufactured in the

PROJET DE FORAGE DE PUIXS

Devis Estimatif

Prix d'une pompe manuelle ou à pieds

Prix variant de 300.000 à 700.000 CFA

Prix du mètre de forage : 30.000 Frcs au minimum selon les entreprises.

Prix de revient ou coût minimum d'un forage = 2.000.000 à 2.500.000 CFA au plus suivant les entreprises.

Fait à Atakpamé, le

1981

APPENDIX H

Method and Approach for Village Surveys

The questionnaire for the general village survey is simple, and straightforward; it will be filled out for all project villages during the creation of the village health committees (see attachment 1). The detailed survey questionnaire and water use questionnaire (see attachments 2 and 3) are more complicated and demand that during their execution attention be paid to relevant statistical considerations and that skilled medical personnel conduct physical exams and properly collect fingertip blood samples (hemoglobin) and stool samples.

The water-use questionnaire requires no medical skills for execution but does require much detailed advanced planning to avoid misidentification of households being surveyed. When these surveys have been performed all samples and questionnaires have to be analysed. In addition, water and sanitation related disease incidence as seen in dispensaries in the project area has to be determined for a period covering at least two years. This information is vital as it provides a general framework for a better understanding and interpretation of the survey results.

In the Savanna Region if wells and latrines end up primarily in schools, dispensaries, and market places then an entire new questionnaire may have to be designed for baseline data in this area. The questionnaire would probably seek to include as many users of these communal facilities as possible. The family will not necessarily be the sampling unit. The time spent in Dapaong was too short to permit definitive solutions to these problems.

The survey questionnaires are designed for geographically discrete and compact settlements. Human settlement patterns in the Savanna region are markedly different from those in the Plateau region. Individual households are quite far apart from each other, with distances of up to one kilometer separating them. The land between households is generally farmland where peanuts, cotton and millet are cultivated. The water-use and health questionnaire will have to be modified for this region to reflect this settlement pattern. Copies of the questionnaires have been left with the Savanna Project Director for his study and modification. Detailed survey activities are scheduled for 30 villages with the following prefectural distribution by prefecture of villages in the Plateau Region.

Number of Survey Villages by Prefecture

<u>Prefecture</u>	<u>No. Villages</u>
AMOU	6
OCOU	7
WAWA	4
KLOTO	6
HAHO	7
TOTAL	30

The following is a random sample of villages to be surveyed in detail. The sample was drawn using the "definitive list". Since it is impossible to know at this time which of these villages may be dropped eventually from the list, it is suggested that a "random" village from the waiting list be used as a substitute for any village that is deleted from the list. As long as no more than 10 percent of the villages are substituted, it is reasonable to assume that the sample remains statistically valid and unbiased given the existing constraints.

Villages to be Surveyed in Detail

Prefecture d'Amou

Total Population = 31,424 (well villages only)

No. of Sampling sites = 6

Sample size = 5,237

<u>Selected Villages</u>	<u>Population</u>	<u>No. of Wells</u>
1. Elavangnon	734	1
2. Evon Bethel	789	1
3. Game	1,249	2
4. Azafi	401	1
5. Pedome	1,362	1
6. Adjahun	735	1

Prefecture d'Ogou

Total Population = 31,588 (well villages only)

No. Sampling Sites = 7.2

Sample Size = 4,387

<u>Chosen Villages</u>	<u>Population</u>	<u>No. of Wells</u>
1. Dote Kope	685	1
2. Nyamassila	1,945	1
3. Monretau	1,094	1
4. Okoutaqaya	465	1

5. Ole Lou Koutou	371	1
6. Zolou	527	1
7. Adanka	1,079	1

Prefecture de Wawa

Total Population (well villages only) 67,484

No. of Sampling Sites = 4

Sample Size = 16,871

1. Kessibo	4,374
2. Todome	1,662
3. Kougnohou	6,592
4. Kpete-Bena	8,677

Prefecture de Kloto

Total Population (well villages only) = 54,763

No. Sampling Sites = 6

Sample Size = 11,369

<u>Chosen Villages</u>	<u>Population</u>	<u>No. of Wells</u>
1. Tameklo Kope	289	1
2. Goudeve Kpele	2,728	1
3. Kpele Aveho	1,088	1
4. Agou Nogbo	3,532	1
5. Agou Gare (Gadzefe)	3,082	1
6. Tsadome Danyi	650?	1
	<u>11,269</u>	

Prefecture de Haho

Total Population (well villages only) = 59,259

No. Sampling Sites = 7.2

Sample Size = 8,230

<u>Chosen Villages</u>	<u>Population</u>	<u>No. of Wells</u>
1. Bitika Kope	1,200	1
2. Melia	335	1
3. Kpove (marche)	2,500	1
4. Asrama (marche)	3,500	1
5. Tahoun (ville)	3,500	1
6. Afotppkpe	907	1
7. Bovime	850	1

All the chief medical officers in the Plateau region have agreed to lend their support to the execution of the surveys. However, there is a need for an individual with clinical and managerial skills to coordinate the detailed and water use surveys across the prefectures (the five medical sectors in the project area are independent of each other and report directly to Lome). The services of such an individual will greatly relieve the public health advisor from responsibility for survey details. Specifically such an individual will be expected to perform the following duties in conjunction with the medical authorities already contacted:

- establish an operational definition of diarrhea for the 24-hour and one week diarrhea recall survey, i.e. determine the minimum acceptable number of watery stools for a case to be considered a diarrheal case. Will detectable cases of dysentery and abdominal pains be lumped into this category of water and sanitation related disease during the survey?
- establish an operational definition of skin and eye diseases. Initial examination of health data indicate that a variety of disease entities fall into this category. These include:
 - scabies
 - yaws
 - skin sepsis
 - infected wounds
 - conjunctivitis
 - trachoma
 - other non-specific dermatosis
- establish an operational definition for urinary schistosomiasis.

Guinea worm is self evident. The survey design is not directed at determining the magnitude of the Guinea worm problem but this parameter is capable of reflecting the magnitude of well activity. Because of local interest in this problem, it is suggested that in the Haho prefecture alone, the entire population of all seven villages be studied for Guinea worms prevalence. Theoretically a total population of about 12,792 persons based on the current sample would have to be examined. Guinea worm is however easily and rapidly diagnosed so that 12,792 persons does not represent too much additional work. A prevalence estimate with this large a denominator population will certainly be more objective. The nurse clinician in conjunction with the chief medical officer of the Haho prefecture would execute this additional task.

The Peace Corps Associate Director has indicated that projects of interest to villagers will be undertaken. Nutrition education would be one such activity.

It is a well established fact that malnutrition is a complex syndrome with multiple causes. Frequent diarrhea and a heavy parasite load (both related to quality and quantity of available water) both diminish the effective amount of food available to an individual. It would be of interest to determine the nutritional status (hemoglobin, height and weight) of individuals from whom stool samples will be taken. This information in conjunction with a clinical examination of the same individual for clinical signs of acute malnutrition could provide a first step towards correlating water and sanitation with nutritional status. It should be recalled that Center for Disease Control (CDC) in conjunction with the Government of Togo undertook a nutrition survey for the entire country in 1976. It would be worthwhile to review and update this information for use in any nutrition education projects undertaken within this project. The use of anthropometry in the rapid determination of nutritional status is another possible mini project. If anthropometric nutritional parameters are to be used (weight/height, height/age) appropriate technical expertise should be sought locally.

The Choice of Households for the Detailed Survey

Ideally, the households included in the detailed survey should be chosen from that sub-population of every village that is likely to benefit from the well and sanitation facilities to be provided within the project, i.e. that sub-population which by virtue of its proximity to the new well will probably:

- a) satisfy all its water needs from the new source
- b) satisfy some of its water needs (drinking and cooking) from the new source and the rest from the old source.

The rationale for this distinction is to determine the project impact on the lives of household members because they are the ones more likely to show health related benefits as a result of the project.

If it were possible to determine a priori the impact zone of the new well or/even the location of the new well, one would then proceed to choose a representative sample of this sub-population for a pre-project survey. Indications are that Travaux Publiques can indeed send out field agents who, with the aid of aerial photographs, will determine the approximate location in the villages of the new wells. Even with this system it is still expected there will be about a 25 percent eventual change of location because of unsuccessful drillings. Indications are that Travaux Publiques is reluctant to prospect and mark out well sites far ahead of its drilling schedule (which is currently unknown).

Under these circumstances the best alternative for a pre-project survey would be to investigate households on the basis of their varying proximity to the current water source. It is well known that time and distance are critical factors that influence the choice of water source. Using the current water source as a center, a zone of influence can be established. Two typical situations are likely to be encountered.

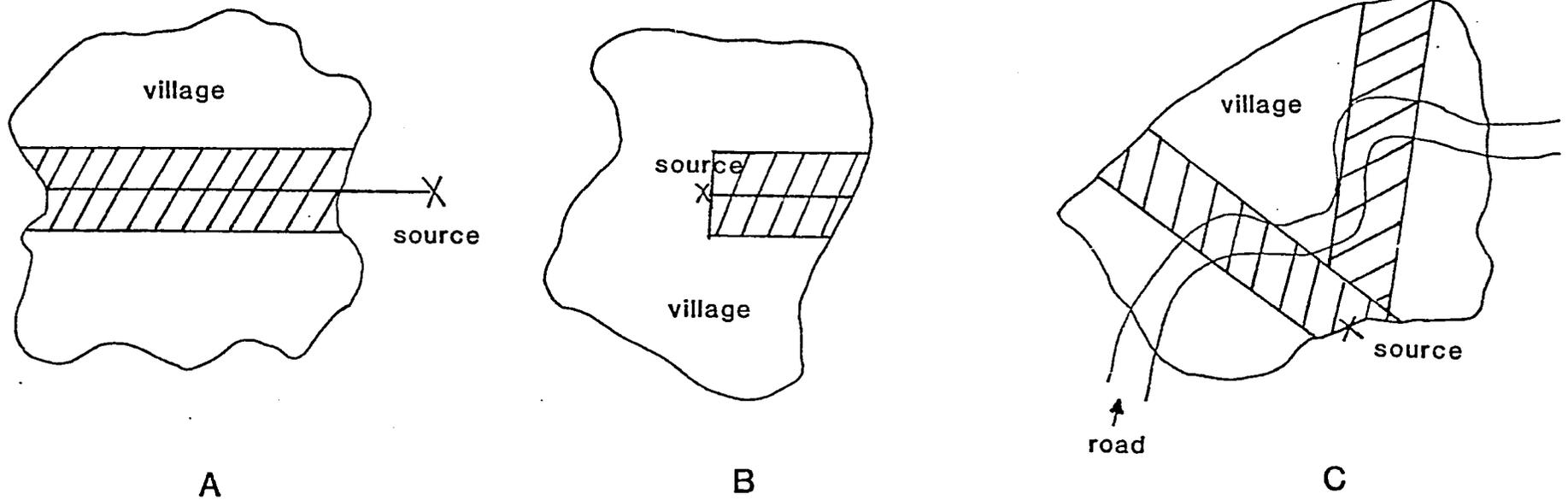
In Figure 1 (a) the current water source is completely out of the village. A representative pre-project sample that reveals the entire spectrum of water and sanitary health problems as a function of time/distance would include all the households spanning the diameter of the entire "village circle". In this instance the survey should concentrate on the households located within the hatched zone. Care should be taken to ensure that the distance of each household from the water source is noted and the household furthest from the source is surveyed before the requisite number of households for the village is exhausted.

In Figure 1 (b) where the source is in the middle of the village emphasis should be placed on recording information on households along the "radius" of the village and not the "diameter". Since villages are hardly laid out in perfect circles, the survey should be performed using the "longest radius" of this imaginary imperfect circle.

A third situation, Figure 1 (c), that is likely to be encountered is one in which households are aligned, on both sides of a road. The guiding principle remains the same, i.e. to collect water-use, health and sanitation information on the basis of the entire time/distance spectrum for that village.

When information is collected on this basis, it will be possible to make realistic comparisons among households eventually benefitting from the well on a time/distance basis no matter where the well is eventually installed. It is understood that such comparisons would be between different households, and thus leading to uncertainties in interhousehold differences in water use, sanitation, and health habits, but it is believed that since the comparison would be on the basis of criteria most critical to the choice of water source (time/distance) such a comparison would be valid other household differences notwithstanding. It follows from the preceding argument that the post project survey should be based on households within the zones depicted in Figure 1. It is likely that within all of the 30 villages some households will appear in the pre and post survey but under different time/distance gradations.

Figure 1



Locations of Water Sources in Relation to Villages
or Households

(Hatching represents sample households)

In What Direction Will the Sampling proceed?

In Figure 1 (a) the direction of sampling could be along a west-east or a north-south SW - NE axis depending on where the source is. In Figures 1 (b) and 1 (c) there are however several choices. Because we want to include the "longest radius" in every situation the direction of sampling in many cases will become obvious once this "longest radius" has been determined. If, however, there is the unlikely possibility that there are two "equidistant radii" then the choice between these radii should be random and systematic or can be determined by flipping a coin.

Number of Households to be Interviewed Per Village and Preparations for Interviewing

In each of the thirty villages already identified, it is suggested that 10 households be surveyed for the health and sanitation questionnaire and five for the water use questionnaire. By increasing or narrowing the chosen survey zone in a village, depending on the population density, the requisite number of households can be obtained.

The definition of households here should not be a matter of too much concern; households is used here to mean a "concession unit" even though adjacent concessions may belong to the same family in the African meaning of the word. Since time and distance are the criteria of great concern here, discrete habitation units, whether they belong to the same extended family or to entirely different families, can be considered households.

The households to be interviewed for water use should be a subset of the households interviewed for health and sanitation. It will be necessary therefore to establish before the survey execution the list of 10 households to be interviewed. Once this list has been established, the water use questionnaire can then be administered to households 2, 4, 6, 8, 10 in addition to the health questionnaire. For the health and sanitation questionnaire, the following is suggested.

Diarrheas: This question should be posed to all members of the household.

Skin and Eye Diseases: This question should also be posed to all members of the household and to the extent that it is convenient all members be examined clinically. It will be important to determine before hand the names of specific skin condition to facilitate this examination. Ringworm or Pityriasis due to Marsezia furfur for example may be so common it is not considered a problem. Persons should be asked if they have these conditions.

Guinea worm: As indicated elsewhere there is a need to investigate the entire survey village for this question in the Haho prefecture where this problem is of great concern. Since the diagnosis of this infection is simple when the female worm is mature, a separate form can be devised to collect this information. This form should be relatively simple. All additional households, together with the sex of persons with Guinea worm and the total population of the additional households or of the entire village, should be recorded.

Stool samples: It is suggested that stool samples be collected only from children from three months to five years of age. Contrary to indications on the draft questionnaire all children within this age group should be sampled, i.e. finger tip blood samples and stool samples should be collected from all of these children with the assistance of their mothers.

Schistosoma haematobium: Indications are that rapid determination of the prevalence of symptomatic cases of this disease is possible primarily with teenage boys (by asking about painful or bloody urination). The nurse clinician should determine the clinical facts here and determine the validity of this assertion before determining the age limit and sex for those to whom this question will be posed.

At least one day will be required to identify households and prepare them for the detailed and water use survey. Since the village leaders shall have been chosen at this time, they should be of great assistance in preparing the families for the survey.

Procedure for applying questionnaires

It is suggested that preparations for the survey be made as follows after training on the questionnaire has been completed.

Day One: Survey coordinator or supervisors or public health advisor visit survey village and determine the following:

- a) Zone of survey in relation to water source and time/distance factors
- b) Identify by name households to participate in survey and explain survey
- c) Identify subsample for water use survey i.e. households 2, 4, 6, 8, 10
- d) Request households to stay home if possible for health and sanitation questionnaire

Day Two: Execution of health and sanitation questionnaire

Days Three and Four: Day three should be reserved for the water use questionnaire. It is not necessary to request households to stay home for this survey as they may tend to use more water as a result of being asked to stay home. The purpose of this survey is to determine water use patterns under "normal circumstances". It is important for the water use survey to identify household members at the water source. For this purpose, it is suggested that water repellent cards identifying households by name and number be prepared for each household so that household members going to draw water carry this card (or cards for large households where it may be necessary to prepare more than one card with identical information) for easy identification at the water source for the two days during which this survey is expected to run.

Attachment 1

Questionnaire Général (General Questionnaire)

- I. Identification (Agent _____ date _____)
- (1) Préfecture _____ (2) Canton _____
- (3) Village _____ (4) Population du village _____
- (5) Groupes ethniques a) _____ b) _____ c) _____

II. Ressources d'organisation

- A. Traditionnel (Nom)
- (6) Chef Canton _____
- (7) Chef Village _____
- (8) Chefs Quartiers _____
- (9) Autres _____

- B. Politique
- (10) RFP _____
- (11) UNFP _____
- (12) JRPF _____

- C. (13) Infirmière _____
- (14) Agent d'assainissement _____
- (15) Sage Femme _____
- (16) Guérisseurs traditionnels _____

- D. Education
- (17) Directeur d'école primaire _____
- (18) Directeur CEG _____

- E. Organismes locaux (Nom du Président) nombre de réunions/ mois.
- (19) Comité de développement _____
- (20) Comité des parents d'élèves _____
- (21) Groupements _____
- (22) Comité de Santé _____

- F. Religion (relig.)
- (23) Prêtre ou Pasteur ou barabaut _____
- (24) Prêtre traditionnel _____

- G. Facilites absentes au village
- | Facilité | Distance au plus proche |
|---|-------------------------|
| (25) Dispensaire | _____ |
| (26) Ecole Primaire | _____ |
| (27) C.H.C. | _____ |
| (28) Taxi: passe combien de fois par semaine _____ marcher à pied _____ km. | |

III. Services technique trouvés au village

- | | (Nom d'usage) | (Titre) |
|------------------------|---------------|---------|
| (29) ORPV | _____ | _____ |
| (30) SOROCO | _____ | _____ |
| (31) PRODECO | _____ | _____ |
| (32) Affaires Sociales | _____ | _____ |
| (33) Autres | _____ | _____ |

34) autre _____

IV. Points d'eau (35)

No.	Type	Distance centre village	Protégé	Accessible par les animaux	Evident pollué	Saisonnier
1.	Source					
2.	Marigot					
3.	Rivière					
4.	Puits					
5.	Ruisseau					
6.	Flaques d'eau					
7.	Citernes					
	Autres					

Recueille-t-on la pluie des toits oui _____ non _____

Remarque _____

V. Hygiène

36) J'ai examiné dix (10) concessions (ménages) et j'ai trouvé _____ latrines (No. _____) dépôts d'ordures (No. _____)

37) Est-ce qu'il y a des vers de Guinée au village ?

oui _____ non _____ remarque _____

VI. Expérience en développement communautaire

38) Est-ce que le village a participé à un projet villageois pendant les deux dernières années selon le tableau ci-dessous ?

Type	Qui l'a initié*	Contribution du village		
		Main-d'oeuvre	Agent/Montant	tériels locaux
Ecole				
Dispensaire				
Ponceau				
Piste				
Protection d'un point d'eau				
Centre commun				
Drainage				
Autre				

* Village - v: gouvernement - a: autre - a: autre

Attachment 2

Detailed Questionnaire

I. IDENTIFICATION

- 1) NOM DE L'AGENT DE PROMOTION SOCIALE _____
- 2) DATE _____
- 3) NOM DE L'INFIRMIERE _____
- 4) PREFECTURE _____
- 5) CANTON _____
- 6) VILLAGE _____
- 7) CONCESSION No. _____
- 8) NOM DE FAMILLE _____

II. ETAT SANITAIRE

9) QUEL EST LE NOMBRE TOTAL DE PERSONNES VIVANT DANS LA CONCESSION ?

Enfants sous allaitement.....	
Enfants préscolaires sevrés.....	
Enfants d'âge scolaire (6-14 ans).....	
Adultes.....	
TOTAL	

10) COMBIEN DE PERSONNES DANS CHACUNE DE CES CATEGORIES SONT ATTEINTES DE DIARRHEE DEPUIS HIER ?

Enfants sous allaitement.....	
Enfants préscolaires sevrés.....	
Enfants d'âge scolaire.....	
Adultes.....	
TOTAL	

11) COMBIEN DE PERSONNES DANS LES CATEGORIES CI-DESSUS SONT ATTEINTES DE DIARRHEE DEPUIS LA SEMAINE PASSEE ?

Enfants sous allaitement.....	
Enfants préscolaires sevrés.....	
Enfants d'âge scolaire.....	
Adultes.....	
TOTAL	

12. AFFECTIONS DES YEUX ET DE LA PEAU
 DETERMINER, PAR DES EXAMENS MEDICAUX, LE NOMBRE DE PERSONNES
 PRESENTANT DES CAS SUIVANTS:

Plaies infectées
 Infection de la peau (éruption)
 Infection des yeux

Hommes	Femmes

13. QUI A SOUFFERT DES VERS DE GUINEE L'ANNEE DERNIERE ?

Hommes	Femmes

14. SCHISTOSOMA HAEMATOBIIUM

15. REUNIR TOUS LES ENFANTS D'AGE DE 3 MOIS A 5 ANS C'EST-A-DIRE
 LA PLUPART DES NOURRISSONS ET TOUS LES ENFANTS PRESCOLAIRES.
 REGROUPEZ TOUT LE MONDE DANS CETTE CATEGORIE SUR UNE FILE
 (LES MAMANS TENANT LEURS BEBES ET AUSSI D'AUTRES JEUNES PER-
 SONNES DANS CETTE CATEGORIE).

A PARTIR DU NUMERO UN, IDENTIFIEZ LES ENFANTS Nos. 1, 4, 8,
 12, 16, ETC. METTEZ LE RESTE DE COTE. FOURNIR DES FLACONS
 POUR LES ENFANTS SELECTIONNES. S'ASSURER QUE LES TALONS
 D'IDENTIFICATION SUR LES FLACONS SOIENT REMPLIS. REPRENEZ
 LES FLACONS D'ECHANTILLON DES QUE POSSIBLE. POUR LES AUTRES,
 ON PEUT ATTENDRE JUSQU'AU LENDEMAIN.

III. HYGIENE

16. LE MENAGE UTILISE-T-IL UNE LATRINE ?

oui	non
<input type="checkbox"/>	<input type="checkbox"/>

17. SI OUI, QUELLE EST LA DISTANCE QUI SEPRE LA LATRINE DU
 CENTRE DE VOTRE CONCESSION ?

(PRECISEZ LA DISTANCE VOUS--MEME) _____ mètres

18. DE QUELLE SORTE DE LATRINE S'AGIT-IL ?

Un endroit précis
 En plein air
 Dalle à base de bois
 Dalle en dur
 Murs solides avec couverture
 Possède un mur de chaume et/ou sans
 couverture

19. QUELLE EST LA PROFONDEUR APPROXIMATIVE DE LA LATRINE ?

_____ mètres

20. DECRIVEZ LES CARACTERISTIQUES D'USAGE DE LA LATRINE:

Personnes âgées seulement
 Souillée à partir de l'usage
 Usage d'un seul ménage
 Usage de plusieurs ménages
 Mouche/Odeur désagréable

oui	non

21. Y-A-T-IL UNE SOURCE D'EAU A 10 METRES ENVIRON DE LA LATRINE ?

oui
 non

22. SI OUI, EST-CE QUE LA LATRINE EST BATIE EN AVAL OU EN AMONT DE LA SOURCE D'EAU ?

Pente en aval
 Montée en amont
 Non applicable

23. LA LATRINE SE REMPLIT-ELLE D'EAU PENDANT LA SAISON PLUVIEUSE ?

oui
 non

24. L'INONDATION SE PRODUIT-ELLE A L'INTERIEUR OU TOUT AUTOUR DE LA CONCESSION
PENDANT LA SAISON PLUVIEUSE ?

oui

non

25. Y-A-T-IL DES FOSSES DE RETENUE D'EAU DANS LESQUELS SONT DEPOSES DES ORDURES
AUTOUR DE VOTRE CONCESSION ?

oui

non

26. Y-A-T-IL LA DES MOUTONS, DES CHIENS, DES CHEVRES, DES COCHONS OU AUTRE ANIMAL
QUI FONT LEURS EXCREMENTS AUTOUR DE VOTRE CONCESSION ?

oui

non

IV. CARACTERISTIQUES D'UNE SOURCE D'EAU
Privée/Publique

27. LA FAMILLE S'ACQUITTE-ELLE DE TOUS SES BESOINS EN EAU A PARTIR D'UNE OU
PLUSIEURS SOURCES ?

Une source

Plusieurs

28. VISITEZ UNE SOURCE D'EAU AVEC UN MEMBRE DE LA FAMILLE TOUT EN LUI FOURNISSANT
DES RENSEIGNEMENTS.

Caractéristiques	Inondation	Mare	Rivière	Eau de source	Autre nom
Distance (m)	m				
Protégée?	oui/non				
Accès d'animaux	oui/non				
Polluée?	oui/non				
Saisonnière	oui/non				
Passage à gué	oui/non				
Boueuse?	oui/non				

En rang	oui/non				
Socialisant	oui/non				
A boire seulement	oui/non				
A buts multiples	oui/non				
Autres remarques					

V. EXPERIENCE DE DEVELOPPEMENT COMMUNAUTAIRE

29. AVEZ-VOUS (un chef de famille) OU UN MEMBRE DE VOTRE FAMILLE AYANT PARTICIPE DANS UN PROJET COMMUNAL DURANT LES CINQ DERNIERES ANNEES ?

oui

non

30. MENTIONNEZ ICI VOTRE CONTRIBUTION A N'IMPORTE QUEL PROJET COMMUNAL DURANT LES DEUX DERNIERS ANNEES.

	Main d'oeuvre	Montant espèces	Matériaux
Construction scolaire			
" de dispensaire			
" de pont			
" de routes			
Amélioration d'une source d'eau			
Nettoyage du village			
Autres travaux champêtres/de jardin			
Autres			

31) EST-CE QUE VOUS-MEME OU VOS FEMMES AVEZ PARTICIPE A N'IMPORTE QUEL CLUB TRADITIONNEL COMME CEUX CITES CI-DESSOUS ?

Travaux de Groupe Rotatif/Coopératif

Union Rotative de Crédit

Groupement Agricole

Caisse d'Epargne

Autres (spécifiez)

32. SAVEZ-VOUS SI L'UN DES AGENTS DES GROUPEMENTS SUIVANTS S'EST RENDU DANS VOTRE VILLAGE CES DEUX DERNIERES ANNEES POUR AIDER QUELQU'UN ?

Agent d'Extension Agricole
 Infirmière/Agent de dispensaire
 Agent des Affaires Sociales
 Agent d'hygiène
 Autres

oui	non	spécifiez

Attachment 3

Water-use Survey Questionnaire

CE QUESTIONNAIRE AYANT TRAIT A L'UTILISATION DE L'EAU EST A REMPLIR A UNE SOURCE D'EAU MAIS UNIQUEMENT POUR LES MEMBRES D'UN MENAGE CHOISI POUR L'ETUDE. IL FAUT DEMANDER A CHAQUE PERSONNE S'APPROVISIONNANT EN EAU A LA SOURCE SI ELLE APPARTIENT AU MENAGE IDENTIFIE PAR NOM ET S'ASSURER QUE L'EAU EST DESTINEE A LEUR USAGE. IL EST IMPORTANT, EN REMPLISSANT CE FORMULAIRE, D'ALLER UNIQUEMENT A DES SOURCES D'EAU UTILISEES PAR DES MENAGES INTERVIEWES. SI L'EAU DESTINEE AUX USAGE OUTRE AU'A BOIRE ET QU'A CUISINER EST FOURNIE A PARTIR D'UNE SECONDE SOURCE, CETTE SOURCE DOIT ETRE VISITEE ET UN AUTRE FORMULAIRE DEVRA ETRE REMPLI AU REGARD DES FAMILLES TOUCHEES PAR CETTE SITUATION.

No. et Nom de la Maison

	1	2	3	4	5	6	7	8
Heure Collecteur (trice) Quantité								
Heure Collecteur (trice) Quantité								
Heure Collecteur (trice) Quantité								
Heure Collecteur (trice) Quantité								
Heure Collecteur (trice) Quantité								
Heure Collecteur (trice) Quantité								

II. L'EAU UTILISEE A LA SOURCE (NE PEUT PAS ETRE MESUREE)

Nom et No. de la Maison (Marquer le cadre correspondant)

	1	2	3	4	5	6	7	8
Activités observées								
Bain figure main Lavage								
Lavage ustensiles								
Lavages denrées alimentaires								
Lessive								

III. UTILISATION DE L'EAU A DOMICILE:

LE BUT DE CE FORMULAIRE EST DE DETERMINER COMMENT L'EAU OBTENUE EST UTILISEE AU DOMICILE. LA COLLECTE DE CE RENSEIGNEMENT EXIGERA PLUS D'UNE PERSONNE. UNE PERSONNE COLLECTERA LE RENSEIGNEMENT SUR TOUS LES MENAGES A UNE SOURCE D'EAU, DEUX PERSONNES SONT NECESSAIRES SI PLUS D'UNE SOURCE D'EAU EST UTILISEE. UNE AUTRE PERSONNE COLLECTERA LE RENSEIGNEMENT DE MAISON EN MAISON SUR L'UTILISATION DE L'EAU OBTENUE. LE NOMBRE DE MEMBRES DE FAMILLE SERA DETERMINE AVANT QUE L'ETUDE NE COMMENCE ET SERA CONSIDERE STATIONNAIRE PENDANT TOUTE LA DUREE DE L'ENQUETE. CET ASPECT DE L'ENQUETE EXIGERA LA PARTICIPATION EFFICACE DES MEMBRES DU COMITE DE SANTE DE VILLAGE. IL FUAIT PRENDRE SOIN DE BIEN SYNCHRONISER LES RENSEIGNEMENTS OBTENUS A LA SOURCE ET CEUX OBTENUS SUR L'UTILISATION DE L'EAU A DOMICILE. LES DEUX FORMULAIRES DEVONT ETRE DUMENT REMPLIS EN LES COMMENCANT AU MEME MATIN.

	1	2	3	4	5	6	7	8
No.de la Maison								
L'eau restante de la nuit dernière								
A boire								
A cuisiner								
Lavage denrées alimentaires								
Lavage ustensiles de cuisine								
Lavage personnel								
Lessive								
Arrosage jardin								
Boisson animaux								
Brassage								
Autres (total)								
Eau recueillie au matin du jour de l'étude								
Réserve d'eau le matin -C								
Vérification sur l'eau utilisée le matin A+B-C=TOT								
Eau à boire								
Cuisson								
Lavage ustensiles de cuisine								
Lavage personnel								
Lessive								
Arrosage jardin								
Animaux								
Brassage								
Autres								
TOTAL								
Eau recueillie pendant la journée-								
Eau stockée le soir -E								
Vérif. sur l'eau utilisée C+D-E								
Lessive à la source?								
Lavage pers. à la source								

SOURCE

IV. LES CARACTERISTIQUES DE STOCKAGE D'EAU

1. TYPES DE CONTENANT

- Calebasses
- Seaux métalliques/plastiques
- Pots de terre
- Jarres en dur (citernes)

2. LIEU DE STOCKAGE

- Extérieur de la maison
- Intérieur de la maison

3. CONTENANT SEPRE SEPARÉ POUR L'EAU A BOIRE

	oui	non
SEPRE		
MUNI D'UN COUVERCLE		

4. UTILISATION SAISONNIERE DE L'EAU DE PLUIE PROVENANT DU TOIT

oui
non

5. SI OUI, ETAT DU TOIT

- Paille
- Feuilles de palmier
- Tôles

APPENDIX I

Health Education Strategy and Content for Village Leaders

What is the relationship between a good water supply system, a good excreta disposal system and good personal hygiene in improving health?

Man is the reservoir of most of the diseases we are concerned with, i.e. infectious agents propagate themselves by producing spores, eggs or cysts which are released into the environment through feces, urine and other human discharges (for a list of illnesses related to excreta disposal see Attachment 1). These reproductive particles can survive in the environment until they are transmitted to another susceptible person.

Contracting most of these diseases therefore requires the following interactions:

- 1) Agent of disease in the environment, e.g. Guinea worm larva.
- 2) A careless or unsuspecting person who gets the disease primarily through his interaction with the environment.

Disease and poverty in the village are due to a variety of causes. Villagers can do something about some of these causes.

Under the project, the government is attempting to bring more and better water to the people so that everybody, and especially infants and small children, can be bathed more often.

Hopefully, a good number of mothers and children will spend less time carrying water. Better quality water will be available for preparing food and for drinking.

If these changes in behaviour occur, one can then expect to see fewer cases of diarrhea in children, fewer skin diseases (scabies and yaws), and fewer infected wounds and eyes.

Village leaders should consider their villages: cite the various kinds of practices that predispose an individual to diseases, e.g:

- defecating in the open
- infrequent baths when water is available
- poor nutrition
- failure to use health resources sometimes, even when they are available

- failure to use latrines even when they may be available, etc.

The importance of health education in the maintenance of a clean water supply (including transportation and storage), proper water and latrine use, personal and food hygiene, and wastewater management cannot be overemphasized, and a health education program should include these very basic concepts (for a list of infectious agents, their mode of transmission and possible prophylactic measures see attachment 2). In addition, in Togo the following specific areas should be included in health education:

1. Vector Control

The role of intermediate hosts in propagating several important water-related diseases remains a problem of great concern. The project, however, is not specifically designed to combat the vector problem. Within a general health education context, vector control should be but one of the topics to be considered for discussion at the village level. It is understood that whatever activity villagers may decide to undertake for themselves in connection with vector control will be of minimal or of no impact for the major water dependent disease vectors in the project area. Combatting most of these vectors requires a sophisticated and elaborate control program far beyond the scope of this project. It is recommended that the role of vectors in disease etiology be emphasized during health education discussions and simple projects such as waste and flood water drainage be undertaken where feasible. It is critical in these discussions to identify the "contact point or activity" within the daily flow of occupational and non-occupational activities.

When this vector control information is provided within an activity (occupational or non-occupational) context that is normal to village life, then more behavioral change is likely to occur. Guinea worm infection provides the easiest example to illustrate the point. In this case, there are two critical contact points or activities that should be emphasized.

- a) drinking water from a poor source
- b) persons with Guinea worm washing in water source

A second example would be schistosomiasis. Critical contact points or activities would be:

- a) indiscriminate defecation (schistosoma mansoni) and urination (schistosoma hematobium) in bodies of water

- b) walking in polluted rice fields (occupational exposure) or swimming in polluted swamps or ponds (recreational, especially applicable to school boys 5-15).

A third and more difficult example is malaria, the most important water-related disease in the area. Because the vector mosquitoes are ubiquitous there is hardly any specific point or activity that stands out as most important. Contact with this vector is possible on a 24-hour basis and includes recreational, occupational and non-occupational activities. The magnitude of the problem becomes self-evident during such a discussion, and recourse to selective protection beyond general environmental control (waste water and flood water drainage) can be recommended, e.g. mosquito nets for infants or a program of chemoprophylaxis (for a summary of vectors and related preventive measures see attachment 3).

2. Market and Food Sanitation

Market sanitation should constitute an important topic in health education discussions. Persons undertaking the preparation and sale of foodstuffs to the public implicitly accept responsibility for promoting or jeopardizing the public's health. While no legal tools can be used in the implementation of this aspect of the project, it should be emphasized that the government has the responsibility to ensure that food sold to the public is safe and wholesome. This topic can be handled through a strategy that considers:

Health of the Food Vendor

Persons preparing and selling food for public consumption should ideally be free of all communicable disease. The diseases of concern here are not necessarily water or sanitation related. The following is a partial list of diseases that can be easily transmitted to the public by vendors who are asymptomatic or symptomatic carriers of disease:

- 1) Tuberculosis
- 2) Typhoid fever
- 3) Staphylococcal infections
- 4) Hepatitis
- 5) Cholera
- 6) Meningitis
- 7) Measles
- 8) Streptococcal disease
- 9) Influenza

In addition to the health status of the vendor, consideration should also be given to the quality of the food being sold.

The Sanitary Quality of the Food

Raw Foods

Sanitary control of raw foods with the exception of meats is not critical at this stage in rural markets. A second exception is moldy food which may contain the mold Aspergillus Flavus. This mold produces aflarotoxin which has been proven experimentally and epidemiologically to be a carcinogen. In certain parts of Africa high liver cancer rates seem to correlate very well with consumption of moldy grains and legumes.

The list of diseases transmissible through infected carcasses includes:

- Taenia saginata
- Taenia solium
- Trichinella spiralis

Cooked Foods

The sanitation of cooked foods must be more stringent as the food is usually consumed without further preparation. Temperature control of the environment as a means towards proper food preservation (hot and cold) is nearly impossible in rural environments. Food can be kept covered, wrapped, and disposed of when not sold within 12-24 hours.

Food Handling and Display

This area of food and market sanitation has much significance for this project. The urban markets apart, most cooked and raw food is displayed for sale on the ground. Food contamination through handling, by dust, by flies is inevitable. When it rains poor drainage aggravated by garbage that is never cleaned from the weekly markets gives the market an unsanitary, unsightly and unaesthetic appearance. Few rural markets have sanitary facilities so that during the market day vendors and buyers alike use the market perimeter for defecation and urination. Within this project perhaps some modest activities can be undertaken. These may include:

- 1) Construction of raised concrete platforms for the sale of meats etc.
- 2) Organization of the village to remove garbage from the market after every market day.
- 3) Construction of simple drainage ditches where these might solve a sanitary problem.

- 4) Construction of market latrines as long as there is a plan for cleaning them after every market day along with the market.

Who Should Pay for these after Improvements?

It should be pointed out that the Togo government currently collects a market tax in most rural markets. Villagers are likely to feel that they are already paying enough and might even be reluctant to contribute labor for market improvements. The problem becomes more complicated when the market serves more than one village as is usually the case. It appears that any activity contemplated in this domain should be discussed with regional administrative officers who can better coordinate intervillage projects. This activity area is one where project funds could be used a little more generously as long as the villages show a desire to participate in the project.

3. Vaccinations and the Use of Health Services

It is well known that even when health services are easily available some villagers for a variety of reasons do not use these services or try to use them only when it is too late. This problem should be addressed in health education discussions. Although vaccinations can prevent many tragedies, families have to be convinced to act. In most dispensaries and social welfare centers, mothers are being urged to vaccinate their children. In most villages however, there are still families that do not appreciate the importance of these messages until it is too late. Some of the following diseases are not directly related to water and sanitation but cause so much morbidity and mortality that they cannot be ignored. Vaccinations are available for the following:

- Tuberculosis - BCG
- Smallpox
- Whooping cough
- Tetanus
- Diphtheria
- Poliomyelitis
- Measles
- Yellow fever

The timing and sequencing of these vaccinations are important and the health education message should be directed at getting mothers to vaccinate their children and to ensure that the appropriate number of doses of each kind of vaccine are completely administered. Project personnel should assist in advertising planned vaccination schedules in the local area or should be instrumental in bringing vaccination teams into the project area.

<u>Maladie</u>	<u>Agent Infectieux</u>	<u>Dans la zone du Projet?</u>
Diarrhée de Sevrage	Malnutrition <u>Shigella</u> <u>E. coli</u> <u>Salmonella</u> Virus C	Oui
Oxyurose	<u>Entérobius vermicularis</u> (ver rond intestinal)	Oui
Poliomyélite (faites surtout vacciner votre enfant !)	Poliovirus type 1, 2 et 3	Oui
Salmonellose	<u>Salmonelle typhimurium</u> (bactérie)	Oui
Schistosomiase Bilharziose	<u>Schistosoma ematobium</u> <u>Schistosoma mansoni</u> (ver)	Oui
Shigellose	<u>Shigella dysentérie etc</u> (bactérie)	Oui
Strongyloidose	<u>Strongyloïdes stercoralis</u> ver mematode	Oui
Téniase	<u>Taenia solium, saginata</u> ver cestode	Inconnu
Trichocéphalose	<u>Trichiuris trichiuria</u> ver nematode	Oui

Infectious Agents, Their Mode of Transmission and Possible Prophylactic Measures

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Salmonella typhi bacille typhique	L'homme - porteur ou malade	<p>Contact</p> <ul style="list-style-type: none"> - <u>Direct</u>: selles ou mains sales d'un porteur ou malade - <u>Indirecte</u>: <ul style="list-style-type: none"> - aliments contaminés - fruits contaminés - l'eau contaminée - légumes crus contaminés - produits laitiers - mouches parfois comme vecteur. 	<ol style="list-style-type: none"> 1)- Protection et purification de l'eau. 2)- Elimination hygiénique des excréments humains. 3)- Lutte contre les mouches. 4)- Faire bouillir ou pasteuriser le lait et produits laitiers. 5)- Surveillance sanitaire de la manipulation de la préparation et présentation des aliments. 6)- Immunisation. 7)- Hygiène personnelle-lavage des mains avant de manger et après défécation. 8)- Education générale de la population.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Gastro-enterite (Virale et nonspécifique)	L'homme	Pas bien connue mais probablement par voie fécale orale, fécale respiratoire	Mesures d'hygiène préconisées pour les maladies transmises par voie fécale-orale: <ul style="list-style-type: none"> - Cuisson complète de tous les aliments dérivés de source animale. - Cuisine propre - laver les mains avant et après la préparation. - L'hygiène personnelle. Laver les mains après la toilette.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
(Ankylostomiase) <u>Necator Americanus</u> et <u>Ancylostoma</u> <u>duodenale</u> Autres vers	Personnes infectées excréant des oeufs dans leurs matières fécales.	Oeufs dans les selles Larves au sol Pénétration dans la peau nue (pied) Migration aux intestins.	<ol style="list-style-type: none"> 1)- Prévenir la contamination du sol par l'installation de systèmes hygiéniques d'évacuation des excréments humains, surtout des <u>latrines sanitaires</u> 2)- Instruire la population sur les dangers de la contamination du sol et sur les mesures préventives soit la pratique de l'hygiène personnelle. 3)- Porter des chaussures quand on marche sur les sols contaminés.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Hépatites infectieuses Virus type A	L'homme - parfois Le chimpanzé	<p>Contact direct</p> <ul style="list-style-type: none"> - personne à personne voie fécale-orale <p>Contact indirect</p> <ul style="list-style-type: none"> - l'eau contaminée - aliments contaminés surtout viandes, salades - peut être transmis par inoculation de sang ou produits sanguins infectés. 	<ol style="list-style-type: none"> 1)- Education sanitaire de la population sur les mesures de salubrité et d'hygiène personnelle. 2)- Evacuation hygiénique des matières fécales. 3)- Stérilisation des seringues (infirmières) aiguilles et autre matériel employés pour injection.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<u>Giardia lamblia</u> protozoaire Giardiase	L'homme	1)- Contamination fécale de l'eau 2)- Main à bouche (kystes provenant des matières fécales)	1)- Education sanitaire de la population et familles en matière d'hygiène personnelle. 2)- Elimination adéquate des matières fécales. 3)- Protection des approvisionnements d'eau contre la contamination.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<p>Ascaris lumbricoides (Ascaridiase)</p>	<p>Une personne infectée qui excrète des oeufs dans ses selles</p>	<p>1)- Directe Oeufs dans les selles déposées au sol</p> <p style="text-align: right;">(Directe)</p> <p style="text-align: center;">bouche</p> <p>2)- Indirecte Oeufs dans les selles déposées au sol</p> <p>Contamination des eaux, des aliments, de l'air</p> <p>Ingestion ou inspiration</p>	<p>1)- L'évacuation sanitaire des matières fécales et empêchement de la contamination des terres qui entourent immédiatement la concession, surtout aux endroits où jouent les enfants.</p> <p>2)- Construction dans les places publiques marchés, églises, etc... de cabinets pour éviter la dissémination des oeufs d'Ascaris par débordement, drainage ou autre cause semblable.</p> <p>3)- L'hygiène personnelle quant à l'usage sanitaire des cabinets et le lavage des mains après la défécation.</p> <p>4)- Eduquer toute la population, surtout les enfants à se laver les mains avant de toucher la nourriture et à ne pas consommer des aliments qui sont tombés au sol.</p>

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Vibriion cholérae (bactérie) Choléra	L'homme	1)- Par l'ingestion de l'eau contaminée par les matières fécales. 2)- Ingestion d'aliments contaminés par les matières fécales. 3)- Transmission directe c'est-à-dire personne à personne n'a relativement que peu d'importance.	1)- Evacuation hygiénique des matières fécales humaines. 2)- Protection et purification des sources d'eau, puits, etc... 3)- Ebullition de l'eau avant de la boire. 4)- Lutte contre les mouches, élimination de leurs foyers de reproduction. 5)- Protéger les aliments contre les mouches. 6)- L'hygiène publique - se laver les mains avant les repas et après la défécation. 7)- Immunisation anticholérique pour les personnes exposées.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<p><u>Dracunculus Medinesis</u></p> <p>Un ver nématode</p>	<p>Une personne infectée</p>	<p>Larves libérées dans l'eau par des personnes infectées</p> <p>Larves avalées par des crustacés du genre Cyclops</p> <p>L'homme avale les copepodes infectés en buvant l'eau contaminée (puits, étangs, etc...)</p>	<ol style="list-style-type: none"> 1)- Prévenir la contamination de l'eau à boire par la couverture des parties (jambes) affectées des personnes infectées. 2)- Faire bouillir l'eau à boire ou la filtrer afin d'en enlever les copepodes. 3)- Eduquer la population à ne boire que de l'eau bouillie ou filtrée. 4)- Instruire les personnes infectées à se faire soignée au centre de santé ou à l'hôpital et sur le mode de propagation de l'infection et sur le danger qui existe de contaminer les puits ou autres. 5)- Approvisionnement en eau par des puits avec une large margelle pour empêcher les utilisateurs de se pencher sur le mur.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<u>Salmonella</u> <u>Paratyphi</u> <u>Schottmuelleri</u> etc etc bacilles fièvre parathyphoïde	L'homme - les porteurs et malades avec les porteurs étant souvent très nombreux au cours d'une épidémie	Contact <u>Direct:</u> avec selles ou urine d'un malade ou d'un porteur des germes. <u>Indirect:</u> aliments: surtout des produits laitiers et de l'eau contaminée.	1)- Protection des sources d'eau puits, etc. 2)- Evacuation hygiénique des excréments humains. 3)- Lutte contre les mouches. 4)- Faire bouillir ou pasteuriser le lait et les produits laitiers.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Bactérie - Shigella dysentéris	Personne infectée	<u>Directe</u> - fécale-orale <u>Indirecte</u> - contamination des aliments et des objets domestiques	1)- Evacuation Sanitaire des selles humaines. 2)- Se laver les mains après la défécation et avant le repas. 3)- Interdire la manipulation des aliments aux personnes infectées. 4)- L'hygiène personnelle. 5)- Pour les nourrissons, encourager l'allaitement au sein pendant le premier âge. 6)- Préparation et présentation hygiè- nique de tous les aliments. 7)- Protection et purification des appro- visionnements en eau. 8)- Lutte contre les mouches et élimina- tion de leurs foyers de reproduction.

- 12 -

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Entamoeba Histolytica (protozoaire)	Personne présentant l'infection chronique, ou un porteur sans symptômes.	<ul style="list-style-type: none"> a)- L'eau contaminée par des kystes provenant des selles des personnes infectées. b)- Mains touchant la bouche. c)- Légumes crus contaminés. d)- Mouches. e)- Mains souillées de ceux qui manipulent des aliments. 	<ul style="list-style-type: none"> 1)- Evacuation hygiénique des matières fécales humaines. 2)- Protection des sources d'eaux, puits, etc contre la contamination. 3)- Hygiène personnelle surtout en ce qui concerne l'évacuation hygiénique de l'excréta, le lavage des mains après défécation et avant la consommation d'aliments. 4)- Lutte contre les mouches et protection des aliments contre la contamination par les mouches. 5)- Laver bien les fruits et légumes avant de les manger.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques						
<u>Plasmodium falciparum</u> P. VIVAX P. Malariae	L'homme est le seul réservoir important.	<p>S'effectue par l'intermédiaire des moustiques femelles du genre <u>Anopheles</u> qui ingèrent du sang humain contenant les agents infectieux</p> <p style="text-align: center;">Homme</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 10px;">Moustiques</td> <td style="border-left: 1px dashed black; padding-left: 5px;">oeuf</td> </tr> <tr> <td></td> <td style="border-left: 1px dashed black; padding-left: 5px;">larve en eau</td> </tr> <tr> <td></td> <td style="border-left: 1px dashed black; padding-left: 5px;">moustique adulte</td> </tr> </table> <p style="text-align: center;">Homme</p>	Moustiques	oeuf		larve en eau		moustique adulte	<p>3 voies d'action</p> <ol style="list-style-type: none"> 1)- Traitement médical des porteurs et des malades. 2)- Education sanitaire de la population sur la cause de la maladie. 3)- Elimination des lieux de reproduction des anophyles-vecteurs. <ol style="list-style-type: none"> a)- remplissage et drainage; b)- application des insecticides à effet rémanent sur les murs intérieurs des habitations et sur les autres surfaces où se cachent les moustiques; c)- application des larvicides sur les lieux de reproduction étangs, flaques d'eau, etc... <p>Le remplissage et le drainage autour des concessions peuvent être faits par les villageois eux-mêmes. Il faut un spécialiste pour l'application des insecticides.</p>
Moustiques	oeuf								
	larve en eau								
	moustique adulte								

Agent Infectieux	Réservoir	Transmission	Mesure Prophylactiques
Intoxication alimentaire due au moins à 5 causes différentes (bactéries)			
a)- <u>Staphylocoques</u>	L'homme surtout	Produits alimentaires contaminés	a)- On lutte contre les staphylocoques avec réfrigération prompte de tous les aliments surtout viandes et crèmes. Aux villages, éducation des mamans sur la nécessité d'observer des conditions de propreté dans la cuisine, lavage des mains, curage des ongles; attention aux dangers posés par des infections cutanées
b)- <u>Clostridium perfringens</u>	Voie intestinale de l'homme, des bovins et le sol	Produits alimentaires contaminés surtout la viande imparfaitement cuite.	b)- Pour le Clostridium servir les plats de viande chauds dès qu'ils sont cuits. S'il y a moyen de refroidir, il faut le faire rapidement et les conserver jusqu'au moment de les servir. Les grosses pièces de viande doivent être cuites à point. Eduquer les mamans sur les dangers de conserver la nourriture sous les températures ambiantes.
c)- Botulisme	Le sol, voie intestinale des animaux	Aliments contaminés provenant des boîtes mal stérilisées	
d)- <u>Vibron parahaemolyticus</u>	Les eaux côtières	Ingestion de fruits de mer insuffisamment cuits	c)- Eduquer des ménages et d'autres personnes intéressées à la mise en conserve et d'autres procédés de conservation de produits alimentaires sur des techniques sûres (temp ^s , pression et température requis pour détruire les spores) et surtout l'importance de faire bouillir les légumes mis en conserve à la maison avant de les servir. Ne jamais servir, surtout aux enfants, de la nourriture aigre.
c)- <u>Bacillus cereus</u>	Partout dans le sol	Ingestion des aliments contaminés	d)- Vibron: s'assurer que les fruits de mer sont cuits à une température suffisante pour tuer le micro-organisme. Faire bouillir pendant 20 minutes. e)- Les plats ne doivent pas être laissés à la température ambiante après la cuisson. Les spores peuvent résister à l'ébullition, puis germer et se multiplier rapidement à la température ambiante.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
Trachome une bedsonie (chlamydie)	L'homme	Contact direct avec des sécrétions oculaires ou écoulements mucoïdes ou purulents de muqueuses nasales des personnes infectées ou avec des objets fraîchement souillés.	<ol style="list-style-type: none"> 1)- Enseigner la population sur la nécessité de l'hygiène personnelle et les risques que comporte l'usage commun d'objets de toilette. 2)- Salubrité élémentaire et personnelle. Assurer la disponibilité d'eau et de savon pour laver les mains et le corps.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<p>Oxyurose Entérobius Vermicularis Ver intestinal</p>	<p>L'homme infecté excrète des oeufs avec les selles.</p>	<p>Contact direct fécales-orales main-bouche</p> <p>Contact indirecte: oeufs dans les selles au sol mènent à une contamination des aliments et de l'eau.</p> <p>Contact indirecte avec les sous-vêtements ou la literie fraîchement contaminée par une personne infectée.</p> <p>Il y a aussi une auto-infec- tion - les vers se reproduisent dans le corps de la personne infectée.</p>	<ol style="list-style-type: none"> 1)- L'hygiène personnelle - lavage des mains après défécation et avant de toucher la nourriture. 2)- Porter des sous-vêtements propres et les changer souvent. 3)- Eviter surtout les enfants de toucher la région peri-anale. 4)- Salubrité générale de la concession, des aliments. 5)- Evacuation hygiénique des matières fécales. 6)- Prendre des bains fréquents de préf- erence la douche. 7)- Changer souvent de vêtements de nuit et de draps.

Agent Infectieux	Réservoir	Transmission	Mesures Prophylactiques
<p><u>Sarcoptes scabiei</u></p> <p>Gale</p>	<p>L'homme. Certains sarcoptes qui infestent les animaux peuvent vivre sur l'homme mais ne peuvent se reproduire dans la peau.</p>	<ul style="list-style-type: none"> - Contacts directs avec les parasites sur une personne infectée. - Contact avec les sous-vêtements ou la literie fraîchement contaminée par une personne infectée. - Au cours des rapports sexuels. 	<ul style="list-style-type: none"> 1)- L'hygiène personnelle - surtout la propreté du corps, des vêtements et de la literie. 2)- Laver les enfants souvent même si l'eau n'est pas parfaitement saine.

Attachment 3

A summary of the major vector dependent water related diseases in the area and prevented measures

<u>Maladie</u>	<u>Vecteur</u>	<u>Observations</u>
Paludisme	Moustiques femelles du genre Anophèles	<ol style="list-style-type: none">1) Application d'insecticides à effet rémanent selon une formule appropriée et en quantité convenable p. ex.: hydrocarbures chlorés tels que DDT, hexchlorogyne ou dieldrine.2) Installation des grillages devant toutes les ouvertures des pièces donnant sur l'extérieur.3) L'emploi des moustiquaires au-dessus des lits.4) Les améliorations sanitaires telles que<ol style="list-style-type: none">a) drainage etb) remplissagepour éliminer les lieux de reproduction des vecteurs.5) L'emploi des médicaments prophylactiques pour prévenir la maladie.

Trypanosomiase

- Glossina Palpalis
 - (Glossina Morsitans)
Mouche tsétsé
- 1) Action prophylactique doit être basée sur une connaissance de l'écologie locale de l'infection et de la mouche tsétsé.
 - 2) Renseignez-vous auprès de l'OMS, projet Oncho et le Ministère de la Santé Publique.
 - 3) En principe, les méthodes de prévention comprennent les suivantes:
 - a) Débroussaillage sélectif le long de certains cours d'eau autour des villages avec l'objectif de destruction de l'habitat de la mouche tsétsé.
 - b) Réduction de la population de mouches par l'emploi approprié d'insecticides DDT à 5% ou dièldrine à 3%.
 - c) Retrait de toute la population des régions infectées de mouches et regroupement dans des agglomérations plus importantes.
 - d) Renseigner le public sur les mesures personnelles à prendre pour éviter les piqûres des mouches tsétsé.
 - e) Traitement prophylactique à l'isethionate de pentamidine.
- Contacter le service médical

Onchocercose

- Mouches du genre
Simulium damnosum
Simulium néavei

Un programme (Program Oncho) est en cours au Togo et dans plusieurs pays de l'Afrique Occidentale pour éliminer à grande échelle ces mouches.

Il s'agit de deux actions principales:

- 1) Extermination des larves du vecteur dans les cours d'eau rapides et dans les cours d'eau artificiels.
- 2) Dépistage et traitement des cas des malades.
- 3) Renseignez-vous au siège local du projet oncho.

Filariose

- Plusieurs espèce
de moustiques
les plus importantes
étant Culex pipiens,
Culex fatigans.

Les moustiques du
genre Anophèles et

Mansonia

hébergent aussi des
larves.

A suivre voir l'action prophylactique
pour le Paludisme

Schistosomiase

Escargot du genre
Biomphalaria dans le
cas de Schistosoma
Mansoni et Bulinus
dans le cas de
Schistosoma Hematobium

- 1) Amélioration des pratiques d'irrigation et d'agriculture; drainage et assèchement des marais.
- 2) Traitement des foyers de reproduction avec des molluscides par exemple Cu SO₄.
- 3) Approvisionnement d'eau pour la consommation, le bain et le blanchissage à des sources exemptes de cercaires.
- 4) Evacuation hygiénique des matières fécales et d'urine d'une façon telle que les oeufs n'atteignent pas les masses d'eau contenant les escargots hôtes intermédiaires.

racunculose

Crustacés du genre
cyclops et souvent
appelés copepods

- 1) Faire bouillir l'eau à boire afin de tuer les copepods infectées.
- 2) Traitement approprié de l'eau afin de tuer les copepods.
- 3) Construction d'une margelle adéquate autour du puits.

PROJET U.S.A.I.D.-TCGO
 (Accord n°693-C210)
 -:-:-:-

Lomé, le 7 AOÛT 1981

PROGRAMME SOCIO-SANITAIRE
 -:-:-:-

N° 225/81/CAS

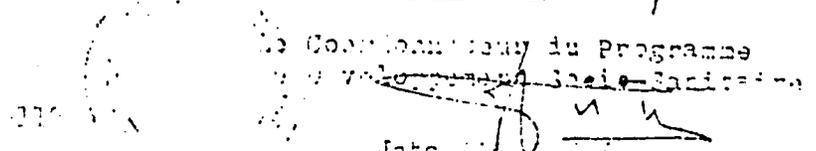
B O R D E R U D' E N V O I

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des pièces adressées à Monsieur... A. WAKITANG
Expert consultant

N° D'ORDRE	F) N A L Y S E	Nombre des Pièces	O B S E R V A T I O N S
1	Liste définitive des villages retenus pour bénéficier de forages dans le cadre du Projet USAID N° 693-C210.		

Arrêté le présent bordereau d'envoi à Une pièce

Le Coordonnateur du Programme
 du volet ~~sanitaire~~ Socio-Sanitaire


TCH/BAW.-

MINISTERE DU PLAN ET DE LA
REFORME ADMINISTRATIVE

-:--:--:--

MINISTERE DES MINES DE L'ENERGIE
DES RESSOURCES HYDRAULIQUES ET DES
TRAVAUX PUBLICS

-:--:--:--

MINISTERE DES AFFAIRES SOCIALES
ET DE LA CONDITION FEMININE

-:--:--:--

REPUBLIQUE TOGOLAISE
Union - Paix - Solidarite

-:--:--:--:--:--:--:--

LISTE DEFINITIVE DES VILLAGES
RETENUS POUR BENEFICIER DE FORAGES
DANS LE CADRE DU PROJET U.S.A.I.D.

N° 693 - 0210

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A T A K P A M E

A.- PREFECTURE D'OGOU

-:-:-:-:-

N°d'ordre	Villages	Population Résidente	Nombre de Forage à Installer
	<u>a)- Liste Ferme</u>		
1	AKABA	1513	1
2	PALAKOKO	1658	1
3	KOGNIGBO	392	1
4	KPEHOUN	669	1
5	YOROKPODJI	138	1
6	DOTEKOPE	605	1
7	DJANGBASSOUKOPE	345	1
8	AGODJCLOLO	1267	1
9	AVAKODJA	240	1
10	NYAMASSILA	1947	1
11	GAOUGBLE	-	1
12	FOUKOTE (Djama)	474	1
13	AWAGOME	196	1
14	ILODJI	231	1
15	MINIKI	254	1
16	BOKO	-	-
17	JANDA	211	1
18	ALOKOPE	351	1
19	OMONOLOKOUTE	140	1
20	TCHEKITA	422	1
21	MONRETAN	1094	1
22	GBAGBADJAKOU	461	1
23	KAMINA Village	770	1
24	IGBOLOUDJA	376	1
25	MOKELEGBE	491	1
26	ADJOGBA	283	1
27	FAGODO	235	1
28	AFODJI	390	1
29	ISATI	678	1

30	ATIKPAI II	249	1
31	OKOUTAWAYA	465	1
32	ELAVAGNO - CITE	618	1
33	KOLOKOPE	415	1
34	ELAVAGNO Hôpital	-	-
35	GBADJANE	-	-
36	SAMAKOPE	-	-
37	EFOUFAMI	-	-
38	OGOUE Est-mono	-	-
39	KAMINA Foyer Avenir	361	1
40	DATSA Atikpaif	289	1
41	KPATALA	774	1
42	OKELOUKOUTOU	371	1
43	HOMA	-	-
44	KOUNYOWOU	364	1
45	ATHOU Onougbo	355	1
46	AVETE	618	1
47	TCHAKRITCHAKPA	306	1
48	PAKPASSA	250	1
49	GLITTO	674	1
50	AFOLE - Zongo	531	1
51	CGBEDE	-	-
52	AKAKAI	234	1
53	ZOLOU	527	1
54	TOBOSSSE	316	1
55	ODOLI	401	1
56	DATSA	1890	1
57	KELEKPE N'taré	430	1
58	ADANKA	1079	1
59	KPENYO Atikiti	-	-
60	MEDJINGNI	-	-
b)- <u>Liste d'Attente</u>			
1	AGBONOU C.E.G.	-	-
2	AKADJA	289	1
3	NTAMTCUGOUKOPE	470	1
4	OGOUALA	-	-
5	OKOUTALAKOU	-	-
6	KPAKFO	-	-
7	MADJINMAKOU	-	-
8	ATSOUKOPE	-	-
9	KOLOROKOPE	-	-
10	AGBONOU - Gare	-	-

36	SIYIME 1 & 2	850	1
37	GBOWLUI-ECOLE	1550	1
38	ADJAKPA-MARCHE	950	1
39	VODOME	650	1
40	TOHOUN	3500	1
41	TOHOUN	-	-
42	HEVE-ECOLE	1950	1
43	AGBONDJI-ECOLE	915	1
44	GOZUIHOE	720	1
45	TADO-CENTRE	1500	1
46	AKLOTCHI	650	1
47	KPEGODO	1102	1
48	AFOTROKPE	907	1
49	KPETSIOE	898	1
50	GBOGBO	750	1

b)- Liste d'Atteate

1	DOLOUME	650	1
2	TOKOTSIHOE	1500	1
3	HUIZIME	700	1
4	DETOKPO	950	1
5	KATIVOU	1105	1
6	AZUIDZI	450	1
7	BOVIME	850	1
8	ATIFOUTOU	750	1
9	TSYME	600	1
10	AGOGOME	550	1

35	NYAMESI	607	1
36	BLIDCKOPE	289	1
37	AMUZUKOPE	1107	1
38	KODJE	349	1
39	AGOU NYOGBO X / F281	3532	1
40	" APEGAME X	2066	1
41	KOLOGAN	-	-
42	BLAKPA	-	-
43	MESSIOBE	496	1
44	AGBETIKO AGOU	2422	1
45	AGOU-GARE (GAZEFE)	3082	1
46	KPADAPE (Douane)	4426	1
47	YEVIEFE	1702	1
48	KUMA APOTI	-	-
49	BLIFOU	-	-
50	TSADOME (Danyi)	-	-
	b)- <u>Liste d'Attente</u>		
1	TCHOKFOKOPE	-	-
2	AGOU APEGAME	2066	1
3	DJAVE	-	-
4	KPLA	-	-
5	XEVIKOPE	-	-
6	EGBIKOPE	-	-
7	DANYI GABI	585	1
8	DANYI N' DIGBE	1761	1
9	GLEKOPE	616	1
10	NYITOE	2163	1

37	Nyassankopé-Kotonyacopé	457	1
38	Adiva	1036	2
39	Dédomé	1362	1
40	Ezimé	2952	3
41	Sodo-Zion	-	1
42	Adina	295	1
43	Adjahun	739	1

N°d'ordre	Villages	Population Résidente	Nombre de forage à Installer
	a)- <u>Liste Ferme</u>		
1	Kamina (Akébou)	1819	1
2	Sérégbéné	1558	1
3	Agbédjipé	376	1
4	Yala	906	1
5	Kpalavé	507	1
6	Broufou	1171	1
7	Djon	1012	1
8	Hlabe Apégamé	780	1
9	Doume	1588	2
10	Gobé	1286	1
11	Ekéto	994	1
12	Abrewonko	3905	1
13	Kessibo	4374	1
14	Tomégbé	8192	2
15	Kpété Maflo	2806	2
16	Otandjobo	874	1
17	Adossa	486	1
18	Todomé	1662	1
19	Wadagni	1182	1
20	Badou-Dzindzi	-	1
21	Dzogbé- Kopé	1389	1
22	Kessibo-Wawa	4374	1
23	Agigo-Assanubai	951	1
24	Kotora	981	1
25	Djidramé	933	1
26	Kougnohou	6592	2
	b)- <u>Liste d'Attente</u>		
1	Gbandé	1117	2
2	Venkougna	3204	2
3	Akloa		
4	Okou	1433	1
5	Imoussa	445	1
6		916	1
7	Dzogbégan	1709	1
8	Kpété-Bena	8677	1
	Ounabé	394	1

APPENDIX K

Rationale and Method for the Collection of Baseline Epidemiological Data

1. Categories of Water-Related Diseases

Table 1 shows a ranking of health center and hospital reported morbidity due to water related diseases for Togo in 1978. If population survey data were available for these diseases, such information might change the current ranking as the magnitude of unreported cases might be better appreciated. In the absence of such data, it will be assumed that the frequency of reported cases reflects that of unreported cases. Faced with the problems of a high rate of misdiagnosed and undiagnosed diseases within the health care system on the one hand and the prevalent tendency for villagers to classify most health problems by symptoms, it would seem desirable to classify diseases of concern here under those symptom categories easily understood by villagers. This symptomatic classification can then be related back to specific etiological agents or groups of etiological agents which have a definite relationship to the water supply status. Water related diseases such as Guinea worm that can be diagnosed by almost anyone can be placed in a separate category.

Using this rationale, an initial questionnaire investigating the status of water related disease in villages receiving wells could be organized as follows:

Diarrhea

Because diarrheas are usually of a short duration and have marked seasonality, the information gathered must be limited. For instance, data gathered will give no indication of the annual incidence of diarrhea if the questionnaire is administered at the non-peak period. The incidence might appear to be much lower than would be expected.

We know from experience, however, that diarrheal diseases tend to have a low to negligible prevalence but high incidence, since no immunity is acquired and multiple etiological agents ranging from viruses to protozoan infections are the primary causes.

From the perspective of water and excreta-related diseases, diarrheas are caused primarily by viruses (principally rotaviruses), bacteria (shigellosis, cholera, and salmonellosis), and protozoa (amoebiasis and giardiasis). Fecal-oral, fecal-food-oral, and fecal-water-oral contamination are the major cycles of reinfection.

- Frequency of water and sanitation related diseases diagnosed during consultations as a proportion of all diseases diagnosed during consultation: Togo national data 1978*

	MALE					FEMALE					TOTAL
	1	1-4	5-14	15-44	45+	1	1-4	5-14	15-44	45+	
Proportion of all diagnoses represented by water and sanitation related diseases	$\frac{32623}{38268}$	$\frac{71703}{86404}$	$\frac{83758}{93115}$	$\frac{102819}{112651}$	$\frac{22173}{23384}$	$\frac{28714}{33322}$	$\frac{61798}{74996}$	$\frac{67766}{76065}$	$\frac{98717}{103867}$	$\frac{24125}{24905}$	$\frac{594,221}{665,905}$
	85.2%	82.98%	89.95%	91.27%	94.82%	86.25%	82.40%	89.08%	95.03%	96.86%	89.23%
Water and sanitation related without malaria	46.78	39.84	37.85	36.89	38.81	45.44	37.52	31.95	34.44	38.91	37.74
Dysentery, enteritis diarrheas only	41.97	28.51	19.74	19.4	20.67	40.73	26.98	17.29	17.49	20.61	23.43

*Derived from MOH 1978 statistics

Bloody but unwatery stools are easily identified and are frequently distinguished from other diarrheas, but there is the likelihood that the condition will not be caused by a water related agent, but rather by deficient personal hygiene.

The limitations of information obtained by a 24 hour diarrhea/dysentary recall can be partially compensated by analyzing health center information from the area. Analysis of all entries of diarrheas in the health center records for the past two years will hopefully reveal seasonal trends and give a clearer indication of diarrhea incidence. Abrupt changes in incidence in health center data should be interpreted carefully as these could represent only the reporting differences or impressions of different workers. It would be helpful to trace cases to their villages of origin so as to correlate with water supply and sanitation improvements.

Specific diseases, the differential diagnosis of which would be difficult under Togolese conditions and that would have a high probability of being identified in cases of diarrhea, include:

- | | |
|----------------|----------------------------|
| 1. cholera | 5. amoebiasis |
| 2. typhoid | 6. salmonellosis |
| 3. paratyphoid | 7. giardiasis |
| 4. shigellosis | 8. balantidiasis |
| | 9. <u>E. coli</u> diarrhea |

Conditions difficult to identify are:

1. viral diarrheas, especially rotavirus
2. non-specific gastroenteritis

Eye and Skin Infections

Eye and skin diseases can be identified relatively easily at the village level by interviewing agents (nurses) and from health center records. Again tracing cases to their village of origin would be helpful.

Because patients are rarely admitted to hospital for these conditions, a combination of information derived from outpatient health center records and village interviews is likely to give a fairly reasonable estimate of incidence and prevalence of these diseases. The water washed diseases of prime importance in this group include:

- | | |
|----------------|--|
| 1. yaws | 7. conjunctivitis |
| 2. scabies | 8. leprosy |
| 3. skin sepsis | 9. <u>tinea capitutis</u> , <u>tinea corpora</u> |
| 4. skin ulcers | 10. non-specific skin lesion |
| 5. trachoma | 11. infection of wounds
acquired accidentally |
| 6. impetigo | |

Guinea Worm

Guinea worm is a significant problem in the project area. Initial surveys will attempt to identify persons suffering from this problem directly. As this particular problem has the potential of complete control by water improvement alone, continued occurrence of this problem at the end of the project would be a good indicator that water use habits after the new sources of water are introduced into the village have not improved.

Intestinal Worms and Parasites

The prevalence and incidence of most of the helminthic infections in the project area cannot be accurately determined by symptoms alone. As helminthic infections are a significant cause of morbidity in the project areas, it would be desirable to select a small subsample in the project population from which stool and/or urine samples can be obtained. This subsample should be children, 0-14 years preferably. Worms with easily identified eggs include:

- | | |
|---------------------------------|-----------------------------------|
| 1. <u>ascaris lumbricoides</u> | 4. <u>Necator americanus</u> |
| 2. <u>trichiuris trichuira</u> | 5. <u>schistosoma haematobium</u> |
| 3. <u>Ankylostoma duodenale</u> | 6. <u>schistosoma mansoni</u> |

Anemia

An additional but optional health parameter that could be included would be hemoglobin levels measured in finger-tip blood samples taken from children from whom stool samples are taken. Hemoglobin levels could be correlated with the presence or absence of diarrhea and/or intestinal helminths. The emphasis being placed on the community development aspect of this project could justify collecting information on the iron nutrition of children. Project officers have indicated their intention to include nutrition education activities. Anemia can be easily determined using a hemophotometer. Its relationship to water and sanitation problems is not always direct. Anemia can result, for instance, from a heavy hookworm infection through blood loss. The hookworm infection itself would be due to fecal contamination of the environment. Other causes included principally malaria and dietary iron deficiency. Since sanitation and nutrition education are likely to be combined in practice, this measure could be doubly useful.

In summary, to satisfy the health improvement objectives of this project, it will be necessary to obtain baseline data through an initial survey in the following areas:

- a) 24-hour and one week diarrhea recall information to be supplemented by a study of health center data in project area;
- b) clinical examination for skin and eye diseases with the assistance nurses and health center attendants;
- c) examination for Guinea worm infections;
- d) stool samples for helminthic infections;
- e) hemoglobin levels in children from whom stool samples are taken

Following the preceding rationale, table 3 presents an analysis of available data on the parameters proposed for the health questionnaire. As will be pointed out, there are considerable inconsistencies and other problems which make the data largely indicative. For this reason, the national data presented here have to be supplemented by other data to be collected from health centers in the project area. The most reliable data for purposes of evaluation will have to come of course from the initial survey itself.

Table 2. STOOL EXAMINATIONS FOR PARASITIC WORMS (1978 - Togo*)

Total Stool Samples - 130,701

	<u># of Positive Stools</u>	<u>% Positive</u>
<u>Ascaris lumbricoides</u>	9,071	6.9
Hookworms	23,987	18.3
<u>Trichiuris trichiura</u>	477	0.36
<u>Strongyloides stercalis</u>	2,692	2.05
<u>Schistosoma mansoni</u>	892	0.6
<u>Taenia solium</u>	109	0.09
<u>Enterobius vermicularis</u>	135	0.08
<u>Hymenolopis nana</u>	281	0.2

* Derived from MOH 1978 Statistics

According to these national data which admittedly conceal both regional and age distribution of helminth infections, anylostomiasis (hookworms), Ascaris infection and strongyloidiasis are the main types in Togo. An examination of health center and hospital data for the Plateau and Savanna Regions could hopefully establish what are the most prevalent worms in each

Table 3

Tableau - 2 - Ensemble au Togo

Fréquences absolues des malades consultants enregistrés suivant la cause, le sexe et l'âge dans les Centres de Santé de l'ensemble du territoire national au cours de l'année 1978.

Unité: 1 malade consultant.

Source: Relevés mensuels des Centres de Santé.

Code 1978 1979	MALADIES	SEXE MASCULIN					SEXE FEMMININ					TOTAL
		0 -	1-4	5-14	15-44	45+	0 -	1-5	5-14	15-44	45+	
A * 4	Dysenterie bacillaire et amibiase	1072	1132	940	100	6	843	882	654	175	10	2954
A * 5	Entérites/autres mal. diarrhéiques	14 990	23 505	17444	21 762	4 822	12 727	19 351	12 501	18 060	5 124	190 242
A * 6	Tuberculose de l'App. respiratoire	-	32	42	101	31	2	26	24	93	22	265
A * 14	Lèpre	-	9	80	111	65	-	1	16	115	39	429
A * 16	Coqueluche	695	1 990	919	38	3	780	2 114	891	33	16	7 429
A * 19	Infections à méningocoques	52	47	61	27	6	35	28	26	32	4	255
A * 20	Tétanos	72	56	89	26	12	72	49	36	32	9	344
A * 21	Autres maladies bactériennes	-	10	12	6	4	2	12	2	4	-	34
A * 25	Rougeole	3 178	10 826	4 957	565	14	3148	9 425	4 655	658	12	37 442
A * 29	Autres maladies à virus	532	1 632	2 720	1 498	174	518	1 384	2 272	1 613	219	11 279
A * 31	Paludisme	14 719	37 277	48 507	61 255	13 090	13 599	33 654	43 461	62 966	14 492	242 685
A * 32	Trypanosomiasés.....	2	-	12	19	17	4	-	12	6	14	66
A * 33	Syphilis recents, symptomatique..	-	12	58	30	5	2	21	8	29	3	168
A * 37	Autres formes de syphilis	27	77	101	114	50	20	110	110	163	66	690
A * 38	Infections gonococciques	5	29	399	7 414	889	2	22	257	2 462	397	11 022
A * 39	Schistosomiase	12	178	2 220	2 538	213	12	120	333	841	97	6 794
A * 41	Filariose	41	364	1 649	4 459	1 285	40	240	1 180	2 913	1 162	13 333
A * 43	Autres helminthiases	1 567	8 131	9 938	9 564	2 277	1 318	6 826	7 826	12 084	2 920	62 491
A * 44	Toutes autres mal. inf./parasitai.	222	1 097	2 963	3 024	398	193	703	1 570	1 698	341	12 212
A * 58	Tumeur mali. de sièges autre sans/P	-	-	-	-	-	-	-	-	1	-	1

area. Since most health centers do not have or use a microscope as a regular part of their diagnostic activities, microscopic examination of stool samples from a small subsample of the project area remains the only way of ultimately getting any objective data.

Ascaris, Trichuris and Schistosoma mansoni (or possibly haematobium) have been chosen as indicator helminths that will be looked for in stool samples. The choice of these intestinal helminths is based primarily on the ease with which their characteristic eggs can be identified under a microscope. The choice of S. haematobium would necessitate the collection of urine samples, rendering the operation quite complex. Stool samples can be collected and fixed in a saline-formol solution for subsequent examination.

Although hookworm would appear to be a major problem from the national data (18.3 percent of positive stool samples for 1978), hookworm is not easily distinguished under the microscope from the eggs of many other helminths found in the area as well as from artifacts.

Strongyloidiasis has not been chosen because of its different reproductive pattern. Identification of the rhabditiform larvae in feces requires considerable skill which may not be available locally. Because of autoinfection possibilities, the use of this helminth in the terminal health evaluation would not detect a drop in the occurrence of new cases that were attributable to project activities. In summary, the choice criteria for helminths are:

- a) a characteristic egg easily identified;
- b) skill for identification of a variety of helminths using limited laboratory facilities; and
- c) water and sanitation related nature of the helminths, i.e. the likelihood that improvements will affect incidence/prevalence.

The age and sex specific analysis of national data in table 3 reveals the following:

- Across all age and sex groups, water and sanitation related disease accounts for 82.4 percent of all diagnoses made during patient consultations in 1978.
- When malaria is excluded from the water related disease category, there is a significant reduction of the proportion of water related diseases, since malaria represents approximately 50 percent of all diagnosed water and sanitation related diseases.

- Dysentery, diarrheas and enteritis constitute about 75 percent of the conditions considered water and sanitation related when malaria is excluded.

The above information has important implications for the project. Although malaria is a major problem and water related, the project as currently conceived cannot reasonably be expected to make any discernable impact on malaria incidence in the project villages because the comprehensive control of malaria requires prophylactic and curative medical treatment which has to be carefully integrated in time and space with a comprehensive vector control program.

Table 1 is derived from Table 3* which presents the MOH reported data for 1978. It is of interest to note that two skin conditions, scabies and yaws, reported in available 1966 data constituted 6.78 percent (31,914 out of 470,415 diagnoses) of all national diagnosis. The 1978 data classification uses the WHO code and does not cite any cases of these two water washed diseases. Does this mean a complete eradication of these diseases within the population that uses the health centers/hospitals? These data inconsistencies can only be clarified by a survey of skin conditions in participating villages.

2. Compiling Health Center Data

Health data collected from the detailed survey will give information on the point prevalence of the various categories of water- and sanitation-related diseases considered, but not on the annual incidence of these diseases. Since the incidence of these diseases can reasonably be expected to vary with season, knowledge of annual disease peaks is required to better understand the point data collected in the survey.

The purpose of collecting health center data, therefore, is to find out if any of the diseases or categories of disease show annual wet and dry season trends. Because the form for collecting health center data has the same disease categories found in the detailed survey questionnaire cross analysis will be permitted. It should be emphasized, however, that health center data represent numerator data, i.e. monthly new cases of diseases reported while the survey provides point prevalences.

*In Table 3, diseases considered water- or sanitation-related have been marked with an asterisk. These diseases are then considered as a proportion of all diseases recorded for the derivation of Table I.

In the case of health center data, the denominator population is impossible to determine under current conditions so that true rates cannot be derived. Using only numerator data, however, it is possible to determine the relative magnitude of water and sanitation related diseases among health center users of services.

This simple exercise is beset with serious problems of undiagnosed and misdiagnosed cases of diseases in health centers. Although the error in diagnoses is believed to be great, there is no objective estimate.

Data has already been collected from the following health centers in the project area:

- Nyamassila - dispensary
- Badou hospital (out patient health data)
- Dapone - pediatric center
- Dalia dispensary in Notse
- Oga dispensary in Amlame
- Ezime dispensary in Amlame
- Korbongou - Savanna Region

Analysis of data from these dispensaries has produced very mixed results due partly to gaps in the data. Outpatient data from Badou city reveal some weak annual cycles for diarrheas but not for intestinal worms or skin diseases. The quality of the data from this prefectural hospital was not different from that of the rural dispensaries (see tables 4 and 5 and Figures 1 and 2). Diagnosis for the majority of outpatients is still based almost exclusively on symptoms just as in the rural health centers.

Some problems that arose in the analysis of the initial data worth noting. If disease diagnosis were more reliable and if the same time period (calendar years 1979 and 1980) were considered for all dispensaries, one could lump together the data for various health centers before analysis. It would seem, however, that intra- and interdispensary errors of diagnosing and recording disease are so great that this procedure would compound the problem further. It is suggested therefore that data for each health center be considered separately first and then combined for the same period to see if any trends emerge.

In spite of the initial mixed results obtained from this exercise it is recommended that the data be collected from other health centers in the region. The exercise has educational value for the field agents involved, and if the data is shared with the medical officers who have shown interest in the project it should assist them to appreciate more the seriousness of the problem of poor data collection within the health services system.

Table 4.

CENTRE de SANTE de HOPITAL DE BADOU

PREFECTURE WANADATE 8-20-81NOM de L'AGENT FELIX N. AWANTANGDATE d'AFFECTATION de L'INFIRMIERE
A CET POSTE

	1979												1980												T O T A L
	Jan	Fév	Mars	Avr	Mai	Juin	Juil	Ao	Sep	Oct	Nov	Déc	Jan	Fév	Mars	Avr	Mai	Juin	Juil	Ao	Sep	Oct	Nov	Déc	
N de consulta- tion par mois	1017	1106	727	707	892	683	693	674	681	1103	1343	1271	1034	1032	948	1041	644	1123	709	226	75	921	1425	578	diarrhées, troubs d'appas ciguales, douleurs abdominal
N de cas de diarrhees constate par mois	.23	.19	.17	.15	.27	.21	.13	.11	.13	.18	.26	.25	.26	.13	.22	.19	.26	.22	.17	.16	.19	.19	.19	.17	plus - plus de 50%, Crabe, Ocrmit peau, Congue
N de cas de maladie de peau yeux et plais infectees	18 .06	15 .15	.18	.08	.07	.06	.07	.07	.08	.11	.07	.06	.06	.05	.08	.09	.07	.08	.08	.10	.04	.08	.05	.06	
N de cas de vers intestin- aux	.09	.09	.09	.10	.10	.15	.13	.12	.13	.07	.06	.06	.03	.09	.05	.06	.03	.09	.03	.03	.07	.03	.04	.04	
N de cas de vers de Guinee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N de cas de Schistomiase Haematobium	7	1	4	5	3	-	7	1	-	6	12	6	5	5	8	9	2	12	-	18	-	6	10	4	

CENTRE de SANTE de Diapramin NyamassilaPREFECTURE OBOUDATE 8-15-81NOM de L'AGENT Felix N. ANANTANGDATE d'AFFILIATION de L'INFIRMIERE JUN 1978
A CET POSTE

	1979												1980												T O T A L
	Jan	Fév	Mars	Avr	Mai	Juin	Juil	Ao	Sep	Oct	Nov	Déc	Jan	Fév	Mars	Avr	Mai	Juin	Juil	Ao	Sep	Oct	Nov	Déc	
N de consultation par mois	177	182	167	177	171	192	184	192	240	286	253	170	170	210	258	223	253	242	264	190	240	228	233	271	
N de cas de diarrhées constatées par mois	16	14	21	20	12	16	15	15	24	21	24	21	13	11	19	19	26	22	24	15	24	19	19	17	
	19	26	35	36	21	30	27	30	57	61	61	35	32	35	45	44	50	54	63	30	58	50	44	35	
N de cas de maladie de peau, yeux et plaies infectées	16	18	18	23	17	10	17	17	18	15	15	08	19	17	19	20	17	20	18	21	17	19	23	21	
	29	33	30	41	29	19	32	34	42	43	37	15	33	35	48	41	44	48	47	41	42	48	55	44	
N de cas de vers intestinaux	-	10	10	5	6	8	18	10	14	11	8	7	9	23	24	23	13	21	22	16	14	24	15	17	
N cas de vers de Guinée	-	-	-	-	-	-	1	-	-	-	1	-	-	1	1	-	3	-	-	-	1	7	1		
N de cas de Schistomiasis Haematobium	-	1	3	7	4	4	2	1	-	1	2	2	5	2	5	1	10	3	6	-	-	5	8	2	

Figure 1.

Hôpital de BADOU

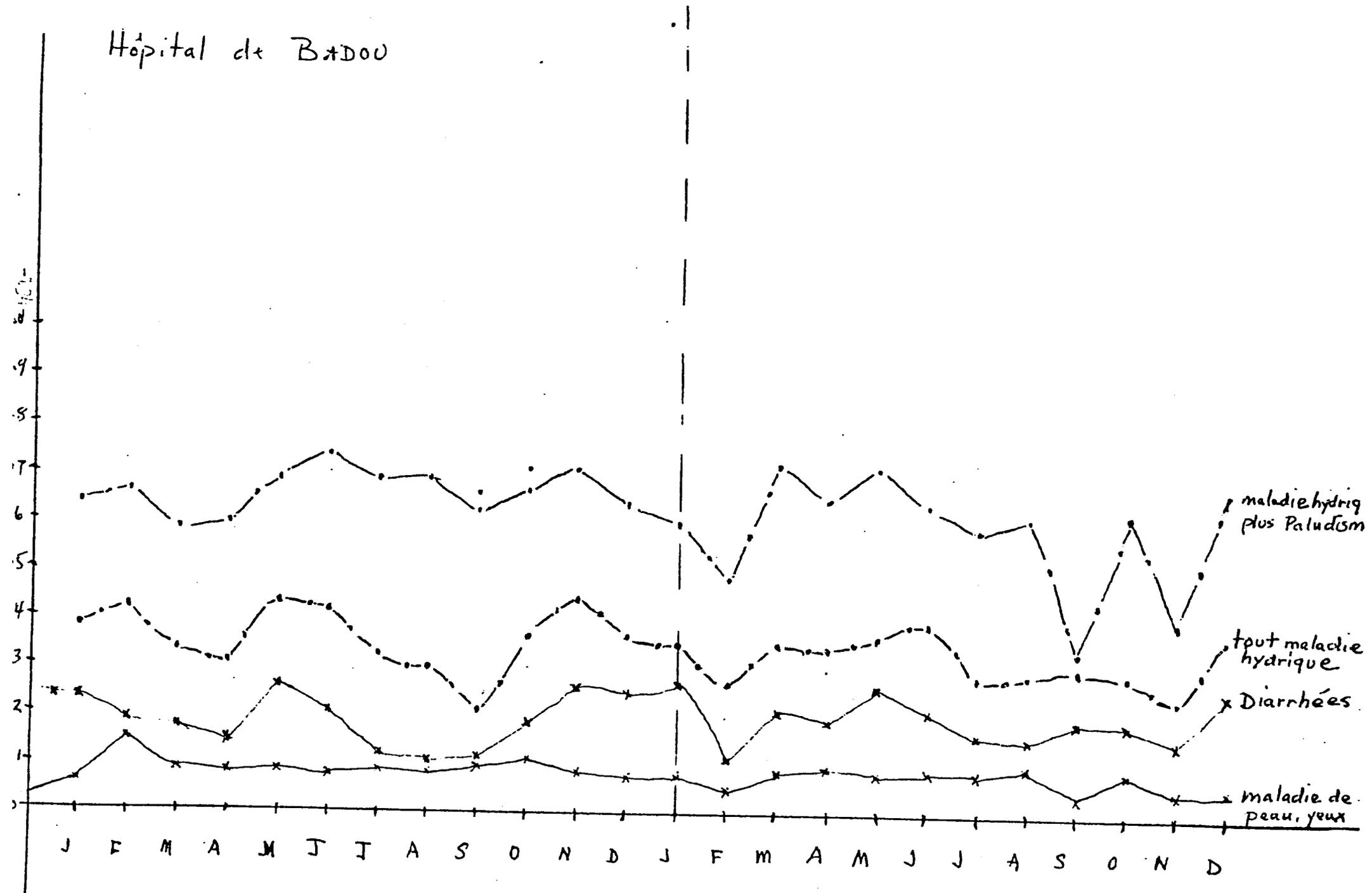
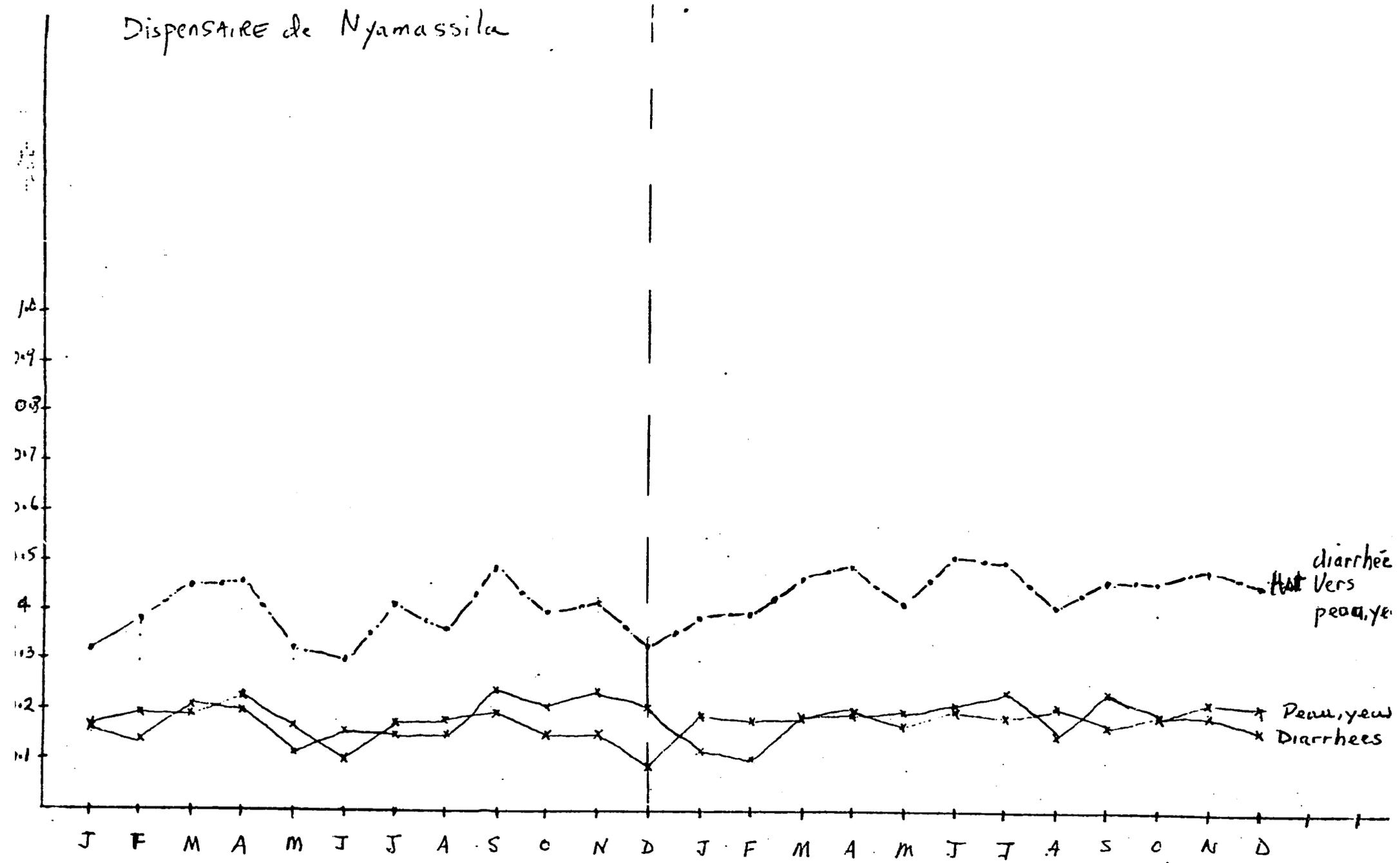


Figure 2.

Dispensaire de Nyamassila



The Ministry of Health changed its standard data sheet sometime in 1979. Some dispensaries in the project area are, however, still using the old sheets. A sample of the current monthly reporting form is attached. The diseases reported on this form follow the WHO classification system.

Because of variations in disease or symptom nomenclature in the entries, some judgement had to be made on what diarrheas or diarrheal diseases are. The same is true of skin diseases, intestinal helminths, and others.

1. Under the category of diarrheal diseases, the following kinds of entries were included:

- maladies diarrhetiques
- amibiase
- dysenterie
- douleur abdominale
- constipation
- problemes d'appareil digestif

2. Under the category of skin and eye diseases the following typical entries were included: pian, gale, plaies, conjunctivite and maladies des yeux et de paupieres.

In this category wounds consistently constituted about 90 percent of the entries by month, year, and dispensary.

The next most significant entry was conjunctivitis. Yaws, appears to be a serious problem only in the Badou area. The inclusion of wounds in the category of skin and eyes diseases may be rightly questioned. The decision was based on the fact that most wounds were infected by the time they were brought to the health center. Fresh wounds that were promptly treated also seem to have a high rate of reinfection after initial cleansing and treatment. It would seem, therefore, that the high prevalence of infected wounds and ulcers represents somewhat problems of personal hygiene although it is realized that the primary cause of the problem has nothing to do with personal hygiene. The high incidence rate of wounds speaks to an occupational problem instead. Villagers in the project areas are farmers who have to clear a lot of bush and forest with a machete to prepare for planting. Data from the Oga dispensary which is in a remote forest and mountain area with little good farmland suggest that wounds as an occupational hazard are even more serious in the forest zone than in the open flat savana grasslands found in the Notse area for example.

3. Under the category of worms or intestinal parasites, the following kinds of entries were included: ankylostomes, intestinal worms, intestinal parasites helminths and ascaris.

Interesting observations in this category center around variations of diagnosis by the same nurse and between two nurses. One nurse for instance never "saw" cases of worms other than "ankylostome". The number of cases seen per month averaged about 30. However, for some months not a single case would be seen and the category of ankylostome would not appear on the record. At another center, the nurse would faithfully record all cases thought to be worms as "helminthiases". Others varied their entries in this category between ascaris, ankylostome and the more general term helminthiases. This variability in specificity of diagnosis without confirmation by laboratory evidence underscores the problems associated with data collection.

4. Guinea worm represents a serious problem in the Notse prefecture. Medical authorities were unanimous in stating one point. The numbers of cases seen at health centers underrepresents the magnitude of the problem. They said most people with Guinea worm stayed home and treated it themselves. If this is true, then the seven villages that will be surveyed in detail in the Notse prefecture should give a high enough prevalence rate to reflect an incidence higher than that recorded in the health center data.
5. Apparently schistosoma haematobium is easily recognized in boys especially at the village level. Entries in this category include:
 - bilharziase
 - schistosomiase

In centers where the old reporting forms are still in use this disease is included with other "hematuries."

The preceding decisions were made in gathering the initial data. If for any reasons some changes are made on the inclusion or exclusion of categories of entries, it is suggested that these decisions be made known to all data collectors so that there is some uniformity in the classification.

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FICHE DE REPARTITION DES ENGIN A DEUX ROUES

-:-:-:-:-

* Engins acquis pour le Programme Socio-Sanitaire du Projet
 U.S.A.I.D N° 693-0210

- 2 Scooters (Vespa)
- 45 Motos "Suzuki-Homme"
- 15 Motos "Suzuki- Dame"
- 10 Vélos

* TABLEAU DE REPARTITION

	V E S P A	Suzuki HOMME	Suzuki Dame	V E L O
<u>Région des Plateaux</u>				
- Aux Agents des Affaires Sociales	1	14	9	-
- Aux Agents de la Santé Publique	-	7	-	-
- Aux Agents Permanents de Service	-	-	-	4
<u>Région des Savanes</u>				
- Aux Agents des Affaires Sociales	1	10	6	-
- Aux Agents de la Santé Publique	-	7	-	-
- Aux Agents Permanents de Service	-	-	-	4
<u>Service Coordination du Projet</u>				
- Agent Administratif	-	1	-	-
- Agent de Liaison	-	1	-	-
- Aux Agents Permanents de Service (1)	-	-	-	2
<u>Corps de la Paix</u>				
- Aux Volontaires	-	5	-	-
T O T A L				
	2	45	15	10

(1) Il s'agit d'un Vaguemestre et d'un Planton./-