

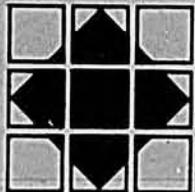
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ACTIVITY REPORT

INCREASED PRODUCTIVITY
THROUGH BETTER HEALTH

JANUARY - SEPTEMBER, 1986

Contract No. LAC-0018-C-6005-00
Project No. 505-0018
Belize, Central America



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INCREASED PRODUCTIVITY THROUGH
BETTER HEALTH

Belize, Central America

ACTIVITY REPORT
January - September 1986

USAID/Belize Project No. 505-001
Contract No. LAC-0018-C-00-6005-0

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1. Field Team Activities

1.1 General Background

This report is written in accordance with the General Provisions of the Increased Productivity through Better Health Project (IPTBH) #505-0018. The IPTBH project was designed by USAID and Belize technicians with the dual purpose of: (1) controlling the incidence of malaria and dengue fever and, (2) extending the coverage of water and sanitation in rural communities and developing a national water quality control program. In support of the project's purpose, USAID inputs have been distributed between two project components:

Component 1: National Malaria Control Service (NMCS) and Aedes Aegypti Control Program (AACP).

Component 2: Water Supply/Sanitation (WS/S) and Rural Drinking Water Quality.

Specific inputs provided by USAID to both project components consist of grant financing of training, technical assistance, operations research, commodities, limited construction and evaluation.

In January 1986 USAID signed a contract with The Pragma Corporation (Pragma) and Medical Care Development (MCD) to provide long and short-term technical assistance to staff the Management Support Unit and to coordinate the attainment of project objectives (see Annex 1). The Pragma/MCD long-term team was officially fielded in January 1986; it consists of:

Merrill Wood: Project Manager

Harry Philippeaux: Water Supply/Sanitation Advisor

Terri McLean: Community Development/Health Education Advisor

Ray Robertson: Vehicle Maintenance Advisor

1.2 Start-Up Activities

Following a week-long orientation session held in Washington during which all team members were afforded the opportunity to meet with relevant technical personnel at USAID, PAHO, WASH, etc., team members arrived in Belize City on January

21. (The Vehicle Maintenance Advisor, Ray Robertson, did not arrive in the country until March 19).

Jacques Defay and Joseph Carter from the Pragma/MCD home offices joined team members in Belize City to participate in the initial round of official introductory visits and to assist team members in sorting out problems related to housing, transportation, etc. Since no project vehicles were in the country at the time of the team's arrival, the USAID Mission assigned a van to the team primarily for local transportation in and around Belize City (on occasion this vehicle was also to be used for project field trips).

The team began a round of introductory meetings with inter alia the USAID Mission Director, N.R. Brashich, Dr. Vanzie and Messrs. Smith, Linares, and Arthurs of the MOH. These meetings permitted the team to both schedule working sessions with MOH personnel prior to the project retreat and to establish itineraries for the field visits made by team members during the first week viz. Cayo, Orange Walk.

Arriving team members T. McLean and H. Philippeaux were assigned permanent housing in the Bella Vista housing complex sited approximately eight kilometers from Belize City. M. Wood was assigned temporary lodging while awaiting repairs on his permanent house also located in Bella Vista.

Temporary office space was made available to the team by the MOH in the former offices of the Director of Health Services, Dr. Vanzie. Permanent offices were planned in the pre-fabricated structures ordered by USAID to satisfy the construction requirements of the project. It was initially anticipated that construction would terminate by March 1986.

A list of office supplies was compiled by the COP for submittal to the Mission. Initially the team had access to supplies which had been airfreighted to Belize by Pragma.

The MOH offices were staffed by two secretaries who provided secretarial support to the team. For the post of Administrative Assistant/Accountant, resumes were collected from two candidates, one of whom, M. Dcwding, was interviewed and subsequently hired.

The Project Technical Officer (PTO) participated with team members in several meetings with personnel from the NMCS, AACS, and EHS, to discuss the current operational status of these services and to identify major constraints to project implementation. Site visits were also made by team members to various districts in order to observe drilling operations and vector control activities. These meetings and field

trips provided the team with invaluable insight into the working environment in which it would be functioning and contributed to back-ground preparation for the project workshop.

1.3 Project Orientation Workshop January 30-31, 1986

During the two-day project retreat the team participated in retreat activities as described in the agenda (Annex 2). The retreat was deemed a success by the majority of the participants and the concept certainly has much to recommend it for replication during the start-up phase of future projects. One of the most interesting features of the retreat process was that it afforded the project's major actors viz. Government, USAID, TA advisors, etc. an opportunity to collaborate on reaching a consensus concerning the scope of project activities, the resources required for implementation, first-year implementation plans, the allocation of functional responsibility, etc.

This initial consensus building process did much to militate against subsequent misunderstanding and to promote a collaborative spirit among those entrusted with project implementation and management. The retreat activity also afforded actors an opportunity to identify problem issues necessitating prompt action in the short-term.

Tangible outputs of the IPTBH retreat consisted of preliminary implementation plans for vector control and water and sanitation activities; these plans were to be compiled in a retreat document containing the minutes of the working groups and plenary sessions (this document was published in June 1986).

During the retreat, issues were identified which were deemed worthy of the attention of USAID; these included:

- (i) implementation schedules for 1986;
- (ii) project management systems governing finances, procurement, technical assistance and training;
- (iii) evaluation procedures;
- (iv) operational protocols prescribing functional responsibility amongst USAID, the MOH, and Pragma/MCD;
- (v) identifying project-related issues which would require attention in the short-term and discussing these issues with USAID;

2. Technical Assistance Team Activities by Project Component

2.1 Malaria Control

2.1.1 Workplan Development

Very preliminary workplans were presented for the malaria control program during the Project workshop which took place January 30-31 1986. However, these plans were never finalized and the Project Manager/Vector Control Advisor prepared a draft workplan for malaria control. Due to the problem of counterpart availability viz. the Director of the malaria program, this plan still awaits final MOH approval. A draft version of the plan was submitted to USAID by the MOH in order to satisfy project requirements (see Annex 3 (i)).

2.1.2 Operations and Training

Residential house spraying operations using DDT are carried out in two cycles per year. The first cycle runs from January through July and the second cycle from August to December. After initially observing spraying operations during the first cycle, the Vector Control Advisor (VCA) organized on-the-job training for all spray squads in an effort to improve operational efficiency, which exhibited signs of decline due to a host of organizational, personnel and logistical problems.

An additional week-long program for squad chiefs and spray men during the spraying cycle interval conducted by the VCA was designed to redress some of the operational shortcomings witnessed during the first cycle. Monitoring of spraying operations by the VCA and the malaria Chief of Operations during the present cycle (August-December) should produce improvements in the effectiveness of spraying operations.

Surveillance activities are conducted throughout the country by the NMCS and include; treatment, and collection of blood slides; however entomological studies and investigation and reporting of cases are not actively carried out. Currently Active Case Detection is done in only a few localities and the Annual Blood Examination Rate (ABER) is below the desired 10% rate established as a project objective.

Efforts are currently underway to improve the effectiveness of all surveillance activities to include Active Case Detection (ACD), Passive Case Detection (PCD) and presumptive, prophylactic and radical treatment. (Presently

case investigation is non-existent). The fact that all evaluators and supernumeraries now have motorbikes (for half of 1986 this was not the case) means that they can now work out in the villages, thereby increasing their efficiency.

Improvements in the overall surveillance activities of the NMCS are expected to follow the visit during the first quarter of 1987 of a short-term malaria surveillance specialist (see Annex 4 for terms of reference). The TOR's prepared by the advisor call for the consultant to "review, evaluate, recommend, train and generally assist" with improvements in the surveillance activities of the malaria control program.

To a great extent improvements in the operational efficiency of both NMCS and AACP that could be achieved through enhanced training have been hampered by the unavailability of MOH funding for counterparts and local training. To date much effort has been devoted to the issue of allocating ESF funds available to the Ministry of Finance to the MOH. Resolution of this problem could lead to breakthroughs in the training of NMCP personnel and volunteer collaborators (VC). Several training initiatives were sidelined because of the unavailability of local funding with the result that major increases in the number of V.C's have not yet occurred (the project calls for increasing the number of V.C's from approximately 200 to 360 at EOP). The VCA and CD/HE did assist in the V.C. training programs organized by the Health Talents International team whenever possible. Training of MOH microscopists responsible for detecting and identifying malaria parasites is scheduled to occur during the first quarter of 1987. A short-term consultant will be recruited for this activity; terms of reference have been prepared by the COP/VC advisor (see Annex 4).

2.1.3. Operations Research

Through a PASA agreement with CDC, USAID's Vector Biology and Control Project funded a two week trip to Belize by Dr. Campbell to design research protocols for the chloroquine resistant study. A chloroquine testing study review is scheduled for the period December 10-20 and will be under the direction of Dr. Marguerite Pappaioanou of CDC.

2.1.4 Commodities Procurement

USAID Belize has assumed responsibility for the procurement of project commodities. The role of the VCA has been limited to reviewing and updating commodity lists as requested. Major bottle necks in the procurement of

vehicles have occurred precipitating notable operational setbacks in malaria control activities.

2.1.5 Participant Training

- A. One District Supervisor, Mr. Timothy Westby completed the June 30-July 25, 1986 course in malaria control which was given at the Wedge University of South Carolina.
- B. One District Supervisor, Mr. John McDougal, completed a short course in Entomology given by PAHO in Panama in April 1986.
- C. The Director of the Malaria Program completed an observation tour of Mosquito Abatement Districts in New Orleans and California, July 14-25, 1986.

2.1.6 Health Education

The CD/HE Advisor has developed materials and manuscripts for village level health education for malaria; topics include: "Malaria: How Malaria is Spread and How to Prevent it from Spreading", "Malaria During Pregnancy". Hecopab has assisted in producing poster designs to accompany these materials.

Cartoon pamphlets were written for malaria in collaboration with Health Talents International which sent them to headquarters for preparation as cartoon illustrations. These materials are now being finalized by HTI.

The CD/HE advisor collaborated with the VCA in the development and presentation of training materials for the supernumeraries, spraymen and evaluators; specific titles developed included:

- "Factors Affecting Community Participation in the Malaria Control Program"
- "Approaching the Home Owner"
- "The Malaria Control Health Worker as an Educator: Integration with Other Services"
- "Teaching and Learning together: Communication Skills"

It is anticipated that the CD/HE Advisor will be involved in training of VCs as soon as funding constraints for local training are removed.

2.1.7 Vehicle Maintenance: Malaria Control

The NMCS has six Datsun pickups and three Ford 150 pickups (4x4) which were supplied by PAHO. Upon his arrival in Belize, the Equipment Maintenance Advisor found all of the vehicles barely operational. In fact the spray vehicle in Corozal (Ford 150) was totally inoperable. Because of the threat posed to the spraying operations, USAID/Belize made a local purchase of a replacement vehicle in June. AID also supplied the NMCS with six motorbikes during the year. Because of the delay in the delivery and construction of the pre-fabricated structure that was programmed to house project repair and maintenance activities, the Equipment Maintenance advisor has had to set up shop at the Belize hospital "garage" which is basically no more than a shed. The advisor found no tools with which to repair vector control vehicles at the MOH garage and has made do with his personal tool set.

The advisor has been assigned a full-time MOH assistant/counterpart. To date the Equipment Maintenance advisor has reconditioned/rebuilt: three Datsun pickup engines; one Ford F 150; several motorbikes; and made numerous repairs on MOH vehicles.

The advisor has made several trips to Toledo District to assist UNICEF project personnel with repairs on the rotary rig and other project vehicles. To the extent possible, on the job training of UNICEF project staff was attempted during these repair forays. Requests to repair other NMCS vehicles have taken the advisor to Danriga, Orange Walk, Corozal, Belmopan and the hinterlands of Belize District. The local unavailability of spare parts has occasioned several trips to Chetumal, Mexico to procure Datsun parts.

It is anticipated that with the price quotes for the snap-on tools provided to USAID/Belize by the Pragma/MCD technical back-stopping officer, procurement of at least some of the tools required by the advisor will be in the country before the end of November.

2.2 Aedes aegypti Control

2.2.1 Work Plan Development

As was the case for malaria, preliminary workplans were prepared and presented by the AACP during the project workshop held in January 1986 at Caye Chapel. The elaboration of a more detailed workplan followed and a draft was presented to USAID for approval.

The fact that the Director of the AACP is generally more accessible than his counterpart for the malaria program has facilitated the planning of AACP activities and this is reflected in the overall improvements in the AACP program generally. A copy of the Plan of Action - 1986 for AACP is presented in (Annex 3 (ii)). Revisions of the work plan format for the AACP as well as the malaria program are anticipated.

N.B.: To date the AACP work plan has not been officially finalized.

2.2.2 Operations and Training

As noted, the AACP has benefited from across the board improvements in general operational effectiveness. AACP staffing was brought up to full strength and three District Offices are now operational with two Aedes inspectors (urban/rural) per district.

Training for the newly hired inspectors was initiated on May 1, 1986 with assistance from a PAHO entomologist, Dr. Mike Nelson; the VC advisor assisted in the preparation and implementation of these training sessions and the subsequent field training.

Since their arrival in the field, the district Aedes inspectors have been backstopped by the VC advisor who has made several field trips to collaborate with District supervisors in preparing work schedules, overseeing household inspections and implementing improvements in the programs supervision process. A training program for Senior AACP staff was organized in July 1986 by the VC advisor and a new reporting system introduced that is now being tested. A major thrust of the VC advisor's input to the AACP has been his insistence on higher standards and diligence in the face of adversity (lack of transport) on the part of the District Supervisors.

In the course of carrying out their household surveys for AA larva, Inspectors have begun to conduct informal training sessions designed to make households aware of mosquito control techniques and the methods for reducing breeding sites. Inspectors also have begun to utilize the local school systems in their Districts to heighten community awareness of AACP activities.

ULV adulticiding and perifocal spraying operations are now conducted under the supervision of the three District Supervisors; however until the new surveillance reporting form has been in operation for more time, objective measures of the decreases in AA positive localities will not be available. The lack of vehicles has curtailed spraying operations.

2.2.3 Commodities Procurement

Ref. Section 2.1.4

2.2.4 Participant Training

- A. Two Aedes Inspectors completed the Vector Control course at the Wedge in South Carolina, April 7-May 16, 1986.
- B. The Director of the AACP completed an observation tour of Mosquito Abatement Districts in New Orleans and California.

2.2.5 Health Education

Aedes aegypti: village level posters and health education materials are currently being developed by the newly appointed Aedes aegypti educator. The Pragma Health Educator has been acting as a catalyst for the Aedes aegypti Educator in writing radio spots, newspaper articles and a village level manual (training program for village education). To date one radio interview has taken place, and newspaper articles are being prepared for release to the local media.

2.2.6 Vehicle Maintenance

The Aedes Program has but one very old pickup used for ULV spraying. This vehicle has not been repaired by the Pragma Advisor.

Five Ford 150 (4x4) pickups are being purchased for use in the Aedes Program. These are expected to arrive in the country in late September.

3. Water Supply and Sanitation

3.1 Workplan Development

The WS/S advisor has made a major effort to collaborate with the National Coordinator for Water and Sanitation in the preparation of an annual work plan. A preliminary draft was sent to the NCWS in March of 1986 for review and comment. Subsequent meetings were held and the WS/S advisor was delegated the responsibility of addressing short-comings in the MOH plan. Using the schedule of project activities which he had prepared for the life of the project the WS/S advisor finalized a work plan for submittal to the MOH and USAID; it contained: a plan of operation, distribution of drilling rigs, an inventory of field personnel and a strategy for completing identified tasks. (Plan appears in Annex 3 (iii)).

3.2 Operations and Training

The village assessments were programmed as major activities for the Water Supply and Sanitation component during this period. However not much has been done in this area for two reasons: limitation of transportation and the non-availability of counterparts.

At the time this report was written, the project vehicles were not in the country. The AID Mission has provided the team with the use of a van, however it is not a four wheel drive vehicle, and thus cannot cover all the project areas, consequently some villages included on the list of priority villages proposed by the MOH have not been reached.

The national counterpart for the WS/S component of the project has yet to devote one full week per month to this project; his other responsibilities with ongoing water and sanitation projects and other official engagements keep him

occupied. The Government has not assigned a District PHI for the Water Supply and Sanitation project in any of the three Districts, so it is always difficult for the WS/S Advisor to get the MOH's response during field visits; this has limited the benefits of the village assessments. Nevertheless, for the few visits which have been made in the field by the WS/S Advisor, ten priority villages in each district have been selected for the beginning of the project (only for Cayo District, is this list not yet complete).

A list of drafting and topographic materials was made and proposed to AID to support the Water Supply and Sanitation component of the project.

A list of tools required for the execution of the project in the field has also been prepared and submitted to AID and the Ministry of Health for follow-up action.

A standard VIP latrine has been adapted to Belize according to the social/cultural factors and the materials available in Belize. The same adaptation has been made for the compost latrine which will be installed in areas where the water table is high. A booklet related to the construction of the VIP latrine adapted to Belize was written by the WS/S Advisor. The appropriate molds to fabricate slabs and risers for latrines, and pump platforms for wells were also designed. Four models of latrine mold and one for the pump pad have been fabricated and will be utilized in the Stann Creek District. The project expects to fabricate two other sets of latrines and two pump pad molds (one set for Belize District and one for Cayo District).

A Scope of Training for Sylburn Arthurs, Senior Public Health Inspector and Fred Smith, Principal Public Health Inspector was written and submitted to AID and the Ministry of Health for approval. This has been approved.

3.3 Other Engineering Activities

The Water Supply and Sanitation Advisor has assisted the Ministry of Health in the following matters:

- a. Design of an appropriate incinerator for an emergency camp, adapted to rural hospitals in Belize;

- b. Evaluation of a building used previously as a doctor's residence;
- c. Evaluation of the sanitary conditions of the Belama Site on the Northern Highway, with a solution for improving environmental quality;
- d. Assisted USAID in reviewing the construction cost estimates proposed by the Ministry and private firms for the project buildings;
- e. Assisted the Care Project in designing a water supply system for San Antonio Village;
- f. Assisted UNICEF in improving the technological aspects of the VIP latrine designs, and in designing a water supply system for San Antonio in Toledo District.

3.4 Participant Training

Out of country training has been planned for the National Coordinator in Water and Sanitation. The tour arrangements have been made by Sam Dowding and Joseph Carter in Washington. Mr. Arthurs would have left for Haiti and the USA in July, but this training was postponed by the USAID Mission in Haiti. The first workshop on Project Management and Implementation is planned for October.

3.5 Commodities

The commodities which have arrived in the country for the Water Supply and Sanitation component are: two Ford Trucks (F 700), one drilling rig (set on its own truck), and 3 sets of spare parts for the drill rigs. The two trucks arrived in Belize in July 86; the drill rigs and spare parts arrived in August.

4. Health Education/Community Development

4.1 Stann Creek:

The District Health Educator was hired on July 21st. Through July and early August he attended orientation sessions in Community Participation, Health Education and the IPTBH Project.

After introducing the project to village councils in Red Bank and Maya Mopan and gaining their support, the home surveys were conducted. The Educator trained volunteers from each village to assist him in conducting the surveys.

4.2 Belize Rural District:

The home surveys were conducted in Maskall, Corosolito and Santana.

Maskall

In Maskall, several meetings have been held with the village council, the Village Water and Sanitation Committee and village members, to introduce the project and review the home survey results. Maskall has established a Village Health Committee.

The Village Council has consulted with the National Water Coordinator/SPHI and the Water Supply and Sanitation Advisor on the feasible technical options for their village. A choice of two systems were recommended, rudimentary and hand pump. Both systems were thoroughly discussed with villagers. Greater emphasis has to be placed on Community Development/Education Activities before villagers will be knowledgeable enough to propose the type of technology they view as most appropriate.

As there is also a Spanish section of Maskall, visits were planned to meet with that section with an interpreter. The Village Health Committee has been advised that all sections of the village must be represented on the Committee.

Corosolito

Corosolito is a small village of approximately 15 houses. Residents are interested in participating in the project, but a statement of commitment including their contribution of labor, materials and equipment has first to be established.

Santana

Santana does not have a very active Council and requires that considerably more time be spent on community development activities.

4.3 Cayo:

Except for visiting a few villages with the Project Engineer to conduct Village Assessments, no Community Development activities have taken place.

4.4 Comments:

The home surveys were conducted by teachers in Santana, Volunteers and Council Chairmen in Santana, and Pragma Health Educator and Volunteers in Corosolito.

Persons were trained by the Health Educator in each village to assist in conducting the survey.

The surveys should not be further conducted in Belize Rural District or Cayo District unless fulltime transportation is available and/or a District Health Educator is assigned or a Peace Corps Volunteer is willing to assist. The Survey results lack accuracy. Transportation is important to follow-up on the surveying process and ensuring that the Educator is present so that the surveys are accurately filled out.

District Health Educators for Cayo and Belize Rural District will be interviewed in September.

4.5 Health Education Materials for Water and Sanitation

Basic information has been written for Community Development/Participation workshops, including:

- Session 1: Principals and Strategies for Community Participation.
- 2: Health Education Principals and Strategies.
- 3: How to motivate people through communication.
- 4: Teaching and learning together.

Information has been collected or written for village level Water Supply and Sanitation Education, topics include:

"Sanitation";

- "Water-Hygiene Diseases";
- "Latrine Sanitation-Related Diseases"; and
- "Taking Care of Your Latrine".

Information explaining how the VIP latrine controls odors and insects has been produced. Other latrine information developed with the Project Engineer includes: locating the latrine; the pit slab and riser; construction; vent pipe; and the super structure.

5. Vehicle Maintenance

So far, two Ford 700 trucks and a small cable drill rig have arrived. Work has begun placing the old rig on the new chassis in Orange Walk town. This operation is being carried out by Mr. Arthurs, because the garage is not yet constructed.

Other tools and materials for drilling components are in the process of being ordered.

6. Liaison Activities

6.1 USAID Mission, Belize

The TA team has almost daily contact with the Health Project Officer. Sam Dowding and the Project Manager attend the Mission's bi-monthly staff meetings. Meetings are held with the Mission Representative, Health Project Officer, the Mission Development Officer and Pragma/MCD team when required.

6.2 Pan American Health Organization (PAHO)

When the TA team arrived in Belize, the Director of Health Services was the acting PAHO Representative. The PAHO Representative arrived in mid April. The Project Manager meets frequently with Dr. Vargus, the PAHO Representative, to discuss the Vector Control Program.

6.3 Care and UNICEF

The TA team has established good working relationships with both organizations. The Sanitary Engineer acts as a consultant for both engineers on the Care and UNICEF projects.

6.4 Pragma/MCD

The field team has regular phone and mail contact with the Pragma/MCD home office staff in order to maintain satisfactory levels of administrative and technical support. Home office staff have been particularly supportive of project activities related to observation visits, technical assistance, and equipment procurement.

7. Major Problems Encountered

7.1 Vector control

7.1.1 Malaria

The Director of the Malaria Program is both the Director of Health Services and Director of Malaria. The Director of Health Services position requires a great deal of his time, a situation which doesn't leave much time for directing the Malaria Program. Little delegation of authority to the Malaria Chief of Operations or the Malaria Program Administrator occurs. Therefore, the program sometimes appears to be running without proper direction and supervision. Efforts to correct this situation by the Advisor and the Mission have resulted in some positive changes. Weekly meetings with the Director have recently begun and the Director has started meeting with the team to review the team's problems. As Director of Health Services, he should also be available as the counterpart to the Project Manager.

7.2 Aedes control

This program lacks transport, so supervision is not what it should be. The Advisor is able to travel with the Malaria Chief of Operations and can visit the Aedes District Offices and field along with the Malaria Program activities.

7.3 Water and Sanitation

Lack of counterparts and the lack of transport have had a major impact on the implementation of field work for all the project components. Project transport is expected to arrive in mid October; any more delay will cause a setback in getting the village surveys done and the organizing the Village Health Committees. Some of the commodities for the Water Supply and Sanitation Project are in country or are expected to be by the end of September. The ground work necessary to ensure community participation has really not begun. Well drilling and latrine construction cannot be started without first receiving full community support.

7.3.1 General Problems

Because of the problems cited above, all short term consultancies have been delayed. Some training under the auspices of PAHO has taken place or is scheduled for the Aedes and Malaria Programs. Inservice training for these programs has experienced some delays because of the lack of local funding, however this situation is in the process of being rectified. In addition to the \$700,000 (Belize) released to the Government in 1985 for project support an additional \$2,000,000 (Belize) has been made available to the GOB (ESF). However, the ESF allocation has not yet been made available to the MOH.

8. Projected Activities (Six Months)

8.1 Vector Control

It is anticipated that:

- Project transport will arrive.
- In country training in Entomology and Supervision will be done for all personnel for the Aedes and Malaria Programs.
- Field offices will be upgraded by the construction of the Butler Huts now in the country. There are four (48x20) huts for the three District Offices to be constructed.

- Work plans for both the Aedes/Malaria Programs can be discussed and finalized in order to set the guidelines for inputs by the Project team.
- The Advisor will continue to stress the need to improve supervision and communication by the supervisory program staff, in order to improve program activities.

8.2 Water and Sanitation

It is anticipated that:

- Project transport will arrive.
- Start-up construction of latrine structures in the villages will begin.
- The drilling of wells and installing of hand pumps will commence.
- Designing of the two rudimentary water systems will occur.
- The village assessments will continue.
- The Water Quality lab Advisor will initiate TA activities.
- S.Arthurs will receive out-of-country training.
- Local training for the drilling personnel will take place.
- Local training for the maintenance and sanitation crews will begin.
- One day workshops on project management implementation will be conducted.
- The water quality lab will be installed and operational.
- A clear relationship between the project and the Ministry of Natural Resources will be established.

9. Short Term Consultants:

The following short-term consultants will be recruited:

9.1 Vector Control

Expert to Review the Dengue Control Program

Expert to Review the Surveillance Program, Malaria Control Program

Consultant to Retrain the Microscopist in the Malaria Control Program

Choloquine Resistance Testing, Malaria (PAHO Advisor).

9.2 Water Supply and Sanitation Program

Drilling Rig Instructor

Appropriate Technology Advisor

Water Quality Laboratory Consultant

10. Project Incurred Costs

(see following tables)

Contractor

THE PRAGMA CORPORATION
 (Contractor)
 BELIZE Contract #LAC-0018-C-00-6005-00
 INCURRED COSTS
 JANUARY 1986 - SEPTEMBER 1986

LINE ITEMS	JAN VO.#1	FEB VO.#2	MARCH VO.#3	APRIL VO.#4	MAY VO.#5	JUNE VO.#6	JULY VO.#7	AUG. VO.#8	SEPT. VO.#9	TOTAL
1. SALARIES	7123.58	7242.93	8626.47	8248.50	8179.43	8088.50	8030.96	8069.42	8147.31	71757.10
2. PRINGE BENEFITS	2493.25	2535.03	3019.26	2886.98	1554.09	1536.82	1525.88	1533.19	1547.99	18732.49
3. CONSULTANTS										0.00
4. OVERHEAD	5577.76	5671.21	6754.53	6458.58	5645.44	5582.68	5542.97	5569.51	5623.27	52425.96
5. TRAVEL	3392.55	18096.73	694.55	500.88	143.29	386.85	472.88	637.76	297.27	24622.76
6. ALLOWANCES	3606.89	1624.27	3011.30	1852.29	1880.78	1852.30	1947.98	1852.30	1852.29	19480.44
7. OTHER DIRECT COS	385.41	985.15	528.31	617.98	2573.87	355.55	240.18	240.52	368.73	6295.70
8. SUBCONTRACT	12837.11	13452.50	17240.19	18850.23	24140.98	21754.57	18048.72	17494.46	17439.72	161258.48
9. TOTAL DIRECT COS	35416.56	49607.86	39874.61	39415.43	44117.88	39557.27	35809.57	35397.16	35276.58	354472.93
10. FIXED FEES	2479.16	3472.55	2791.22	2759.08	3088.25	2769.01	2506.67	2477.80	2469.36	24813.10
11. TOTAL	37895.72	53080.41	42665.83	42174.51	47206.14	42326.28	38316.24	37874.96	37745.94	379286.03

Subcontractor

MEDICAL CARE DEVELOPMENT
(Subcontractor)
INCURRED COSTS
JANUARY 1986 - SEPTEMBER 1986
CONTRACT #LAC-0018-C-00-6005-00

LINE ITEMS	JAN VO.#1	FEB VO.#2	MARCH VO.#3	APRIL VO.#4	MAY VO.#5	JUNE VO.#6	JULY VO.#7	AUG. VO.#8	SEPT. VO.#9	TOTAL
1. SALARIES	4359.31	4232.20	6157.99	7179.57	7381.26	7292.28	7292.28	7292.28	7315.48	58502.65
2. FRINGE BENEFITS	966.85	1074.33	1180.48	1504.19	1882.35	1805.03	2565.16	2585.29	2560.40	16124.08
3. CONSULTANTS										0.00
4. TRAVEL	703.60	2213.80	1656.00	400.00	4752.12	3649.57	213.00	-0-	123.25	13711.34
5. ALLOWANCES	2393.37	1097.38	1021.76	2132.26	1792.17	1458.56	1615.05	1615.05	1443.76	14569.36
6. OTHER DIRECT COSTS	146.36	362.60	1492.58	1367.58	307.57	316.98	363.05	214.71	199.12	4770.55
7. TOTAL DIRECT COSTS	8569.49	8980.31	11508.81	12583.60	16115.47	14522.42	12048.54	11707.33	11642.01	107677.98
8. INDIRECT COSTS	3427.80	3592.12	4603.52	5033.44	6446.19	5808.97	4819.42	4682.93	4656.80	43071.19
9. TOT DIRECT&INDIRECT COST	11997.29	12572.43	16112.33	17617.04	22561.66	20331.39	16867.96	16390.26	16298.81	150749.17
10. FIXED FEES	839.81	880.07	1127.86	1233.19	1579.32	1423.20	1180.76	1147.32	1140.92	10552.44
11. TOTAL	12837.10	13452.50	17240.20	18850.23	24140.97	21754.59	18048.71	17537.58	17439.73	161301.61

ANNEX 1 - PROJECT DESCRIPTION

B. Project Description

1. Project Goal and Purpose

The Goal of the Project is to improve the health and productivity of the Belizean population.

The Purpose is two-fold 1) To control the incidence of malaria and dengue fever by 1988 to a level where they are no longer public health problems, and 2) To extend coverage of water and sanitation in rural communities and to develop a water quality control program.

2. End of Project Status

Component 1. National Malaria Control Service (NMCS) and Aedes Aegypti Control Program (ACP)

The objectively verifiable indicators which will be used in evaluating whether the project purpose has been achieved are as follows:

- a) the present epidemic rise of malaria will be controlled by 1987;
- b) malaria incidence will be reduced to an annual incidence level of eight (8) cases per 1,000 population;
- c) P. Falciparum species of malaria will be controlled to a level where it represents no more than 5% of the total reported cases by 1988;
- d) the total number of reported Aedes aegypti positive localities will be less than 10% of the total localities in the country by 1988.

The A.I.D. inputs into the Malaria Control and Aedes Aegypti Control Programs will assist the Government of Belize (GOB) to accomplish its stated goals of providing an adequate level of health and providing freedom from these two mosquito-borne diseases. The A.I.D. inputs consist of grant financing of training, technical assistance, operations research, commodities, limited construction and evaluation. A detailed presentation of each component is provided in the Logical Framework in Annex I.

Component 2. Water Supply/Sanitation (WS/S) and Rural Drinking Water Quality

The objectively verifiable indicators which will be used in evaluating whether the project purpose has been achieved are:

- a) an adequate, safe water supply will cover 90% of the rural population in three districts in Belize through the installation of 500 handpumps and 26 rudimentary water systems;

b) the coverage of pit latrines and alternative sanitation technologies, will be 50% of the rural population in three districts, approximately 3000 pit privies;

c) 95% of handpumps working in the three districts including those previously installed;

d) an annual report of the drinking water quality of rural areas for FY 1986, FY 1987, and FY 1988;

e) the establishment of 50 functioning village health committees who have done assessment documentation, a sanitary survey and have assessed, applied appropriate water and sanitation technologies.

The A.I.D. inputs into the Water Supply and Sanitation Program will assist the Government of Belize (GOB) to accomplish its stated goals of providing an adequate coverage of safe water supplies and sanitation devices. The A.I.D. inputs consist of grant financing for training, technical assistance, operations research, commodities, limited construction and evaluation. A detailed presentation of each component is provided in the Logical Framework in Annex I.



ANNEX 2

AGENDA - PROJECT RETREAT

INCREASED PRODUCTIVITY THROUGH BETTER HEALTH

PROJECT 505-0018

PROJECT RETREAT

CAYE CHAPEL

JANUARY 30 - 31, 1986

AGENDA

January 30, 1986

Chairperson: Mary Ellen Duffy Tanamly

Rapporteur: Anthony Nicasio

- 8:00 am : Call to order
- 8:05 Welcoming remarks: Neboysa R. Brashich
AID Representative
- 8:30 Review of Current Status:
Incidence Achievements
Implementation problems or obstacles
NMCS - Dr. Vanzie
AACP - Mr. Linares
W/S - Mr. Arthurs
- 10:00 Overview of Increased Productivity
Through Better Health Project - Sam Dowding
- 10:15 Break
- 10:30 Group Discussions on Project Activities/Resources
required
- | | | |
|--|---|---|
| 1. Vector Control | } | } |
| Malaria | | |
| AEDES | | |
| 2. Water and Sanitation | | |
| Finance | | |
| Personnel | | |
| Training | | |
| Technical | | |
| Assistance | | |
| Construction of
storage / Offices | | |
| Commodities | | |
| Health Educa-
tion Community
Involvement | | |

12:00 Lunch

1:00 pm : Resumption: Chairperson: Douglas Fairweather
Rapporteur : Samuel Dowding

1:05 Welcoming of the Minister and remarks by the
Minister.

1:15 Reports on Group Discussions and Plenary

3:00 Break

3:15 Small group discussions on Project Implementation
1986.

Scheduling

Policy Guidelines

Responsibilities

Linkages

5:30 - 7:00 AID Representative's Reception

January 31, 1986 - Friday

Chairperson: Errol Vanzie

Rapporteur : Francis Westby

8:05 am Group Reports and Plenary

10:00 Break

10:15 Procedures:
Project Financial Arrangements: Mohamed Tanamly

Procurement: Samuel Dowding

Technical Assistance and Training: Mary Ellen
Duffy Tanamly

12:00 Lunch

1:00 pm Resumption: Chairperson: Neboysha R. Brashich
Rapporteur : Terri McLean

GA

1:05 pm Donor/Project Coordination: Malaria - Errol Vanzie

: W/S - Fred Smith

: Health Education-
Anthony Nicasio

Project Evaluation: Mary Ellen Duffy Tanamly

2:45 Break

3:00 Closing Remarks

Joe Carter/Merrill Wood PRAGMA/MCD

Minister of Health MOH

Neboysha R. Brashich USAID

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LIST OF PARTICIPANTS

USAID:

1. Neboysha R. Brashich
2. Mary Ellen Duffy Tanamly
3. Mohamed Tanamly
4. Samuel Dowding
5. Lourdes Smith

MINISTRY OF HEALTH

1. Douglas Fairweather
2. Errol Vanzie
3. Fred Smith
4. Hilbert Linares
5. Sylburn Arthurs
6. Rafael Guerra
7. Francis Westby
8. Anthony Nicasio

PROJECT MANAGEMENT

(PRAGMA/MCD)

1. Merrill Wood
2. Harry Phillipeaux
3. Terri McLean
4. Joseph Carter

SPECIAL INVITEES 1 DAY THURSDAY 30TH JANUARY

1. Minister of Health, Hon. Elodio Aragon
2. Deputy Minister, Mr. Ruben Campos
3. CARE W/S Engineer, Howard Kolb
4. UNICEF W/S Engineer, Graham Prokopetz

GROUPS ON RESOURCES REQUIRED

- VECTOR CONTROL:
1. Dr. Vanzie
 2. Mr. Guerra
 3. Mr. Westby
 4. Mr. Wood
 5. Ms. Tanamly
 6. Mr. Carter
 7. Mr. Linares
 8. Ms. McLean
 9. Mr. Tanamly
 10. Minister Aragon

- WATER & SANITATION:
1. Mr. Smith
 2. Mr. Arthurs
 3. Mr. Nicasio
 4. Mr. Fairweather
 5. Mr. Dowding
 6. Mr. Brashich
 7. Mr. Phillipeaux
 8. Mr. Kolb
 9. Mr. Prokpetz
 10. Deputy Minister Campos

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ANNEX 3

- (1) Work Plan - Malaria
- (ii) Work Plan - Aedes aegypti Control
- (iii) Work Plan - Water and Sanitation

DETAILED WORK PLANNATIONAL MALARIA CONTROL PROJECT, BELIZEPROJECT: 505-0018-IPTBHJANUARY 21, 1986-MARCH 31, 1989Goals

1. Reduce Malaria incidence in Belize by twenty percent (20%) annually over the life of the project so it is no longer an economic deterrant to development.
2. Reduce *P. falciparum* to less than five percent (5%) of the incidence of Malaria.
3. Improve the operational capacity of the program in order to achieve the above goals.

Cojectives

1. Apply residual insecticide on sprayable surfaces to 95% of the houses in positive localities.
2. Improve spraying operations by improving quality of training and supervision.
3. Improve District Offices (3) management; record keeping system, e.g. filing system, logistics support and furniture.
4. Sample ten percent (10%) of the rural population for Malaria incidence in areas not covered by insecticide pressures.

Strategies

1. Execute two (2) cycles of indoor house spraying.
2. Use laboratory service to diagnose cases.
3. Give supervised treatment to ninety-five percent (95%) diagnosed malaria cases.
4. Increase passive case detection posts to 85% of all localities.
5. Strengthen the technical capability of field personnel through training: administration, supervision, entomology and epidemiology.

2.

5. Reduce the lapse time between taking Blood films (BF) and case radical treatment.
7. Reduce by sixty percent (60%) the incidence in the twenty (20) most positive localities.
3. Applied field research.
 - a - in Adulticiding by mist machine
 - b - by larviciding positive breeding sites
 - c - testing alternative insecticides
 - d - use of fish by larva control

Method

1. In order to achieve these objectives, the following tasks will be carried out:
 - A. Spraying Operation
 1. Hold one week training sessions in January, cycle 1, and July for cycle 2.
 - a - prepare training outline
 - b - assist in training
 - c - teach supervision training methods
 2. Field check quality of house spraying; e.g. spraying itineraries, G.R. data, reporting, sprayable surfaces
 3. Do field training when and where needed.
 4. Train sprayman in Health Education aspects of the program.
 - B. Surveillance Operation
 1. Review positive case register at District Offices in order to track case load and identify outbreaks and recommend control measures.
 2. Field check quality of ACD and PCD operations in order to improve these operations.
 3. Hold annual training sessions for new evaluators and supernumeraries.
 - a - prepare training outline
 - b - assist in training
 - c - train supervisors in method of training

3.

4. Assist in training of Voluntary Collaborators(VC).
5. Train evaluators/supernumeraries in Health Education.
6. Improve quality of thick blood films.
 - a - retrain annually
7. Cut length of time between taking of BF and radical treatment to five days by improving system of transporting of slides and notification of District Offices

C. Entomology

1. Organize an entomological unit within the present staffing of the malaria program.
 - a - equip unit with the necessary tools to carry out needed entomological investigations e.g. mosquito biting habits, susceptibility tests, bio-assay tests and resting habits.
 - b - provide space for laboratory
 - c - provide equipment for laboratory
 - d. provide transport
2. Train personnel as Entomology Aids for collecting mosquitoes, adult and larva, and in performing required testing and studies.
3. Bring in Technical Assistance as needed to assist in the development of the Entomology team.
4. Send personnel for third country training in Entomology

D. Epidemiology

1. Teach basic malaria epidemiology to supervisory staff.
 - a - develop course outline
 - b - prepare lecture notes
 - c - schedule training period
2. Bring in technical assistance to review surveillance activities and make recommendations for improvement.
3. Bring in technical assistance for refresher course for the microscopist.

4. Send Supervisors for third country training in Epidemiology of Vector Borne diseases and their control: University of North Carolina, at the Wedge, a six week course.

E. Administration

1. Give weeks course in supervision to all supervisors, including subject eg: communication, supervisory techniques, span of control, organization of work, and record keeping.
 - a - prepare course outline
 - b - prepare lecture notes
 - c - schedule training period
2. Prepare Administrative/technical Orders covering program operations.
 - a - prepare drafts of Administrative Orders
 - b - review with malaria staff
 - c - prepare final drafts for Directors Signature.
 - d - distribute to all personnel.
3. Start preparing operation manual for the malaria program.
4. Assist Administrator in improving administrative procedures eg. equipment inventory systems, logistics of supplies, filing system. job descriptions, job classification.
5. Make field trips with Administrator to review and improve the Administration of the District Offices and improve relations with the District Health Officers.
6. Build repair facilities and furnish garage tools and equipment to repair program and project vehicles.
 - a - Build repair facilities.
 - b - equip shop with tools and equipment
 - c - train mechanics (on the job training)
 - d - develop maintenance program for vehicles and equipment.
 - e - develop maintenance and record system
 - f - do field maintenance of vehicles
 - g - maintain vehicle inventory
 1. develop inventory and use system of spare parts.
 - h - give driver training and maintenance courses.

7. Commodity Procurement. PIO/C's

- a - Procurement is done by USAID/Mission
- b - Assist in preparing program requirement list to AID/Mission.
- c - AID/Mission does end use control of procured commodities.

8. Training,PIO/P's

- a - PIO/P are prepared by AID/Mission

9. Technical Assistance

- a.- Project drafts Statement of Work for Consultant for review by AID/Mission and Ministry of Health.
- b.- Project finalizes Statement of Work.
- c.- Pragma/MCD gets three candidates for T.A. and forward TA's resumes to AID/Mission, MOH and Pragma for review and decision on desired consultant.
- d.- Pragma Project prepares formal letter requesting approval for the consultant.

TrainingA. Local

1. Training sessions for supernumeries Feb 24- March 7, 1986
2. Volunteer Collaborators training June/July 86.
3. Retraining of Squad Chief and spraymen, January and July, yearly.
4. Retraining of microscopist, April 87.
5. Retraining of evaluators and supernumeries, annually.
6. Training supervisors in supervision techniques, March 87.

B. Third Country training

1. Entomology training in Panama for District Supervisors, Cayo District, March/April 86.
2. Malaria training for District Supervisor, Stann Creek at Wedge University South Carolina (USC) June 30- July 25, 1986
3. Malaria training for Program Administrator at the Wedge, USC-April 6-May 15, 1987.

6.

4. Malaria training for District Supervisor Cayo District at the Wedge USC April 6-May 15, 1987.
5. Malaria training for the District Supervisor, Corozal at the Wedge, USC not scheduled.
6. Training for Program Administrator. Not Scheduled.
7. Training in Administrative and technical aspects of Malaria, Chief of Operations and Evaluator, PAHO Guatemala, Sept. 29 - Dec. 18, 1986.

Technical Assistance (TA) required

- a. Microscopist training - 2-3 weeks, March 87.
- b. Review surveillance program activities 3/4 weeks April 87.
- c. Entomology training - August 87, 4 weeks.
- d. Fish Biologist - June 88, 4 weeks.
- e. Chloroquine resistance, Dec. 10/20, 86

DETAILED WORK PLAN

AEDES aegypti CONTROL PROJECT, BELIZE

PROJECT: 505-0018-IPTBH

JANUARY 21, 1986-MARCH 31, 1989

GOALS

1. Reduce Dengue Fever incidence in Belize by 1989 to a level to where its' no longer an economic deterrant to development.
2. Reduce the total number of reported Aedes aegypti positive localities less than ten percent (10%) of the total localities in the country by 1989.
3. Improve the operational capacity of the program in order to achieve the above goals.

I OBJECTIVE

1. Do house to house larva surveys in all towns and localities, 29,000 houses.
2. Do ULV misting in all towns in Belize to control Adult Aedes.
3. Treat all larva positive premises.
4. Educate the householder in control of Aedes aegypti.

II STRATEGIES

1. Execute three cycles of house to house larva surveys annually.
2. Do ULV misting on a planned schedule in all towns and localities when and where needed.
3. Establish and maintain larva and adult collecting stations to sample the Aedes aegypti population
4. Strengthen the technical capability of field personnel through training: administration, supervision, entomology and epidemiology.

2.

5. Reduce the total number of positive houses and localities by thirty percent (30%) annually.
6. Applied field research:
 - a - by larviciding positive breeding sites
 - b - field testing effectiveness of ULV misting.
 - c - use of fish for larva control
 - d - testing alternative insecticides.

IV METHOD

1. In order to achieve these objectives, the following tasks will be carried out:
 - A. House to house larva survey:
 1. train inspectors in ways and means of:
 - a - search premises for larva sources
 - b - treatment of positive sources
 - c - larva identification, aedes and culex
 - d - record keeping system
 2. Training the Inspector in
 - a - approaching the householder
 - b - educating the householder in controlling larva sources.
 3. Improve supervision of field activities
 - a - give training course to all supervisors in supervision.
 - b - design and test forms for supervision of the field activities.
 4. Establish use of epidemiology maps in all districts for both urban and rural area:
 5. Give course in administrative control.
 6. Field check work of District Supervisor and Inspectors.
 - B. ULV Operation
 1. train ULV operators
 - a - train/retrain drivers.
 - C. Entomology
 1. Organize an entomological unit within the present staffing of the Aedes program and in conjunction with the Malaria Program.

3.

- a - Equip unit with the necessary tools to carry out needed entomological investigation, eg. mosquito resting habits, susceptibility tests, alternative insecticide testing and flight patterns.
 - b - provide space for laboratory.
 - c - provide equipment for laboratory.
 - d - provide transport.
2. Train personnel as Entomology aids for collecting mosquitoes, adults and larva, and in performing required testing and studies.
 3. Bring in technical assistance as needed to assist in the development of the Entomology team.
 4. Send personnel for third country training in Entomology.

D. Epidemiology

1. Teach basic epidemiology to supervisory staff.
 - a - develop course outline.
 - b - prepare lecture notes.
 - c - schedule training period.
2. Bring in technical assistance to review field activities and make recommendations for improvement.
3. Send supervisory personnel for third country training in Epidemiology and Control of Vector borne diseases, Wedge, University of South Carolina.

E. Administration

1. Give weeks course in supervision to all supervisors, including subjects eg: communications, supervisory techniques, span of control, organization of work and record keeping.
 - a - prepare course outline.
 - b - prepare lecture notes:
 - c - schedule training period.
2. Start preparing, updating present operation manual for Aedes Control.
3. Assist Director in improving Administrative procedures eg: equipment inventory systems, logistics of supplies, filing system, job description and job classification.

4.

4. Make field trips with Director and Senior Supervisor to review and improve the administration of the District Offices and improve relations with the District Health Officers.
5. Commodity Procurement; PIO/C's
 - a - Procurement is done by USAID/Mission.
 - b - Assist program people in preparing list for supplies needed to give to AID.
 - c - AID/Mission does end use control of procured commodities.
6. Training, PIO/P's
 - a - PIO/P's are prepared by AID/Mission.
7. Technical Assistance
 - a - Project drafts "Statement of Work" for Consultant for review by AID/Mission and Ministry of Health.
 - b - After review Project finalizes Statement of Work.
 - c - Statement of Work is forwarded to Pragma/MCD who recruits three candidates for T.A. and forwards the T.A's resumes to AID/Mission, MOH and Pragma field team for review and the decision on the desired consultant.
 - d - Project prepares formal letter requesting approval of the consultant.

TRAINING

A. Local

1. Training in Entomology of staff of Aedes Program by PAHO Entomologist May 5 - 9, 1986, Dr. M. Nelson, PAHO, Panama.
2. Trained supervisors July 24 - 25, 1986 by Advisor.
3. ULV training course, Nov. 3 - 7, 1986, Antonio Benito, PAHO, Panama.

B. Third Country Training

1. The Director/Senior Supervisors have received training at Wedge, USC.
2. Two District Supervisors have received training at the Wedge, USC, April 1986.

5.

3. Director, October 27 - 31, 1986, Trinidad.
4. District Supervisor, Corozal, Wedge, USC April 6 - May 15, 1987, Epidemiology and Control of Vector Borne Diseases.

VI TECHNICAL ASSISTANCE (T.A.) REQUIRED

- A. Review of the Aedes Program operations, January 12, 1987. Statement of Work prepared - 4 weeks.
- B. ULV training course, 1 week Nov. 3 - 7, 1986, Antonio Benetez, PAHO, Panama.
- C. Entomology Course 1 week May 5 - 9, 1986, Dr. M. Nelson, PAHO, Panama.

DETAILED WORK PLANWATER AND SANITATION PROGRAM, BELIZEPROJECT: 505-0018-IPTBHJANUARY 21, 1986- MARCH 31, 1989

I GOALS

1. Develop a safe water supply for ninety percent (90%) of the rural population in three Districts, Cayo, Rural Belize and Stann Creek.
2. Develop and cause the installation of improved sanitation latrines for fifty percent (50%) of the rural population in the three (3) Districts.
3. Install new and/or repair old hand pumps which will result in at least ninety-five percent (95%) of all hand pumps in the three Districts being in a workable condition.
4. Establish and maintain a drinking water quality monitoring system which tracks the water quality in the three Districts.

II OBJECTIVES

- a) construction of 26 rudimentary water systems;
- b) installation of 500 hand pumps on 250 new wells and 250 rehabilitated wells;
- c) construction of 3000 latrines;
- d) establishment of 60 functioning Village Health Committees;
- e) sampling and analyzing all country-wide rural water supplies at least once a year.

III STRATEGIES

1. Document water supply, sanitation needs, socio-economic conditions and community participation interest in project localities.
2. Involve community in the planning, construction and maintenance of the water system.
3. Set up water quality lab with staff.

2.

4. Improve management of program through in service training and third country training.

5. Re-organize the administrative structure of the Water and Sanitation Coordination section from the Environmental Health Service.

6. Training for Water and Sanitation personnel at all levels.

METHODS

In order to achieve these objectives, the following tasks will be carried out.

A. Administration

1. Increase field personnel, drilling crew, sanitation unit and maintenance crew.

2. Create a post of assistant sanitary engineer to take in charge the technical aspects of Water and Sanitation program.

3. Appoint an individual to be responsible for the topographing and drawings in the Water & Sanitation Coordination Office.

4. Appoint a typist clerk to assist the National Coordinator for typing, filing, following up of project.

5. Appoint one health educator for each district.

6. Appoint a Water quality analyst.

7. Give one day workshop in program management.

B. Community Participation

1. Hold Village meeting for organization of the Health Committee.

2. Organize community labor input through Community Health Committee.

3. Organize maintenance fund.

4. Hold six workshops on Community Development.

5. Develop educational material needed to establish Community Participation.

3.

6. Develop a household survey form and summerization system.

C. Construction

1. Provide one new drilling rig, two new trucks for the two existing drilling rigs, three new pickups for well pump repair crews and one pickup for program coordination.
2. Provide tube wells, submersible pump, hand pump, generators and other equipment required.
3. Provide lab equipment and lab material needed.
4. Design twenty rudimentary water systems.
5. Design latrine slab and riser, pump platform, and construct the required molds.
6. Construction of latrines.
7. Drilling well and hand pump installation.
8. Rudimentary water system construction.
9. Three appropriate technology workshops.
10. Develop a village profile for Water & Sanitaiton.
11. Prepare a hand book for drilling, water system design.

D. Monitoring

1. Establish a water sample collection system.
2. Establish a hand pump maintenance system.
3. Establish a latrine visit program.
4. Prepare necessary record and reporting system in order to establish a workable program.

E. Training

A. Local

1. On the job training of local health educators for the life of the project.
2. training sessions for drilling personnel.

4.

3. on the job training for sanitation unit.
4. training sessions for maintenance unit.
5. training session for District Public Health Inspector.
6. 2 training sessions for water analyst.

B. Out of Country Training

1. Tour in Water and Sanitation program management for the National Coordinator.
2. Three (3) years course for Assistant Sanitary Engineer.
3. Tour in Water Control program for National Coordinator.

F. Technical Assistance

A. Long Term Consultant

1. One Advisor in Water and Sanitation field.
2. One Advisor in Community Development and Health Education.

B. Short Term Consultant

1. A drilling rig instructor for drilling operation.
2. A water quality lab specialist to establish the lab and the water control program.
3. One expert in geology for assessing underground water.
4. One expert in water quality to study the content of underground water and its effects related to potability.

9/

CHRONOGRAMM OF ACTIVITIES

5

ACTIVITIES	YEAR 86												YEAR 87												YEAR 88												YEAR 89											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Briefing																																																
Work plan																																																
Village Assessment																																																
Procurement																																																
Building Office Space lab office storage																																																
Baseline house survey																																																
Out of country training																																																
Short Term consultant (A.T)																																																
Short Term Consultant (D.R.I)																																																
Short Term Consultant (W.Q.L)																																																
Workshop on Various Technologies (24-27/10)																																																
Workshop on Project Imp																																																
Laboratory in operation																																																
Workshop on water quality lab.																																																
Trg. on Water Pump Maint.																																																
Mold latrine & Pump design & fabrication																																																
Imp. program latrine																																																
Drilling well & Inst. pump.																																																

Best Available Document

ACTIVITIES	YEAR 86												YEAR 87												YEAR 88												YEAR 89											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Rehabilitation wells																																																
Workshop and formation Village Health Committee																																																
Topographic Work and Design.																																																
Construction System Handbook Preparation																																																
Evaluation																																																
Operations Research																																																

Best Available Document

ANNEX 4 - TERMS OF REFERENCE



STATEMENT OF WORK FOR CONSULTANT IN
RETRAINING OF MICROSCOPICIST IN THE MALARIA PROGRAM
BELIZE

A. OBJECTIVE:

The objective of this consultancy is to ensure effectiveness of the MOH microscopists in detecting and identifying the species of Malaria parasites, the proper use of the microscope, staining techniques and, general improvement of the laboratory operation.

B. SCOPE OF WORK:

1. The Consultant will test the proficiency of each microscopist in detecting and identifying Plasmodium falciparum, P.vivax and P. malariae.
2. Retrain each microscopist in
 - (a) detecting and identifying each species of the malaria parasite, including but not limited to ring forms, gametocytes and Schüffner's dots;
 - (b) identifying the blood elements usually seen in the course of examining a thick blood film;
 - (c) the life cycle of each malaria parasite;
 - (d) the use of and storage of the compound microscope; and
 - (e) the general procedures for the orderly examination of stained slides, techniques of microscopic examination and recording and reporting of results.
3. Evaluate and do retraining in staining techniques.
4. Conduct training sessions in
 - (a) handling and care of microscopic slides including cleaning, transporting and storing, and
 - (b) making of thick blood films.
5. Review laboratory operations, draft an operations manual; and make recommendations for improvement of the laboratory operations.

C. REQUIRED REPORT:

Prepare a report in English which assesses current practices and recommend feasible actions to improve efficiency and effectiveness of all laboratory operations.

The report must include a draft operations manual for the laboratory. A draft of the report will be discussed with the AID Mission and the Ministry of Health prior to departure. Six final copies shall be sent to the USAID Mission within six weeks after completion of the consultancy.

D. LEVEL OF EFFORT:

2 person months.

E. REQUIREMENTS:

The consultant must be a qualified Microbiologist/ Malariologist with extensive experience in Malaria Program laboratory operations. A consultant with a PHD would be preferred.

STATEMENT OF WORK OF THE CONSULTANT
FOR REVIEWING THE SURVEILLANCE ACTIVITIES
MALARIA PROGRAM, BELIZE C.A.

- A. OBJECTIVE: The objective of this consultancy is the improvement and consolidation of Malaria surveillance activities in Belize.

The Consultant shall review, evaluate, recommend, train, and assist with improvements of the surveillance activities of the Malaria Program of Belize.

- B. SCOPE OF WORK: The consultant will

1. Review:

- A. The planning and organization of the surveillance activities including but not limited to passive case detection and active case detection.
 - B. The surveillance activities on time and space.
 - C. The epidemiological activities such as case reporting, case treatment, case investigation, and case follow up.
 - D. Personnel and equipment needs for the surveillance program.
 - E. The case classification system.
 - F. Supervisory activities in the surveillance program.
 - G. Training activities; and
2. Make recommendations for the improvement of all aspects of the surveillance program.

- C. REQUIRED REPORT:

A report which assesses current practices and includes recommendations on feasible actions to improve efficiency and effectiveness of Malaria surveillance. Before leaving the Mission, the consultant shall discuss a draft of the report with the AID Mission and the Ministry of Health. Six copies of the final report should be sent to USAID/Belize within 6 weeks after completion of the consultancy.

- D. LEVEL OF EFFORT:

4 to 5 person weeks.

- E. REQUIREMENTS:

The consultant must be a qualified Epidemiologist/Malariologist with extensive experience in Malaria Eradication/Control program management.

STATEMENT OF WORK FOR DENGUE CONTROL CONSULTANT, BELIZE

A. OBJECTIVE: The objective is to improve the management and operations of the Dengue Fever Control Program in Belize.

B. SCOPE OF WORK:

1. Review and advise in all the planning and organization of field operational activities including but not limited to larviciding, ULV spraying, adult and larva collection, ovitrapping and bio-assays testing (insecticide susceptibility).

2. Review and make recommendations for improvements on present training practices.

3. Review and make appropriate recommendations of the recording and reporting system for the incidence of Aedes aegypti and review and make recommendation for the search of Aedes albopictus.

4. Review and make appropriate recommendations on all other aspects of the Dengue Control Program, including but not limited to logistics, equipment maintenance, and supervisory activities.

5. Do field work necessary to accomplish above stated tasks.

C. REQUIRED REPORT:

Prepare a report in English which assesses current practices and recommend feasible actions to improve efficiency and effectiveness of all operations. Before leaving the Mission the consultant shall prepare a draft of the final report to the AID Mission and the Ministry of Health. Six corrected copies should be sent to the Ministry of Health within six weeks after completion of the consultantship.

D. LEVEL OF EFFORT:

4 person weeks

E. REQUIREMENTS:

The Consultant must be a qualified Entomologist with extensive experience in mosquito control program management, particularly in developing countries.

SCOPE OF WORK FOR DRILLING RIG INSTRUCTOR

A. OBJECTIVE:

Training of local personnel in water well drilling techniques in difficult conditions.

B. SCOPE OF WORK:

1. Conduct a training course in water well drilling operation with conventional mud rotary and cable tool system. This training should include, but will not be limited to, a) well construction; b) well installation; c) logging procedures; selection of screens, sanitary protection and casing out of poor water quality aquifers. This training course must be appropriate to the local conditions in Belize, i.e geological conditions (sand, rock, clay) and equipment conditions.
2. Train the drilling crew in well rehabilitation, installation and maintenance of India Mark II Pump and lining of shaft turbine pump.
3. Establish procedures for the drilling operation by using standardised forms for the monitoring of the job accomplishment and use of the drilling equipment.
4. Do an evaluation equipment and statement working conditions of machine rigs (6 rigs).
5. Make a list of spare parts needed to keep these rigs in running order through the life of the project.
6. Make a list of materials and tools acquired to keep the rigs working.
7. Fabricate materials to facilitate the works. i.e construction of tank drilling mud.

C. REQUIRED REPORT:

At the end of the contract, the consultant will leave in draft a final report to AID Mission and the Ministry of Health. After 6 weeks, S/he must send to the Ministry of Health, the corrected final report.

D. LEVEL OF EFFORT:

9 person weeks

E. EDUCATIONAL REQUIREMENTS:

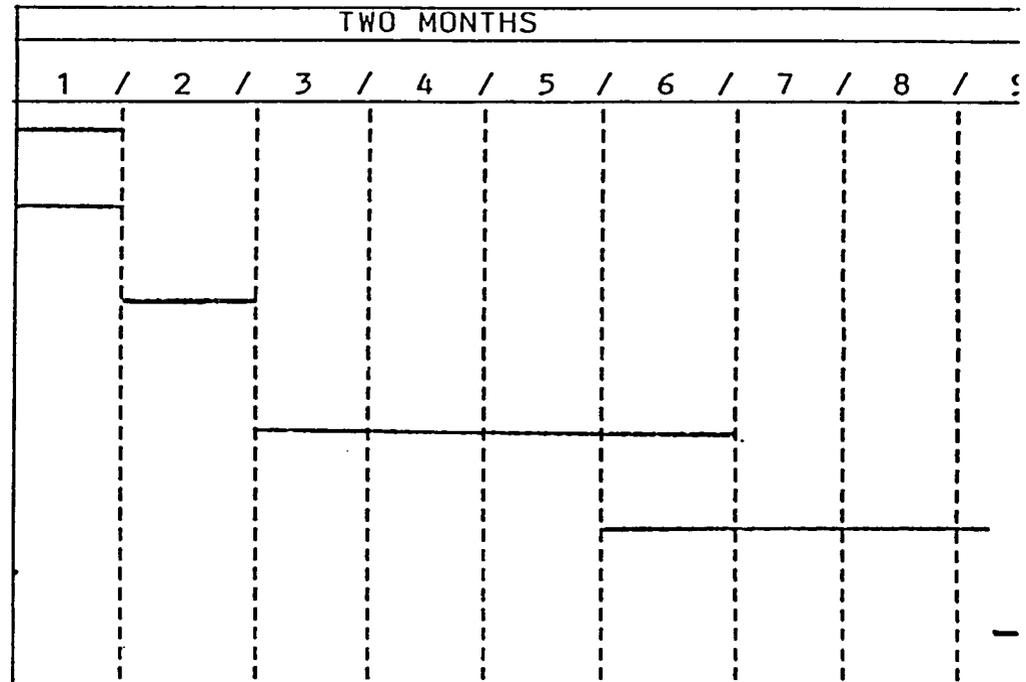
The Water Drilling Rig Instructor must have a degree in Mechanical Engineering. Engineer training in mud rotary air hammer drilling systems, cable tool drilling system, and hand pump installation is recommended.

F. EXPERIENCE:

Work in drilling operation, training local personnel in water drilling techniques in many countries. Experience in trouble shooting, maintenance and repair of different kinds of drilling equipment and hand pump.

TIME FRAME FOR DRILLING RIG INSTRUCTOR

- Evaluation of drilling personnel
- Evaluation on equipment and statement working conditions of machine rig.
- Training course in class-room conditions about drilling operation and rehabilitation wells.
- Training course in field condition about drilling operation.
- Training course in field condition about well rehabilitation.
- Report.



SCOPE OF WORK FOR APPROPRIATE TECHNOLOGY ADVISORS

A. OBJECTIVE:

To provide a field study of rain water catchment and sewage disposal systems in rural villages of Belize, with a view to recommending appropriate village level implemented technologies for the solution of water and sanitation problems in the villages.

B. SCOPE OF WORK:

1

1. Assess and test the reliability, cost and use of alternative roof top catchment reservoirs such as ferrocement and galvanized metal vats;

2. Assess the various techniques for improving the quality of roof top catchment water by use of appropriate covering methods, filters, screens and conservation techniques.

3. Develop an education program which will optimize the safe water collection during the rainy season, so that drinking water can be available during the dry season. The results of this study will be used in the further development of Health instruction media and audio-visual materials.

B. 2 1. Evaluate the alternative technologies to be considered in the sanitation elements of the project.

2. Test alternative means of construction and cartage collection disposal systems. This study has to consider the social cultural factors associated with the acceptance of these systems.

3. Study various types of riser construction and hut design. This study will include the following types of technologies: Aqua-privy; Ventilated Improved Pit Latrine; Composting system and the double vault latrine.

C. REQUIRED REPORT:

At the end of the contract, the consultant will leave in draft the final report to AID Mission, and the Ministry of Health. After 30 days, S/he must send to the Ministry of Health the corrected final report.

D. LEVEL OF EFFORT:

16 person weeks (8 person weeks each)

E. EDUCATIONAL REQUIREMENT:

The appropriate technology advisors must have a Bachelor's Degree in environmental engineering. A Master's Degree in Civil engineering will be preferred.

F. EXPERIENCE:

The appropriate technology advisor must have at least six years experience working in rural water and sanitation with emphasis in appropriate technology in less developed countries (in Africa or Caribbean and Central America). Experience in building construction will be very useful.

TIME FRAME FOR APPROPRAITE TECHNOLOGY ADVISOR

TENTAIVE ITEMS

- Briefing by Pragma/MCD personnel
- Field visit and contact with all personnel involved in the 3 water and sanitation projects.
- Preparation of material request and other office work (design, sketch etc)
- Field work or field experiment
- Pilot projects construction.
- Report.

