

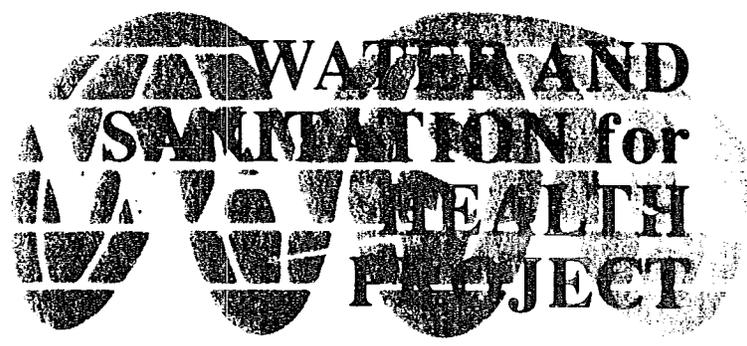
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ASSESSMENT OF NEEDS AND OPPORTUNITIES FOR CHOLERA CONTROL IN SURINAME



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**ASSESSMENT OF NEEDS AND OPPORTUNITIES FOR CHOLERA CONTROL IN
SURINAME**

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1. EXECUTIVE SUMMARY

The consultants investigated needs and opportunities for appropriate technical and educational interventions for the prevention and control of cholera in Suriname. They met with local authorities of the Suriname Ministry of Health (MOH), the Bureau of Public Health (BOG), Pan American Health Organization (PAHO), Suriname Medical Mission (MZ), Royal Dutch Embassy, U.S. Embassy, European Economic Community (EEC), Belgium Embassy, the Suriname Water Company (SWM) and the Ministry of Natural Resources.

Based on extensive discussions and personal observations, assessments were made regarding the present state of the water system, water use and storage practices, food handling, existing channels for health communication and education, and the present capability to design, prepare, and produce health messages.

On the basis of their assessment, the team recommend technical assistance in support of the following:

A. The development of a plan for the Suriname Water Company for emergency chlorination of the Paramaribo urban and peri-urban water system;

B. The organization of a cholera epidemic simulation exercise for the Bureau of Public Health, the Suriname Water Company, Regional Health Service (RGD), the Suriname Medical Mission, and the Pan American Health Organization to establish coordination and lines of communication in order to:

- Define specific material needs; and
- Test assumptions regarding the management of a possible cholera epidemic.

C. A workshop in health education and communication planning and management, combined with materials development techniques for the Health Education Division of the Bureau of Public Health, the Regional Health Service, and Suriname Medical Mission staff to :

- Assist in the development of appropriate cholera prevention campaign messages;
- Develop an emergency health-kit containing cholera prevention messages and teaching aids; and
- Satisfy the apparent need for an increased capacity to plan, design, prepare and monitor health education and communication campaigns and messages.

D. Follow up workshops focusing on skills required for the design and preparation of visual, audio, and audio-visual

media for the staffs of BOG, MZ, Regional Health Service and PAHO.

E. The establishment and support of a Communication Unit or Media Center capable of planning, designing, preparing and monitoring effective health communication campaigns and messages which would help satisfy the need for appropriate public health education materials. This need was reported in the MOH National Plan for the Prevention and Control of Cholera, which was prepared in October 1991. These materials would greatly contribute to raising the public's awareness and comprehension of certain behaviors related to the possible outbreak and spread of cholera and other diseases.

2. SCOPE OF WORK

The specific scope of work for the team follows:

- A. Meet with representatives from the Suriname Ministry of Health, PAHO, the U.S. Embassy, and other donors to learn of current plans for cholera prevention and preparedness; determine their perceptions of needs and priorities vis-a-vis cholera (and where food handling, household water and sanitation fit in); and identify resources available for a cholera prevention and preparedness program.
- B. Collect existing data on water, sanitation, and food handling problems and determine feasible interventions.
- C. Assess the handling of food and water by retail food vendors in the capital of Suriname, Paramaribo. If possible, identify number of vendors; organizations (e.g. associations); sources of food and water; cooking and storage practices; hygiene practices (e.g. hand-washing; and inspection by public health authorities).
- D. Assess household and community water collection and storage and sanitation practices in the country's peri-urban areas. Identify water sources; vulnerability of sources to contamination; common domestic water storage practices; domestic sanitation facilities and practices; and personal hygiene practices.
- E. Identify and assess possible channels for reaching both urban and peri-urban populations with educational messages about cholera, including mass media; Ministry of Health facilities and personnel, networks of other government agencies (e.g. Ministry of Agriculture or Public Works); PVO's, churches, and other community organizations; labor or industry groups (e.g. food suppliers, food handlers).

- F. Explore MOH and U.S. Embassy interest in broader response from AID/Washington, including strengthening of case management of cholera and other diarrhea cases and make recommendations as appropriate.

3. ACTIVITIES

A. Meetings

In conducting the assessment, the team met with the following individuals:

1. Pan American Health Organization
Dr. Michael O'Carroll, PAHO/WHO Representative
2. U.S. Embassy
Ambassador John P. Leonard
Ms. Linda Specht, Economic Officer
3. Royal Dutch Embassy
Mr. Menno Lenstra, First Secretary
4. Suriname Ministry of Health
Dr. R. Codfried, Acting Director of Public Health
Dr. Ingrid Krishnadath, Director of Diarrheal Diseases
Mrs. Cynthia Rozenblad, Director of Health Education
Mrs. R. Bouterse, Sanitary Engineer
5. Delegation of the Commission of the European Communities in the Republic of Suriname
Mr. Lutz Salzmann, Delegate
6. Cooperation Division of The Belgium Embassy
Mr. I. Ronald Vandervelde, Head of the Agricultural Division for Suriname and the Caribbean
7. Suriname Medical Mission
Dr. Legiman, Field Coordinator
Dr. R. de Miranda, Medical Director
Dr. Fen Khouw, Coordinator of Middle, West and South Suriname
8. Chris Healey, Anthropologist
9. Suriname Water Company
Mr. Theo Goedhart, Director
Mr. Kenny Wong A. Tsoi, Public Relations Officer
10. Mr. Harmen Rijsdijk, Graphic Designer
Veldhuizerlaan 3, Paramaribo, Tel: 460218

11. Ms. Claudette de Bruin, Graphic Designer
Miguelitastraat 6, Tel: 490211

B. DATA COLLECTION

1. Food Handling

A large percentage of the population of Paramaribo (an estimated 50%), purchases food from street vendors on a daily basis. A government licensing system requires two physical inspections of health workers involved in food preparation by a physician each year. Although restaurants are also inspected, there are only two trained food inspectors in all of Suriname. Eighty nine other health inspectors work throughout the country, but are not qualified to conduct restaurant inspections. Forty eight of these inspectors work in Paramaribo.

It is the opinion of the Bureau of Public Health that the existing food inspection program could provide sufficient protection from the transmission of Cholera if there were adequate and safe water and sewage disposal and training of additional health inspectors to perform more of the food inspection duties. Health education also forms part of the food inspector's existing duties.

The availability of only five cars for all of the inspectors in Suriname is a significant limitation, but provides less of a handicap in the city, due to the availability of public transportation. The need for training health inspectors was identified in the National Plan for the Prevention and Control of Cholera.

Various other factors were noted in regard to food vendors. Flies appear to be under control in the principal market areas. Reports of rats were received and witnessed during field visits. Most food in Suriname is well cooked during preparation, but refrigeration is generally not available. Food is prepared in small quantities and stored in fly-proof cabinets. The consumption of raw shellfish was neither reported nor observed. Epidemiological data suggest that the most common foodborn outbreak is one which involves large gatherings where large quantities of food are prepared in advance of the event and allowed to sit at room temperature. This does not, reportedly, involve street vendors or licensed restaurants.

2. Water Collection, Storage and Sanitation

Groundwater is the source of all water supplied by SWM within Paramaribo. Intermittent flow and areas of low pressure are common. It is agreed that these conditions offer the potential for contamination of the system. Water storage is common in some households, and health authorities are aware of the dangers of this

storage practice.

Recent water samples from the system reportedly show widespread presence of total coliform contamination and some contamination by fecal coliform. The health authorities understand the implication of these test results in the event of a cholera epidemic. At present, the SWM does not have a plan for chlorination of the municipal water system in the event of a cholera outbreak. Existing resources and effort are going into efforts to keep water pressure as high as possible and to minimize service interruptions.

Chlorine is not available in Suriname due to the failure of manufacturing equipment and the absence of hard currency with which to purchase repair parts.

Water lines, standpipes and hoses all lie in, cross, or otherwise come into contact with sewage which has been discharged into open ditches. Unfinished housing developments are occupied with either no service or through an illegal connection. These illegal connections typically consist of a section of galvanized or PVC pipe with a section of garden hose attached. The flow is initiated by removing a wooden plug from the hose and directing the water into a container. When the container is full, the plug is picked up off the ground and replaced in the end of the hose. The water lines are located adjacent to the sewage flow in the ditches. All water in these areas is stored in containers near or in the house.

Gastroenteritis is the second highest cause of death among males 0-4 years of age. It is the eighth highest cause of death in Suriname. The occurrence of these cases are clearly related to the wet seasons and flooding.

Water storage occurs in communities which have low pressure or intermittent service. Those communities most significantly effected are either the old, established government housing developments or the newer unfinished areas in which groups of displaced persons have settled.

In all cases, these activities are hidden from the authorities because they represent a violation of a 1953 law which requires all houses within the service area of the SWM to be connected to the water system. Systems which collect roof runoff from downspouts are more openly displayed. Illegal wells were infrequently observed during field visits.

At the present time, a clearly defined "community health worker" does not exist in the Surinamese health care system. The health inspectors work in the community, but their resources and numbers are so limited that they are not able to reasonably extend themselves into areas beyond construction inspection and addressing complaints.

The Dutch government expresses an intention to fund a major rehabilitation program for the water system. This rehabilitation has been pending for three years, according to the public health staff. Significant doubt exists in their mind as to whether or not the money will ever make its way into the rehabilitation of the water system. It is clear that this rehabilitation will not achieve measurable improvement prior to the arrival of Cholera in Suriname.

3. Sewage Disposal

The city of Paramaribo has a water table between 30 and 90 cm during the entire year. The water table rises during the wet season. The required standard, which is seldom met, involves discharge of black water (toilet waste) to a septic tank. The septic tank then discharges into an oxidation bed. The oxidation ditch discharges into the storm drain or roadside drainage ditch. Gray water (all non-toilet waste), discharges directly into the storm sewer or ditch. Much of the pumping equipment associated with the sewer system is inoperative. Only one neighborhood of 500 homes has ever been connected to a sewage treatment plant. This plant has been inoperative for several years due to the unavailability of repair parts. Many storm sewers are reportedly plugged with garbage. There is nothing to separate the contaminated water in the ditches from the groundwater which exists throughout the year. Although the municipal wells are very deep (100 M), illegal wells are shallow, and most certainly intercept these surface waters. Flood waters also have an adverse effect on the safety of the shallow wells.

The Dutch government states that it is willing to provide funding for the repair and rehabilitation of the sewage treatment equipment. The word "repair" is not clearly defined. However, it is clear that safe sewage disposal will require much more than repair of the existing equipment. The funds have been pending for several years. The European Community representatives indicate that they will be willing to fund infrastructure rehabilitation and construction. No funds are reportedly available for preventive public health programming, but money is available for "emergency" measures once a Cholera epidemic is underway.

The health inspectors are the existing group of health workers at the community level. Resource limitations and the lack of an effective sewage treatment mechanism limit their options in working with existing gastroenteritis problems, as well as a cholera epidemic.

The utilization of the health care system in Suriname is very good. This assures us that once cholera is present, the population will seek medical care at one of the health clinics. There are 36 clinics in the coastal area, 10 within Paramaribo, and there are 5 hospitals. In addition, there are 30 operational

Medical Mission clinics in the interior. It is important to point out that it is very common for diarrheal cases to be hospitalized. This would suggest that a substantial amount of contaminated waste will be concentrated in these clinics and hospital facilities. The Bureau of Public Health does not have a written cholera plan which provides protocols for disposal of infected excrement, contaminated materials or corpses. The BOG has conducted a simulated response to a cholera outbreak, but only in 1 of 36 clinics. The role of each individual and bureau is reportedly understood, however, the interrelationships between the BOG, PAHO, Regional Health and MZ do not seem to be clear to any of the parties.

The absence of basic materials and a plan for their use and implementation further suggests the need for a simulated outbreak to test the assumptions that exist. Emergency preparedness kits which contain materials to prevent the spread of the disease from the proposed centers for treatment (30 locations) do not exist and none of the potential sources of funds seem to express a willingness to participate in development of such a kit. (See Annex B). It is clear from the existing pattern of health system use that cholera treatment will be concentrated in these locations and that there are no structural or behavioral measures in place to prevent these facilities from becoming the source of sickness as much as the cure.

C. Assessment of Practices

1. Food Handling

Epidemiological information and field visits indicate that the risk of cholera transmission through food handling by street vendors can be significantly reduced through additional health education efforts. The existing public health program is reaching street vendors. Increased public health education through the existing health inspection system is the quickest most feasible way to minimize the spread of cholera through this mechanism. The potential for spread through food is further reduced by the existing vector control programs, the presence of adequate clean water and cultural practices which govern food preparation.

2. Water Collection, Storage, and Sanitation

Interviews, epidemiological data and field visits indicate that transmission of cholera through the municipal water system is possible. In some neighborhoods low water pressure, intermittent operation and improper connections with garden hoses and plumbing of unknown quality create numerous opportunities for water system contamination. Most of the structural protection originally designed into the water system is gone. Although the groundwater source is pure, the absence of spare parts, many years of use, combined with increased water demand, create a system which must rely on consumer health education and behavior modification to

assure that it will not be a major mechanism of disease transmission. Particular emphasis should be placed on proper water storage, the threat of illegal wells and flood waters. The Suriname Water Company must secure minimal resources with which they can conduct emergency chlorination in the event of a cholera outbreak. Simply stated, a chlorination plan would be useless unless chlorine can be obtained.

Interviews, epidemiological data and field visits indicate that existing sewage disposal practices do not offer any structural barriers to the spread of cholera throughout the city. Only the best neighborhoods have covered sewers. Poorer neighborhoods, which include the displaced populations from the interior, have most, if not all, sewage dumped into the gutter (roadside ditch). Most diarrheal disease cases and associated deaths occur during the flooding period associated with the rainy season. During this flooding the sewage filled ditches overflow, carrying sewage into the community.

Rebuilding of the infrastructure will require massive resources beyond the scope of this investigation. Present conditions carry a great potential for the spread of cholera throughout Paramaribo and the surrounding areas. Effective and appropriate public health education aimed at behavioral modification seems to be the only immediate intervention available. Special treatment of hospital and clinic waste may offer significant reduction in the spread of the disease. Development of cholera response plans for chlorination during an epidemic will be helpful if sufficient chlorine can be made available.

D. Identification and Assessment of Communication Channels and Messages

1. Communication Channels

Channels exist for reaching food vendors with education and training through the existing licensing system requiring two annual physical inspections of health workers and food inspectors by a physician. As previously stated, food inspectors' duties also include health education.

Through additional health education efforts aimed at street food-handlers, the risk of cholera transmission can be significantly reduced.

Public health communication and education is possible through the existing 36 clinics in the coastal area (10 within Paramaribo), 5 hospitals, and the additional 30 operational Medical Mission clinics in the interior. The utilization of the health care system in Suriname indicates that the population seeks medical care at health clinics and hospitals and therefore can be reached.

In urban and peri-urban Paramaribo, there is general access to TV, radio and newspapers. The population, with exception of the various displaced groups from the interior, is regarded to be largely educated and literate. According to a 1980 census, literacy rates were 89.8% for men, and 84.1% for women, with considerably lower rates in the interior. However, over the last couple of years, these figures are likely to have decreased due to fighting and upheavals in the country, resulting in fewer children receiving formal education.

Using and combining the existing BOG, Medical Mission Suriname, and PAHO networks seems to be the most logical and practical way to reach the population with health communication messages.

2. Messages

During the visit, several cholera prevention messages were broadcast. The TV messages were constructed in a somewhat primitive manner, as they were simple handwritten statements without sounds. Their value in terms of attracting attention seemed questionable at best.

Graphic materials developed by the BOG and prepared by graphic designers under BOG guidance were reviewed. The materials were technically well prepared and seem appropriate for audiences possessing high literacy rates. However, the layout of some pamphlets and posters showed a certain lack of attention to effective composition and consequently suffered in clarity and readability, possibly due to a lack of familiarity with some of the principles and techniques of social marketing. Since no tests were carried out in regard to their comprehensibility, their effectiveness is unknown. The lack of financial and material resources greatly contributes to the lack of effective health communication messages.

Despite the small size of Suriname's population, at least six distinct languages are spoken. It is clear that health communication messages directed at the Caribbean, southern, western, central and eastern parts of the country must be prepared in the various languages. The team did not encounter any health education materials specifically developed for use in areas outside of Paramaribo and/or aimed at ethnically different communities with different languages and low literacy.

The above observations were confirmed by all the individuals contacted by the team and there appears to be complete agreement that an urgent need exists for appropriate and effective public health messages and teaching aids.

Both Medical Mission Suriname and PAHO expressed special needs for messages and teaching aids aimed at audiences that are unaccustomed to written technical information.

E. Assessment of Possible Educational Interventions

The Bureau of Public Health and the Suriname Medical Mission expressed interest in training for their staffs in Health Education/Communication Campaign Planning and Management, and Materials Development. This need was fully shared by the PAHO Representative, who felt that assistance in building up this capacity within the BOG would be most appropriate. Effective and appropriate public health education aimed at behavioral modification seems to be the only immediate intervention available. The development of a "health kit" containing posters, brochures and teaching aides for the prevention and treatment of cholera was seen as a high priority.

The BOG health workers provide an excellent group of existing government workers whose effectiveness as an intervention in the spread of Cholera could be quickly and cost effectively increased through training. These health workers deal with the public at large on a day to day basis. The existing public health communication staff would also benefit from this training. The resulting increase in the effectiveness of public health information and messages would provide an additional intervention. In the absence of structural barriers to the spread of cholera, an increased reliance upon training and behavioral modification is essential.

F. Assessment of Interest in a Broader Response

Interest was expressed in the following possible interventions:

- Support for a "Communication Center" with Technical Assistance, equipment and materials.
- Assistance in training health workers and food inspectors to serve the Ministry of Health/BOG/Medical Mission Suriname and PAHO.
- Additional training/education for BOG staff in evaluation methods, campaign management, and script writing for radio and TV.

4. CONSTRAINTS

The highest levels of government are occupied with problems they consider to exceed cholera in importance. None of the major donors are focused on "prevention", but several indicate a willingness to help with cholera once an epidemic is underway.

The absence of resources is not an unusual condition in developing countries. However, a training program which does not include the basic logistical support necessary for implementation and sustainability might better not be initiated at all. In Suriname, insufficient support of a new program is likely to draw needed resources away from existing programs which are already forced to operate without adequate support. The net effect could be an overall reduction in the public health effort, since neither the new or the existing programs would be effective.

The establishment of new programs and projects in Suriname will face certain frustration unless the basic concept fits within the existing needs and structure of the country. For example, there are three major divisions of public health providing services to the various regions of the country: one for the city of Paramaribo, one for the coastal region and one for the interior in the south. Effective resource utilization must recognize that all of these divisions need the same health education capability. Inclusion of these health workers assures wider support for the proposed program and improves chances for sustainment in a resource limited environment.

Discussions with various officials made it clear that implementation of any nationally supported project depends on its fitting the larger overall plans contemplated by the Suriname government and the "Plan Bureau", considered by most to be a "black hole". Moreover, applications for additional funds to carry local costs must also be part of the larger scheme. For example, if the European Community or the Dutch would consider assisting in special health communication/education efforts, applications for such assistance would have to be initiated by the BOG, go through the MOH, then the Plan Bureau, and, if approved, find their way to the EC or the Dutch. Obviously, this is a lengthy and uncertain process.

To overcome some of the mentioned constraints, it seems that combining BOG, PAHO and Medical Mission Suriname resources in terms of health education and communication efforts seems to be the most feasible strategy. Moreover, these three parties expressed their interest and need for cooperation in this respect.

5. RECOMMENDATIONS

The most immediate needs identified as a result of the assessment are as follows:

A. The development of a plan for the Suriname Water Company for emergency chlorination of the Paramaribo urban and peri-urban water system. This recommendation is dependent upon a sufficient supply of chlorine to conduct an emergency response.

B. The organization of a "cholera epidemic" simulation exercise for the BOG, the SWM, RGD, MZ, and PAHO to establish coordination and lines of communication in order to:

- define specific material needs; and
- test assumptions regarding management of a possible cholera epidemic.

C. A Workshop in Health Education and Communication Planning and Management combined with materials development methods for BOG/GVO, Regional Health Service and MZ staff, in order to:

- assist in the development of appropriate cholera prevention campaign messages;
- develop an "emergency health kit" containing cholera messages and teaching aides; and
- satisfy the apparent need for an increased capacity to plan, design, prepare and monitor health education and communication campaigns and messages.

D. Follow up workshops focused on skills required for the design and preparation of visual, audio, and audio-visual media for the staffs of BOG, MZ, Regional Health Service and PAHO.

E. The establishment and support of a "Health Communication Unit" or "Media Center" capable of planning, designing, preparing and monitoring effective health communication campaigns and messages would help satisfy the need for appropriate public health education materials. This urgent need was earlier acknowledged in the National Plan for the Prevention and Control of Cholera, MOH, October 1991. Such materials would greatly contribute to raising awareness and comprehension of certain behaviors related to the possible outbreak and spread of cholera and other diseases.

In view of the present situation in Suriname in terms of "soft" currency and lack of material resources, additional support of equipment and materials would be required to enable this "Health Communication Unit" to perform beyond the planning and initial design of a "cholera prevention" campaign.

An alternative would be to develop a package of suitable generic cholera prevention messages and assist in their adaptation according to specific Suriname and other countries in the region's requirements. Such a strategy would nevertheless require considerable follow-up in terms of implementation and material support.

APPENDIX A

LIST OF CONTACTS

1. Pan American Health Organization
Dr. Michael O'Carroll, PAHO/WHO Representative
P.O. Box 1863, Gravenstraat 60 (boven), Paramaribo
Phone: 471676
2. U.S. Embassy, Suriname
Ambassador John P. Leonard
Ms. Linda Specht, Economic Officer
Paramaribo, Suriname
Phone: (597) 472900
3. Royal Dutch Embassy
Mr. Menno Lenstra, First Secretary
Paramaribo, Suriname
Phone: (597) 477211
4. Suriname Ministry of Health: Bureau of Public Health (BOG)
Dr. R. Codfried, Acting Director of Public Health
Dr. Ingrid Krishnadath, Head of Diarrheal Disease
Mrs. Rozenblad, Head of Health Education
Mrs. R. Bouterse, Saniatry Engineer
Rode Kruislaan 22, Paramaribo
Phone: 499494
5. Delegation of the Commission of the European Communities in
the Republic of Suriname
Mr. Lutz Salzmann, Delegate
Dr. S. Redmondstraat 239, Paramaribo, Suriname
Phone: 499322/499349
6. Embassy of Belgium, Cooperation Section
Mr. Ir. Ronald Vandervelde, Head Agricultural Division,
Suriname and the Caribbean
Kwassiestraat 10, Paramaribo, Suriname
Phone: 499994
7. Medical Mission Suriname (Medizebs)
Dr. Legiman, Coordinator
Dr. R. De Miranda, Medical Director
Dr. Fen Khouw, Coordinator of Middle, West and South Suriname
Zonnebloemstraat, Paramaribo, Suriname
Phone: 499466
8. Chris Healey, Anthropologist
Cordialaan 10, Paramaribo, Suriname
Phone: 497280

9. Suriname Water Company (SWM)
Mr. Theo Goedhart, Director
Mr. Kenny Wong, A. Tsoi, Public Relations Officer
Gravenstraat 9, Paramaribo, Suriname
Phone: 471414

10. Ministry of Natural Resources and Energy
Mr. E.T. Tsai Meu Chong
Mr. Dr. J.C. de Mirandastraat 13-15, Paramaribo, Suriname
Phone: 475453

11. Harmen Rijsdijk, Graphic Designer
Veldhuizerlaan 3, Paramaribo, Suriname
Phone: 460218

12. Claudette de Bruin, Graphic Designer
Miguelitastraat 6, Paramaribo, Suriname
Phone: 490211

APPENDIX B

RESPONSE KIT FOR CHOLERA

The following list of items will be needed to reduce the spread of cholera in the event of an outbreak:

- Water container (500 liter). Water for ORS, Chlorinated or boiled
- Plastic cups
- Plastic disposable mixer (spoon)
- Paper towels
- Soap
- Disinfectant
- Toilet paper
- Flashlight with batteries
- Strong twine
- Brushes, short and long
- Plastic basins
- Latex disposable gloves
- Chlorine (dry powder, hypochlorinite or bleaching powder)
- Handouts for family members with instructions on how to disinfect water, food, etc.
- Mops and buckets
- ORS

- Other:
 - Food source for mothers of infants
 - Food source for health workers
 - Beds, wood surface covered with plastic sheet
 - Additional 500 liter container with spigot for clinics without available water nearby.

APPENDIX C

EMERGENCY CHLORINATION PLAN

I. INTRODUCTION

- Why Develop A Plan
- What Period of Time Does the Plan Cover (from onset of Cholera).
- What Sites are Covered by the Plan (list of sites)

II. OBJECTIVES

- Emergency Chlorination Plan

The objective of the emergency chlorination plan is to specify the steps to be taken in the event of a cholera outbreak within the boundaries outlined in the introduction. This plan will specify:

- Name of water treatment plant
- Name of operator who is responsible for chlorination
- Name of alternate operator
- Materials required:
 - Distribution equipment
 - Chlorine type, volume, source
 - Test kit (chlorine compariator)
 - Other

Procedures to be used in introducing chlorine into the water:

- How is solution mixed?
- How much chlorine, how much water?
- Where is solution introduced into water system?
- At what flow rate should the chlorinator run?

Procedures to be used for monitoring:

- At which points in the water system do you test for chlorine residuals?
- What should be the residual chlorine level?
- Who makes the decision to halt chlorination?
- Criteria for stopping?

III. PUBLIC RELATIONS

- What Public Announcements will be made to Water System Users
- What Public Announcement to Media

- Who will be the Public Information Officer

- What Regular Reports Will be Made
 - To Public Health Authorities
 - To Media
 - To System Users

IV. EMERGENCY CHLORINATION PLANS

- Plant 1
- Plant 2
- Plant 3
- Plant 4
- Plant 5

APPENDIX D

WORKSHOP

"Health Education/Communication Campaign Planning and Management and Materials Development", with a focus on Cholera Prevention.

The workshop will be devoted to gaining familiarity with basic concepts, principles and skills required for:

- Effective Planning, Managing and Evaluating Health Education and Communication Campaigns, and
- Conceptualization and design of promotional, educational and informational visual and audio-visual materials for such campaigns.

Workshop Objectives

1. Development of a "Cholera Health-kit", containing appropriate materials and teaching aids for the prevention and control of cholera; and,
2. Increased knowledge and skills in:
 - Planning and Managing Health education and communication campaigns;
 - Design, Implementation and Evaluation of effective communication strategies in support thereof; and,
 - Materials Development, Pretesting, Adaptation, Implementation and Evaluation.

Workshop Format

Informal lectures, team projects, small group discussions, role plays, practical exercises and individual assignments are used to facilitate learning of skills demonstrating applications to specific problem contexts. Staff of BOG, RGD, MZ and PAHO will act as resource persons.

The workshop will be divided into two segments:

- the first half will establish general principles and techniques employing well developed case materials;
- the second half of the workshop will be devoted to applying those principles and skills to the specific problem contexts of the participants.

Workshop Elements

The Workshop will focus on specific interests, needs and experiences of workshop participants, determined in initial group discussions and activities. During the first week the workshop will contain the following topics:

Planning and Management Skills:

- Interpersonal and Group Communication skills;
- Effective Team-building strategies;
- Perception and Cognition;
- Problem Identification and Analysis;
- Identifying Constraints;
- Assessing resources and identifying talent;
- Developing alternate strategies;
- Estimating resource requirements;
- Prioritizing and Sequencing Activities;
- Logically structuring Projects;
- Techniques for Project Management and Monitoring;
- Impact Analysis;
- Evaluation and Monitoring methods.

During the second week the workshop will contain the following topics:

Materials Development Skills:

- Focus Group Discussions
- Principles of Social Marketing
- Message Content Composition (symbolic and visual representation)
- Image Design and Image Positioning (creation of awareness)
- Information Support for Image Expansion (creation of knowledge and comprehension)

- Basic Graphic Design Message Treatment skills (drawing, illustration, layout and composition, preparation for production)
- Basic skills in Design of 'audio-slide presentations
- Basic skills in Design of Video presentations
- Basic skills in Design of Radio Messages
- Basic Verbal Message Treatment skills (text writing, backtranslation)
- Testing and Evaluating designed messages

Duration of the Workshop

The workshop is planned for a two week period.