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TRIP REPORT

HEALTH EDUCATION/COMMUNITY PARTICIPATION IN MALARIA AND *AEDES AEGYPTI* CONTROL SNEM, GUAYAQUIL

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by

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I. Scope of Work

After a series of meetings with representatives of VBC (Dr. Arata and Dr. Tonn), USAID (Mr. Goldman and Ms. Barriga), United Schools of America (Mr. Arellano), and SNEM (Dr. Reyes), the Scope of Work originally provided by VBC was modified to include the following three priority projects:

1. Development of a plan for increasing popular participation in Aedes aegypti control in Guayaquil through a massive public health communications program.

2. Development of a preliminary plan for malaria education and community participation activities. This plan focuses on a pilot project in Quevedo which will serve as a basis for a national level malaria education program, primarily in rural areas. An integral part of this activity was the identification of a possible subcontractor.

3. Evaluation of a joint SNEM/UNICEF plan for improving the network of Voluntary Collaborators in Esmeraldas Province.

II. A. aegypti: Consultant's Activities and Recommendations

During this consultancy several site visits and interviews were completed prior to writing the Health Education Plan (the Plan is presented in Annex 1). A series of recommendations, primarily designed to improve SNEM's institutional capacity, are presented.

A. Field Visits

1. November 3 - tour of popular "Guasmo" neighborhoods to examine house construction, water supply, and basic sanitation. Guasmo is considered by SNEM to be at low risk for A. aegypti (the vector of dengue fever), but at fairly high risk for malaria.

2. November 6 - observational tour of "Febres Cordero," a popular neighborhood identified by SNEM as one of four high risk areas for dengue. Observation of vector surveillance and source reduction activities of SNEM work brigades.

3. November 9 - visit to SNEM warehouse in Guayaquil to observe storage of ULV equipment and Abate granules.

4. November 13 - visit to Zone III (which includes Guayaquil) Headquarters to review A. aegypti mapping/ surveillance project.

B. Interviews

A series of preliminary group and individual interviews were held to review the A. aegypti problem in Guayaquil including its history, the current approach, institutional limitations, and the need for health education. Interviewees included:

1. Dr. Victor Reyes Lituma, Director, SNEM
2. Dr. Jorge Moreira, A. aegypti Chief, SNEM
3. Mr. Segura, Inspector, A. aegypti Program, SNEM
4. Mr. J. Roberto Unda, PAHO Malaria Advisor to SNEM
5. Mr. Victor González, SNEM Health Educator
6. Dr. Robert Tonn, VBC/USAID Consultant to SNEM
7. Mr. Hugo Romo, SNEM Consultant in Health Education
8. Mr. Nelson Espinoza, SNEM Research Coordinator
9. Dr. Gaitan Villavicencio Loor, Centro de Estudios Regionales Guayaquil (urban sociologist/economist with extensive experience in marginal neighborhoods of Guayaquil).

C. Planning Sessions

Two extended planning sessions were conducted prior to developing the A. aegypti Health Education Program. First, the consultant met with SNEM Director, Dr. Reyes, to conduct a preliminary diagnosis of SNEM's institutional resources available for A. aegypti educational activities. This discussion focused on the need to contract additional personnel who are experienced in social communications and community participation. Preliminary program objectives were also outlined.

The consultant conducted a second long planning session with Dr. Reyes and A. aegypti Program Chief, Dr. Jorge Moreira. The purpose of this meeting was to outline a basic strategy of health education and popular participation, and to agree on general program goals and objectives. During this meeting all three participants agreed that the program should focus first on increasing individual responsibility for mosquito control through health education (Phase One). At some time in the future, SNEM may consider organizing massive source reduction campaigns (such as collecting used tires throughout the city) as Phase Two activities, but such activities are not currently being contemplated.

The A. aegypti Health Education Program developed during this consultancy covers Phase One only. Program objectives have been agreed upon by appropriate SNEM officials and the plan offers several suggestions for improving institutional resources, primarily through additional personnel and training. All

participants agreed that the program would focus primarily on A. aegypti control, but would also include general urban mosquito control, including urban malaria.

D. Development of the Health Education Plan

In developing the A. aegypti health education plan, the consultant worked as closely as possible with the two current SNEM health educators, the SNEM Research Coordinator, and an artist. In particular, the consultant instructed these SNEM staff in program planning, using the A. aegypti program as a concrete example.

The following topics were covered although often in limited detail due to time constraints:

1. Defining the problem and identifying the target population.
2. Preliminary or developmental research.
3. Developing program goals and objectives.
4. Concept and message development, including text and drawings.
5. Determining an appropriate media mix (mass media, print materials, face-to-face communications).
6. Materials pretesting through focus group interviewing (including an actual focus group interview in El Milagro to pretest a SNEM training manual developed by the consultant and VBC consultant, Dr. Tonn).

Although it was felt that these sessions helped to sensitize the health educators to the need for comprehensive planning and operational research, additional intensive formal training is strongly recommended. A series of one to two day workshops should be scheduled for early next year to continue this process of skills building.

E. The A. aegypti Health Education Plan

The preliminary plan for health education activities related to A. aegypti (and urban mosquito control) is presented in Annex 1. This plan is necessarily tentative because no developmental research has been initiated. On the basis of such preliminary research (knowledge, attitude, practice - KAP survey, in-depth interviewing, and direct observation), the program objectives, message content, and/or media mix may need to be modified. The methodology of developing the educational activities through preliminary research and repeated audience testing should be followed closely. The project timeline serves as a guide for implementing this methodology. SNEM's ability to follow the timeline will depend, in large part, on the ability to

contract and train personnel, and to provide adequate, on-going supervision.

F. Recommendations

SNEM must develop a technically competent department of health education in order to achieve any gains in popular participation in urban mosquito control. The following measures will help build an institutional resource base for much improved health education efforts. Each recommendation is described in more detail in the A. aegypti plan (Annex 1):

1. Formation of a technical committee to bring together professionals from different disciplines and institutions. The health educators need technical assistance from SNEM's A. aegypti staff to develop sound messages. In addition, SNEM educators should work closely with the Guayaquil offices of the Ministries of Education and of Health to increase the potential coverage and effectiveness of the educational campaign. The, suggested committee members include:

   a. Dr. Jorge Moreira, A. aegypti Chief, SNEM
   b. Lic. Nelson Espinoza, Research Coordinator, SNEM
   c. One or two health educators, SNEM
   d. Sr. J. Roberto Unda, PAHO Advisor to SNEM
   e. Dr. Hugo Jurado, MOH (recently trained in A. aegypti control in Brasilia)
   f. A representative of the Ministry of Health/ Education Section
   g. A representaive of the Ministry of Education, Guayaquil

This committee should meet regularly, especially during the early stages of program planning and implementation.

2. Increase the number of trained personnel available to work on the A. aegypti health education and community participation project. If possible, SNEM should contract one full-time specialist in health education, preferably with experience in social marketing techniques and production of radio broadcasts. A second full-time specialist in community development with experience in urban barrios should also be hired. These two professionals should provide on-the-job training to the two current health educators and the research coordinator.

If, for financial reasons, SNEM cannot hire both new staff members, preference should be given to the communications specialist. If neither of the two positions can be filled, SNEM should hire an experienced local public health communications expert as a consultant responsible for technical assistance, and supervising the development and testing of educational materials. This consultant should provide assistance and supervision at least 10 days per month at the beginning of the project and 5 days per month (or as needed) once the project is operating.

3. SNEM should organize a series of in-service workshops for its own staff (educators, research coordinator and artist), as well as counterparts in the Ministries of Education and of Health.

   Suggested topics include:

   a. Techniques of Community Participation
   b. Social Marketing Techniques
   c. Conducting In-Depth and Focus Group Interviews (Qualitative Research Techniques)
   d. Developing and Pretesting Printed Materials
   e. Developing and Pretesting Radio Programs
   f. Operational/Evaluation Research

A list of several organizations qualified to present such a series of training seminars is presented below.

1. Instituto Nacional del Niño y la Familia (INNFA) contact: Dr. Marco Polo Torres, Director of Communications for the PREMI Project
   (tel.: (Quito) 511-892

2. Dr. Marco Encalada, Consultant in Communications and Educational Materials Development; Past Executive Director of Fundacion Natura
   tel.: (Quito) 249-780

3. CIESPAL contact: Dr. Luis Proaño, Director or Lic. Edgar Jaramillo, Head of the Department of Research and Training
   tel.: (Quito) 548-011

4. Dra. Yolanda Silva de Grijalva, Consultant in Social Marketing, Evaluation Research and Nutritional Education; also works at the Instituto Nacional de Investigacion en Nutricion y Medicina Social)
   tel.: (Quito) 536-078, 539-094, 544-597

5. Dr. Gaitan Villavicencio Loor, Sociologist and Economist, Centro de Estudios Regionales Guayaquil tel.: (Guayaquil) 307-388

   All of these institutions were visited and at least one representative was interviewed by this consultant.

4. SNEM should contract an artist for a period of several months (during the materials development and pretesting stage). The artist should be trained in concept development and pretesting.

5. Transportation must be made readily available to all health educators. Execution of an educational program requires constant fieldwork during all stages - planning, preliminary research, materials development and testing, materials distribution, follow-up, and evaluation. This work cannot be done at SNEM offices.

6. The SNEM Research Coordinator should participate actively in coordinating the operational research activities of the program, and attend the series of training seminars described above.

7. A subcontract should be developed for the necessary quantitative research projects. Most important are the KAP (knowledge, attitudes, and practices) surveys: a baseline survey and a follow-up survey to determine program effectiveness. An outline for the KAP Questionnaire is included in the A. aegypti in Health Education Plan; it is intended to serve as a guide for the subcontractor.

8. Arrangements should be made for an observational study tour of a strong A. aegypti control program (e.g., Puerto Rico). The A. aegypti Program Chief, the Research Coordinator, and the new Communications Specialist (if hired) should participate.

III. Malaria Education: Activities and Recommendations

A. Introduction

At the present time, SNEM has a piecemeal approach to malaria education, largely due to the lack of adequately trained staff and comprehensive planning. Even if SNEM's current staff is expanded and povided with requisite intensive training and supervision, it will be needed on a full-time basis to implement

the A. aegypti program, which has been given high priority by SNEM officials. It is not realistic to expect the two current educators (one of whom works part-time) to develop, test, distribute materials, and conduct follow-up activities for both A. aegypti and malaria. Therefore, it is suggested that for the present time, the current educators work in A. aegypti (with newly contracted supervisor(s)), and that malaria education be handled as a separate project by a subcontractor.

As agreed upon by SNEM (Reyes), USA (Arellano), VBC (Arata), and USAID/Quito (Goldman and Barriga), the malaria education project will begin as a pilot project in the canton of Quevedo in conjunction with the Hospital of Quevedo and the Asociación de Productores de Ciclos Cortos (APROCICO). A subcontractor will be responsible for the development of the educational materials; the Hospital and APROCICO will coordinate the implementation of the program through local channels including schools, health centers, and agricultural extensionists.

Although the project will have a very strong focus in Canton Quevedo, the materials will be tested simultaneously for distribution and use throughout the coastal zone, particularly in rural areas with high malaria transmission. Developmental research will be conducted in sites representative of the various geographic, ethnic, and socioeconomic zones of the region before materials are printed. In this way, as SNEM identifies local counterparts (responsible for materials distribution, etc.) in regions other than Quevedo, additional educational campaigns can be initiated. In particular, SNEM and the subcontractor should work closely with the Ministry of Health (MOH) whose staff at local health centers might be instrumental in implementing the local campaigns. But, SNEM will still have to identify other local collaborators in each area, especially rural teachers, and develop local systems of training and materials distribution.

In order to develop the Malaria Education Plan (presented in Annex 2), the consultant arranged several site visits and meetings with SNEM staff, potential subcontractors, and representatives from Quevedo Hospital and APROCICO. These are described briefly below:

B. Site Visits

1. November 7 - trip to Quevedo, site of proposed pilot project. Also brief observation of the city of Babahoyo, both located in areas of moderately high malaria transmission.

2. November 19 - trip to El Milagro, Guayas Province, to observe a zone of relatively low malaria transmission and, more importantly, to pretest a Training Manual for Voluntary Collaborators (VC's) through a focus group interview with five of the areas VC's. This exercise was a training project in materials pretesting for the SNEM health educators.

C. Planning Sessions

A series of three planning sessions was held with the following representatives of Quevedo:

1. Dr. Luis Triviño, Director, Quevedo Hospital
2. Dr. Philip Stansly, USAID/University of Florida Advisor to APROCICO
3. Lic. Rigoberto Lara, Manager, APROCICO
4. Lic. Rosendo Coello, SNEM Malaria Supervisor, Quevedo

The goal of these meetings was to agree on preliminary program objectives, to identify institutional responsibilities, and outline potential collaborative research projects (SNEM/ APROCICO). In addition, one round table planning session was held with the four Quevedo representatives, SNEM Director Reyes, USA Advisor Arellano, and PAHO Advisor Unda. During this meeting, all parties generally agreed on the idea of an educational campaign in Quevedo in which SNEM/subcontractor would perform preliminary research and materials development, and Quevedo representatives would handle the logistics of mobilizing popular support and distribution.

D. Identifying the Subcontractor and Developing A Strategy

The consultant interviewed several potential subcontractors in Quito and Guayaquil:

1. Instituto Nacional del Niño y la Familia (INNFA) contact: Dr. Marco Polo Torres, Director of Communications for the PREMI Project
tel.: (Quito) 511-892

2. Dr. Marco Encalada, Consultant in Communications and Educational Materials Development; Past Executive Director of Fundacion Natura
tel.: (Quito) 249-780

3. CIESPAL contact: Dr. Luis Proaño, Director or Lic. Edgar Jaramillo, Head of the Department of Research and Training
tel.: (Quito) 548-011

4. Dra. Yolanda Silva de Grijalva, Consultant in Social Marketing, Evaluation Research and Nutritional Education; also works at the Instituto Nacional de Investigacion en Nutricion y Medicina Social)
tel.: (Quito) 536-078, 539-094, 544-597

5. Dr. Gaitan Villavicencio Loor, Sociologist and Economist, Centro de Estudios Regionales Guayaquil
tel.: (Guayaquil) 307-388

Although each of the above has strong qualifications, Dr. Encalada is currently in the best position to take on the project because he has the time available to do the project and the presence of existing Fundacion Natura projects in Quevedo. He has been briefed by Reyes, Arellano and O'Connor (November 24, 1987) regarding the history of SNEM's malaria education program, the desired focus of the new program, and the need for developmental research. If awarded the subcontract for the malaria program, he has agreed to follow the strategy presented below. The final plan for malaria education will depend on budget considerations which will be determined by the subcontractor, SNEM, and the USA representative. The consultant was not able to find out from the USA representative what the level of funding would be.

1. Diagnosis - consisting of KAP surveys, in-depth interviews, and focus group interviews in selected project areas. A draft of the KAP survey has been provided. The diagnosis will determine the focus of the educational campaign.

2. Presentation of a written profile which will include a summary of the current KAP, central program objectives, and potential activities. This report will be presented to SNEM, and to the Quevedc group for commentary and necessary revisions.

3. Development of a Formal Plan for Malaria Education in Quevedo and other coastal communities. This plan will include the operational plan, timeline, and final budget; it will be subject to review by SNEM and the Quevedo group. The operational plan will describe the communications strategy (radio, print materials, face-to-face), and message content.

4. Design and pretesting of materials - to be done in Quevedo and other selected coastal sites.

5. Training local personnel in Quevedo (teachers, health educators, promoters, agricultural extensionists, etc.) in public health communications activities. If counterparts have been identified in other areas, additional training activities will be conducted.

6. Supervision of the project for six months following implementation of the operational plan.

7. Evaluation of the effectiveness of the Quevedo pilot project through a second KAP survey.

E. Additional Recommendations

1. SNEM should develop a formal technical committee with representatives of all parties involved:

   a. Guayas Zone Chief (Dr. Bermeo)
   b. SNEM Supervisor for Quevedo (Lic. Coello)
   c. Quevedo Hospital Director (Dr. Luis Triviño)
   d. USAID/Univ. of Florida Advisor to APROCICO (Dr. Stansly)
   e. Subcontractor (Dr. Encalada)
   f. Representative of Ministry of Health
   g. Representative of Ministry of Education or a Quevedo school administrator.

2. Serious consideration should be given to a collaborative research project with a subcontract to APROCICO to conduct the basic research which is needed to develop a successful education project. The specific projects are described in the Malaria Education Plan. The appropriate contact person is Dr. Philip Stansly, Entomologist and Director of the University of Florida/USAID, Integrated Pest Management Project. The results of these research projects are essential to developing potentially viable strategies of community participation (nets, coils, drainage). In addition, the results will provide SNEM with basic information on the effectiveness of DDT (rural) and ULV (urban) spraying in reducing malaria incidence; vector resistance will also be studied. SNEM's overall operational plan would be greatly improved with the results of these studies.

Although SNEM does have a trained entomologist, progress in entomological research has been slow. A variety of problems, including lack of transportation, have negatively affected the entomologist's ability to conduct field investigations. Therefore, a collaborative project should be considered to help expand

the extent of research. SNEM might consider sending a trainee to APROCICO for training. This person could then conduct similar research in other sites.

IV. Voluntary Collaborators in Esmeraldas

A. Description of the Problem

The Province of Esmeraldas contributes nearly one half of all of the confirmed cases of malaria in Ecuador. From January through mid-November 1987, there were 25,413 confirmed cases in Esmeraldas compared to 29,899 for the rest of the country. The population of Esmeraldas is estimated at 342,047 inhabitants, while the rest of the malarious zones have a population of 4 to 5 million. To make matters worse, it is believed that there may be substantial under-reporting of cases in Esmeraldas due, in large part to the substantial deterioriation of the network of Voluntary Collaborators (VC's) over the past four to five years. The VC's are generally responsible for taking blood slides, and treating fever cases in their communities of residence; in theory, they then turn in the slides to the SNEM auxiliares (supervisors) during monthly community supervisory visits. During the following monthly visit, the auxiliar brings the results back to the community, and positive cases are told to go to the nearest health center for radical treatment.

In many parts of Ecuador this system is working quite well; however, in Esmeraldas, the VC network has virtually fallen apart. Of an estimated 653 communities in the province, only 150 have active VCs who are supervised regularly. Another estimated 300 VCs stopped working four to five years ago because no supervisors visited them, their supplies ran out, and they were not unable to turn in their slides. SNEM blames this situation on the labor union, and transportation problems.

SNEM now faces the difficult task of rebuilding the network of VCs, and plans to undertake a joint project with UNICEF. UNICEF is a good potential collaborator for this effort because: 1) it has an established track record in community health and development projects in the area which SNEM no longer has; and, 2) local community organizations have already solicited UNICEF assistance in malaria control. UNICEF in turn has come to SNEM.

To date, preliminary meetings have been held between SNEM (Director, Reyes and Esmeraldas Zone Chief, Macias) and UNICEF (Director, Dr. Boris Blanco and Esmeraldas Representative, Ana Delgado). The joint project focuses on selection and training of new VCs in Esmeraldas. These collaborators would perform the same general functions as other SNEM VCs (i.e., taking blood

slides, and giving presumptive treatment to fever cases). However, in a radical departure from SNEM operations, these new Esmeraldas VCs would not be resupplied or supervised by SNEM. Because of the chronic labor and transportation problems in Esmeraldas, the SNEM/UNICEF team would like to establish a network of VCs which is not dependent on SNEM for supervision (slide collection, resupply, results). Yet, an alternative system has not been clearly developed. One possibility under consideration is to have the communities assume responsibility for delivering slides to laboratories (located only in Esmeraldas, Muisne, San Lorenzo, and Quininde). For example, if some community resident is going to Esmeraldas for marketing, he would take that month's slides to the lab and return for the results later that same day. This system is very likely to fail - community residents may not have time to deliver or pick up results; laboratories may not be able to examine the slides in a one day (or less) time frame; it does not include any mechanism for supervision of work or for resupplying the VCs' kits. A second possibility would be to ask MOH personnel to visit the collaborators during their occasional community visits. Again, the MOH does not have a regular system of community visits. It is also unlikely that the MOH would be able to cover the 500 or more VCs with drugs and new slides.

B. Recommendations

1. Before any new VCs are trained, it is imperative that a feasible system of supervision, slide collection, and resupply of VCs in their communities be developed. VC's and/or community members should not be expected to travel on a regular basis.

2. The current plan for making the community responsible for finding its own supervision and resupply system is viewed by this consultant as very insufficient. In any health program which relies on community volunteers there must be a regular system of supervision and motivation. These volunteers must have a clear identity and institutional affiliation. The sponsoring institution is responsible for supervision and resupply, not the community.

3. SNEM should continue to strengthen its relationship with UNICEF. Perhaps an initial step, until the supervision issue is resolved, would be to train these new collaborators as educators only, responsible for improving community participation in source reduction and personal protection (nets, mosquito coils, etc.). In the future these educators could perform other duties (slides presumptive treatment) if SNEM can

rebuild the supervisory role (collection, analysis and return of the results of the blood slides) of the auxiliaries.

ANNEX 1

AEDES AEGYPTI CONTROL IN GUAYAQUIL: A PLAN FOR HEALTH EDUCATION AND COMMUNITY PARTICIPATION

I. INTRODUCTION: A. AEGYPTI IN ECUADOR

A. aegypti, the urban vector of dengue, dengue hemorrhagic, and yellow fevers, was officially declared eradicated in Ecuador in 1958, ten years after the initiation of a vector control program. In 1974, SNEM assumed responsibility for maintaining a surveillance program to detect additional reinfestations of the vector in Ecuador. Between 1974 and 1984, five such reinfestations were discovered (four in Manta and one in Portoviejo), all of which were quickly controlled through routine source reduction techniques.

In 1985, concentrations of A. aegypti were found in the city of Guayaquil for the first time since 1958. Through the efforts of an expanding Urban surveillance project, it is now very clear that the vector is firmly established in the city and its suburbs. In particular, four parróquias with an estimated 80,000 households are particularly affected (see Table 1).

Table 1

PARROQUIA	EST. NO. OF HOUSEHOLDS
Febres Cordero	51,000
Garcia Moreno	8,000
Letamendi	17,000
Urdaneta	4,279
TOTAL	80,279

Since there has never been a dengue epidemic in Ecuador, virtually 100% of the population is non-immune. Because Ecuador maintains regular contact (e.g., daily flights) with neighboring countries which do have dengue including Colombia and Brazil, Guayaquil is ripe for an outbreak. This situation has caused great concern among SNEM officials and an interest in expanding the traditional A. aegypti control strategies through health education and community participation.

II. SNEM'S CURRENT CONTROL ACTIVITIES

SNEM's A. aegypti control program is based on three traditional strategies: surveillance (source detection), ULV adulticiding (for indoor/outdoor control), and source reduction to control larva. The program employs approximately fifty

persons: 42 visitadores, 2 inspectors, and a program chief. The visitadores are organized into six work brigades forming the front line of A. aegypti control. The brigades move from house to house throughout the city's neighborhoods performing both vector surveillance and traditional source reduction. Several source reduction techniques are practiced including:

1. Use of Abate granules in household water storage containers, one of the most common vector breeding sites in the numerous areas of the city which lack piped water.

2. Destruction/perforation of breeding sites inadvertently created around the house, such as discarded tin cans, soda bottles, flower vases, and small plastic containers.

3. Putting used tires and other potential water receptacles under roofs to prevent collection of water.

4. Very basic health education targeted toward an adult household member and consisting of a brief explanation of source reduction. Households are asked to continue source reduction activities on their own in the future.

SNEM is severely handicapped in its control activities by both a small labor force and the extensive distribution of potential breeding sites throughout the city. To be effective in reducing vector density, A. aegypti control programs should be implemented on a massive scale within a short period of time. Those countries which have had successful A. aegypti control programs have enlisted community members to undertake city-wide clean up campaigns. Trinidad, for example, has major "beautification" campaigns three times per year: first, before the rainy season to attack major breeding sites (and kill eggs); next, a beautification campaign before carnival; and finally, a post-carnival clean up. Such campaigns require tremendous planning, intersectoral collaboration, and community participation. The six SNEM work brigades cannot hope to control A. aegypti in an urban area the size of metropolitan Guayaquil with over 2 million inhabitants without massive mobilization of popular support and participation.

III. PREPARING FOR HEALTH EDUCATION AND COMMUNITY PARTICIPATION IN A. AEGYPTI CONTROL

A. Background

A. aegypti, at root a man-made problem, is best controlled when regular source reduction activities are practiced on a massive scale. Two basic strategies of community participation can be employed, often as complementary activities:

1. Health education designed to increase community participation in day-to-day source reduction activities focusing on basic household hygiene: tightly covering water storage containers, cleaning patios of bottles and cans, etc.

2. Mobilization of urban barrios to undertake collective activities such as a mass movement to rid a city of used tires and other discarded containers. These movements are designed to achieve specific objectives by exerting concentrated effort over a short period of time.

Given SNEM's lack of experience in health education/community participation (HE/CP) and its limited human resources to implement HE/CP activities, it is recommended that a two stage program be established. During Phase One, SNEM would develop a communications program based on radio, print, and face-to-face communications. The goal of Phase One would be to increase individual responsibility/participation in source reduction and personal protection. Phase Two would be a series of mass campaigns, organized by SNEM and other community groups, to reduce breeding sites. Examples of such campaigns may be the rapid distribution and placement of Abate granules in household water storage containers (e.g., over a weekend), a semi-annual city-wide collection of empty bottles and containers, or simultaneous ULV fumigation in all targeted areas of the city.

The present plan for an A. aegypti HE/CP program has emerged from a series of meetings with SNEM officials, interviews with visitadores and an inspector, and site visits. It should be emphasized that this plan is necessarily tentative. As preliminary research is completed by SNEM (or a subcontractor) on popular knowledge and attitudes toward vector control, further specification of objectives, strategies, and message content will be required.

It should be noted that one result of these meetings and site visits was a decision to focus the program on urban mosquito control rather than just A. aegypti control. This decision emerges from the following rationale:

1. Three different mosquitos are wildly distributed in Guayaquil: A. aegypti (vector of dengue/yellow fever), anopheles (vector of malaria) and culex (to date in Guayaquil just a public nuisance), although it can be a vector.

2. SNEM has the obligation to control both A. aegypti and anopheles, two vectors which affect in large part the same population of Guayaquil. Malaria incidence within the city has been rising within the past several years, with transmission now firmly established among urban residents (not just "imported" cases brought in from rural areas by migrants).

3. Urban residents do not distinguish the three types of mosquitos, making it difficult to increase participation to control one (i.e., A. aegypti) without taking effective measures to control all mosquitos. If culex continues to be a public nuisance it will be difficult to initiate and maintain popular participation in control of just A. aegypti breeding sites.

4. A. aegypti breeding sites (fairly clean water receptacles in or near the house) are much more easily reduced through popular participation than are culex breeding sites (often polluted water) whose ultimate solution often lies in expensive, sanitary engineering projects. Therefore, popular participation in culex control is limited to personal protection measures such as screens/door curtains, bednets, repellants, and/or pyrethrin mosquito coils.

Given these considerations, the urban mosquito control strategy includes increased popular participation in reduction of man-vector contact, reduction of breeding sites and larviciding of small breeding sites near the home (water storage tanks) which will complement SNEM's program of adulticiding (ULV spraying).

B. Preliminary Activities

1. Developing a Technical Committee

It is strongly recommended that SNEM form a technical committee to supervise the HE/CP program. This committee would serve as the mechanism for inter-departmental collaboration

within SNEM (particularly between Health Education and the current A. aegypti program) and for inter-institutional collaboration with other entities which can provide essential assistance including PAHO, the Ministry of Health (MSP) and the Ministry of Education. Some suggested committee members who might be included are:

From SNEM: Dr. Jorge Moreira, Chief of A. aegypti program;
Lic. Nelson Espinoza, Research Coordinator;
One or two Health Educators;
Mr. Segura, A. aegypti Inspector

From PAHO: Sr. J. Roberto Unda, Malaria Advisor;

From MSP: Dr. Hugo Jurado (recently trained in A. aegypti in Brazil); Educator from Dirección Provincial de Salud de Guayas;

From MinEd: An official to promote A. aegypti programs in city schools.

If SNEM is able to secure the active participation of other community organizations such as the Red Cross or Lions Club, consideration might be given to including on the Technical Committee a representative from such organizations. The Committee should meet regularly, perhaps as often as bi-weekly, during the first several months of program activities.

2. Improving SNEM's Manpower Base for HE/CP Activities

At present, SNEM lacks an adequately trained staff to implement a city-wide HE/CP program for A. aegypti control. SNEM employs one full-time and one part-time health educator, neither of whom has practical experience or formal training in modern communications techniques such as social marketing, operational research, or message design pretesting. In addition, these educators are responsible for all educational activities in malaria control and are not available full-time for A. aegypti activities.

Therefore, it is strongly recommended that SNEM develop an educational team exclusively dedicated to the A. aegypti program. Ideally, one new staff member would be a social marketing/mass communications expert and the another new staff member would have experience in operational research and community development. SNEM might consider several options to improve its human resource base:

OPTION A: Contract the two new staff with the qualifications noted above. In addition to working in A. aegypti, they could provide on-the-job training in communications and community participation to the two existing educators.

OPTION B: Contract one new staff member skilled in social marketing and materials development. Assign both of the current health educators to the A. aegypti program and provide them with intensive training in public health communications. Seek outside assistance (a consultant) in techniques of community participation.

OPTION C: Hire as a regular consultant, a local communications specialist who could provide ongoing supervision of the A. aegypti educational program. Both of the current educators should be assigned full time to the A. aegypti program and provided with intensive training in social communications.

Regardless of which strategy may be selected, SNEM should organize a series of in-service workshops on:

1. social marketing
2. operational/evaluation research
3. materials pretesting
4. mass media programming
5. conducting focus group and in-depth interviews
6. community participation

Appropriate participant trainees include: all health education personnel of SNEM (e.g., those assigned to both A. aegypti and malaria), the SNEM research coordinator, an artist, and representatives of the Technical Committee, particularly those from the Ministries of Health and Education.

Listed in Annex 1-A is a group of organizations and/or individuals experienced in developing communications/health education training programs. All were contacted during this consultancy and all demonstrated interest in collaborating with SNEM on a fee-for-service basis in organizing workshops.

In addition to these in-service workshops, it is recommended that SNEM consider sending two staff members on an international study tour to observe the operation of a successful A. aegypti control program which relies heavily on community participation. Possible sites would include Trinidad or Puerto Rico. At least

one health educator and the A. aegypti Program Chief should participate in the tour.

During the early stages of the A. aegypti HE/CP program, the health education team should meet regularly with the A. aegypti Chief to review planned message content for scientific/technical accuracy. Such meetings would help ensure that communication activities build on the institutional capacity of the A. aegypti program to deliver services and products such as Abate granules or ULV spraying. In addition, the educators should spend several weeks in the field with the work brigades and A. aegypti Inspectors observing field operations, house construction, and water storage conditions. During these field trips, the health educators could conduct both formal and informal in-depth interviews with neighborhood residents regarding their concepts/attitudes toward source reduction and disease risk. Such information will give educators a better foundation for educational activities.

The A. aegypti educational teams should maintain regular contact with the Ministries of Health and Education. Active participation of city school teachers and MOH staff at city health centers will contribute heavily to program effectiveness.

3. Basic Research

Prior to initiating the HE/CP program, several basic research activities should be completed. Each is briefly described below:

3.1 Library Development

SNEM's Research Coordinator, assisted by the PAHO Advisor and the USA representative (Arellano) should begin to develop a library of publications, reprints, training manuals, and educational materials (slides, filmstrips, printed materials), on A. aegypti control and HE/CP experiences (successful and unsuccessful) from other countries. Many of these materials might serve as models for materials development in SNEM. A list of suggested organizations/individuals from whom materials can be requested was developed by the consultant and the PAHO advisor; the Research Coordinator will write for materials.

3.2 Experimentation in Impregnating Mosquito Nets

During discussions with SNEM directors, the possibility of promoting impregnated mosquito nets was repeatedly raised. A SNEM entomologist (or a subcontractor such as APROCICO) should initiate a testing program on the potential effectiveness of bed nets impregnated with permethrin insecticide for mosquito control

in Guayaquil. Such nets have been extremely effective in other countries in controlling mosquitos for 6 to 12 months at very low cost. Labor costs for net treatment are fairly low because the nets can be treated by community workers requiring little training.

It is hypothesized that impregnated nets, with effective promotion to gain community acceptance, would be effective in reducing biting of both A. aegypti and anopheles mosquitos. In addition, the nets would control the non-infective culex, a widespread public nuisance in marginal neighborhoods of Guayaquil.

3.3 Container Study

Another basic research topic important for the development of a HE/CP program would be a count of positive containers by type. This information would allow educators to focus their efforts on specific "high-impact" types of source reduction. For example, in some locations, tires might present a serious problem, while in others large drinking water containers might be the primary breeding sites. SNEM collects this information during its routine surveillance activities, however, it is generally not tallied.

3.4 Research on Popular Organizations in Guayaquil

SNEM has virtually no experience working with popular organizations in marginal urban neighborhoods. However, successful community participation will likely be based, at least in part, on the support/participation of popular organizations. The SNEM educators should identify potential organizations whose support can be enlisted to improve community participation. For example, active cooperatives which meet regularly might be given educational materials useful in group presentations for members. Boy scout troops might be enlisted to conduct a neighborhood cleanup campaign focused on putting used tires under roofs before the rainy season.

Other groups such as the Red Cross might be enlisted to assist the SNEM work brigades in an Abate campaign to increase city-wide coverage. Before any such activities can be undertaken, SNEM must identify potential community organizations by type of support activity.

3.5 Covers for Water Storage Containers

Another basic research project which SNEM educators and A. aegypti staff could undertake would be to design a practical system for covering large drinking water storage containers

(tanques). The focus should be on using materials which are widely available in Guayaquil.

IV. PLAN FOR HEALTH EDUCATION/COMMUNITY PARTICIPATION (HE/CP) FOR A. AEGYPTI CONTROL IN GUAYAQUIL

A. Overall Strategy

SNEM educational activities in the past have yielded very disappointing results, stemming in large part from poor planning, lack of funding, failure to conduct audience research, and lack of staff members with training or experience in public health communications techniques. Ill-conceived messages have been pushed through weak communications channels at ill-defined audiences with a very low level of resources (human and material): a sure formula for failure. Fundamental to the success of this new plan for HE/CP in A. aegypti control will be the strengthening of the institutional capacity of SNEM by expanding the staff and providing in-service training to develop the skills needed for design, implementation, and monitoring of a communications program.

The public health communications strategy on which the plan is based is an approach to popular education that attempts to change a particular set of behaviors in a large-scale target audience with regard to a specific problem. The success of this approach depends on its ability to provide a sufficiently large number of people with practical and important new information. The information must make an impact on the consciousness of the intended audience by rising above the everyday clutter of advice and suggestions and becoming an important new priority in their lives. It must change what people do as well as what they think and believe. This cannot be achieved by the repetition of simple slogans, the mass exhortation to do the right thing, or the indiscriminate use of mass media alone. It requires a sensitive understanding of how people are affected by specific health problems such as malaria, an articulate crafting of educational messages which are both useful and practical, and a coordinated distribution network which reaches every individual through various communication channels simultaneously.

In order to implement a successful program, SNEM must make a commitment to the following general guidelines of public health communications:

1. Commitment to planning an integrated program based on close coordination of communication rather than piecemeal production of materials.

2. Commitment to (including funding for) pretesting, monitoring, developmental investigation, and communication planning.

3. Commitment to training of all health education staff in the areas of materials development and testing; social research; and educational broadcasting.

4. Commitment to developing a long term strategy which is modifiable but consistent over time, thereby avoiding quick (but unrealistic) solutions or flashy campaigns.

5. Commitment to defining through research what the problems really are, whom they affect, how those people understand and respond to the problem, what obstacles they are likely to encounter, and how the audiences can be influenced to change.

6. Commitment to monitoring the project through repeated mini-evaluations of selected outputs to determine whether the strategy is working and if changes need to be made in the approach.

B. The Target Population

One of the first steps in planning the HE/CP program is identification of the target population, defined as the group of individuals in whom behavioral change is desired. In the case of A. aegypti control in Guayaquil, the target population consists primarily of the estimated 80,000 families living in neighborhoods with significant concentrations of A. aegypti and/or breeding sites. However, other community groups will be asked to participate in the control program. Thus, the target population has been divided into the following subgroups on the basis of educational level and potential role (function) in relation to the program:

1. Housewives - who are largely responsible for housekeeping (including outdoor patios) and water cleanliness.

2. Teachers - school directors and teachers working in city schools are a facilitator group because of the influence they exert.

3. School children - the elementary school population in the project's areas because they are often responsive, and also to begin to inculcate new attitudes/behaviors in future generations.

4. Neighborhood business owners/managers whose businesses contain possible breeding sites.

5. Organized groups - community committees and other groups and organizations such as the Red Cross.

6. Workers - SNEM's visitadores and supervisors participating in the A. aegypti program.

7. Health personnel - personnel working in urban health centers.

8. General audience - radio program listeners or those affected by any of the other mass media.

C. Program Goals and Objectives

One of the most important steps in HE/CP planning is that of establishing the program's goals and objectives. The program goals are general statements regarding the broad aspirations of the program. The objectives are the specific, measurable outputs which the program activities are designed to achieve. In the A. aegypti HE/CP program, the following tentative goals and objectives have been established. After the health education team is in place and preliminary research on knowledge, attitudes and practices (KAP) of the target population has been completed, the technical committee should refine these goals and objectives. That is to say, the results of a KAP study will reveal current audience beliefs and behaviors with respect to source reduction and personal protection. Following the analysis of the KAP study, the objectives should be reviewed to ensure that they address all of the changes in knowledge, attitudes and behavior necessary for program success.

C.1 Goals

1. To develop SNEM's institutional capacity to implement a systematic communications program within the A. aegypti control program designed to change health behavior with respect to source reduction and personal protection against urban mosquitos.

2. To reduce the risk of an outbreak of dengue in Guayaquil through popular participation in source reduction.

3. To contribute significantly to the prevention of urban malaria transmission through improved personal protection and source reduction.

C.2 Tentative Objectives

The program objectives refer to the specific desired outcomes of the HE/CP activities. In developing program objectives related to behavioral change, it is best to consider: which of the many desirable behavioral changes are important enough to make a difference and are also susceptible to change? Susceptible to change means people must:

1. Have ready access to any new resources required to adopt the behavior (i.e., Abate granules or mosquito nets);

2. See positive benefits from adopting the behavior; and,

3. See no serious negative effects from adopting the behavior.

Generally, preliminary research is required to answer these questions. Key informant interviews with community leaders and/or focus group interviews with representatives of urban barrios represent two qualitative research techniques which can be combined with quantitative preliminary research (KAP survey) to shed light on these issues. It is essential to perform such developmental investigation prior to finalizing the program objectives.

With this in mind, the following tentative program objectives have been developed. The first set are objectives designed to strengthen SNEM's institutional basis for educational activities and the second set describes desired behavioral changes in the audience after one year.

C.2.A. Institution Building Objectives

1. Training all SNEM visitadores and supervisors in techniques of community participation, basic aspects of health communications, and the application of educational materials produced by the project.

2. Training all SNEM educators, the SNEM research coordinator, an artist, and selected educational counterparts in the Ministries of Health and Education in the basics of public health communication including developmental investigation, setting goals and objectives, designing educational content, choosing the media mix (mass, print, face-to-face), materials design/pretesting and redesign, and program monitoring and evaluation.

3. Introducing health communications in at least 50% of all primary schools in target neighborhoods (Febres Cordero, Letamendi, Garcia Morena, and Urdaneta) in the areas of personal protection and source reduction.

4. Participation of organized community groups in educational activities and distribution (and placement) of Abate granules in drinking water tanks.

5. Coordination of activities of health communication with the Guayaquil offices of the Ministries of Health and Education.

C.2.B. Objectives Related to Audience Behavioral Change

At the end of the first year of project activities, the following behavioral objectives should be achieved:

1. 75% of housewives in target areas should be able to identify the following as mosquito breeding sites: flower vases, drinking water storage vessels (tanques), empty bottles and plastic containers, used tires, empty cans and jars, and other items that can collect and hold water;

2. 75% of housewives in target areas will perform the following activities on a regular basis:

   a. empty/change water in flower vases each week;
   b. rid the house/patio of used container breeding sites (empty bottles, tin cans and plastic containers);
   c. Keep all used tires and wash basins in sheltered areas protected from rainwater;
   d. Use an adequate cover on large drinking water vessels.

3. A 33% increase in percentage of families in target areas who own mosquito nets;

4. 75% of families in target areas who own mosquito nets will use them regularly and properly;

5. 75% of all families in target areas will properly use and conserve Abate granules in drinking water containers;

6. All families in target areas will open doors and windows during ULV spraying;

7. 75% of housewives in target areas will recognize the symptoms of malaria and know where to go for treatment; and

8. 75% of people with malaria symptoms will seek testing and treatment.

D. Developmental Research

Public health communications programs are based on systematic, repeated research with the intended audience. The initial research is designed to assess the audience's current knowledge, attitudes and practices (KAP) with respect to urban mosquito control. This information is needed as: 1) a basis for program planning and message development, and 2) as baseline information against which program success can be measured in the future (i.e., ability of program to positively change audience KAP). The audience KAP is determined through a representative sample survey. Described below are the activities which must be completed as part of the KAP survey. Given the relative complexity of conducting surveys, it is strongly recommended that SNEM subcontract the KAP survey, sampling design, and data analysis to an experienced professional group (see Annex A for a list of potential candidates).

D.1 The KAP Survey

a. The questionnaire should address the following issues:

1. What does the audience know with respect to disease transmission (particularly malaria), and methods of prevention (i.e., source reduction)?

2. What are the audience's positive, negative or ambivalent attitudes toward certain behaviors (i.e., source reduction or use of nets)?

3. What are the perceived benefits of behavior change?

4. Who seeks treatment for malaria (fever) and where?

5. Which radio stations are most often listened to and at what times of the day by housewives?

6. Socio-economic status (income, housing, employment, education, etc.)

b. Hire and train interviewers. Each interview should take no more than 30 minutes, permitting each interviewer to conduct 10 per day, allowing time to get from house to house and to review work for errors. Thus, a team of 12 can complete approximately 120 interviews per day. In two weeks (10 working days), an estimated 1,000 questionnaires can be completed.

After the interviewing team is hired, they must be trained in interviewing techniques and in properly selecting the interviewees based on the sampling frame. It is suggested that a two-stage cluster sample be drawn. In the first stage, clusters of city blocks would be randomly selected, and in the second stage, ransom selection of families within the clusters would be selected for interviewing.

c. Pretesting the questionnaire. The KAP questionnaire should be pretested prior to final printing and distribution. Pretesting can be a good training exercise for the interviewing team. Pretesting is generally geared toward two goals: 1) to ensure that questions are clearly understood by the target populations, and 2) that the responses will demonstrate sufficient variation within the target population to allow bivariate and multivariate analysis. It is recommended that approximately 50 - 100 interviews be conducted as part of the pretest. Depending on the results, the questionnaire should be revised.

d. Fieldwork - The interviewing team should be closely supervised in the field by a team of 2 field supervisors. The supervisors should review the completed questionnaires each day and ensure that the sampling frame is properly adhered to.

e. Data Entry and Analysis - Because of SNEM's lack of computer facilities, the analysis of the KAP survey must be contracted (preferably to the same contractor who handles the questionnaire pretesting and fieldwork).

D.2 Complementary Qualitative Research

In order to generate more in-depth information, particularly on attitudes which might inhibit behavioral change, the SNEM educators and/or subcontractor should perform two qualitative research projects. First, in-depth interviews with knowledgeable

community leaders, such as teachers, leaders and health professionals. Second, 5 or 6 focus group sessions should be held with housewives from different socio-economic strata. Each group should be as homogeneous as possible with respect to income, race/ethnicity, place of residence, type of housing, water, etc. These focus group interviews should be conducted AFTER the training seminar on "Focus Group Interviewing Techniques" has been completed. Focus group interviewing is a highly specialized type of qualitative research which is effective when conducted by trained moderators.

D.3 Identifying Community Groups and School Teachers

The SNEM health educators (and if hired, the community development specialist) should spend considerable time in the field identifying potential collaborators (community organizations) and enlisting their support. In particular, active cooperatives, boy scouts, the Red Cross, Lions Club, etc. should be contacted. In addition, all primary schools in the target neighborhoods should be visited to gain the support of school administrators and teachers. Selected teacher should be asked to assist in developing materials for primary teachers.

E. Program Design

Comparing real and ideal behavior is the first step in developing the final plan for HE/CP in A. aegypti. The set of behaviors that SNEM wants the target audience to practice as a result of the communications program is defined by comparing what the audience currently does with the list of ideal behaviors. The educators will have to identify (based on the results of the KAP and qualitative research) what are the constraints to changing current behaviors to the ideal behaviors; solutions to these constraints are addressed in the communications strategy (i.e., the message content).

In light of the results of the developmental research, the SNEM education team will be able to prepare a final plan for A. aegypti education. The tentative program goals and objectives should be reviewed and revised (if necessary). In addition to the final program goals and objectives, the final plan should include a description of the communications strategy (channels of communication which will be used and the message content of each) and a project time line. A draft of both of these is provided as a guide for the malaria education team. Once the team has completed the final plan, it should be presented to the Technical Committee for review and approval.

E.1 Communications Strategy

It is strongly recommended that the communications strategy should employ radio, printed materials, and face-to-face communications. The chart below presents a potentially useful media mix. It is intended to serve as an example and should be modified freely by SNEM in line with final program goals and objectives:

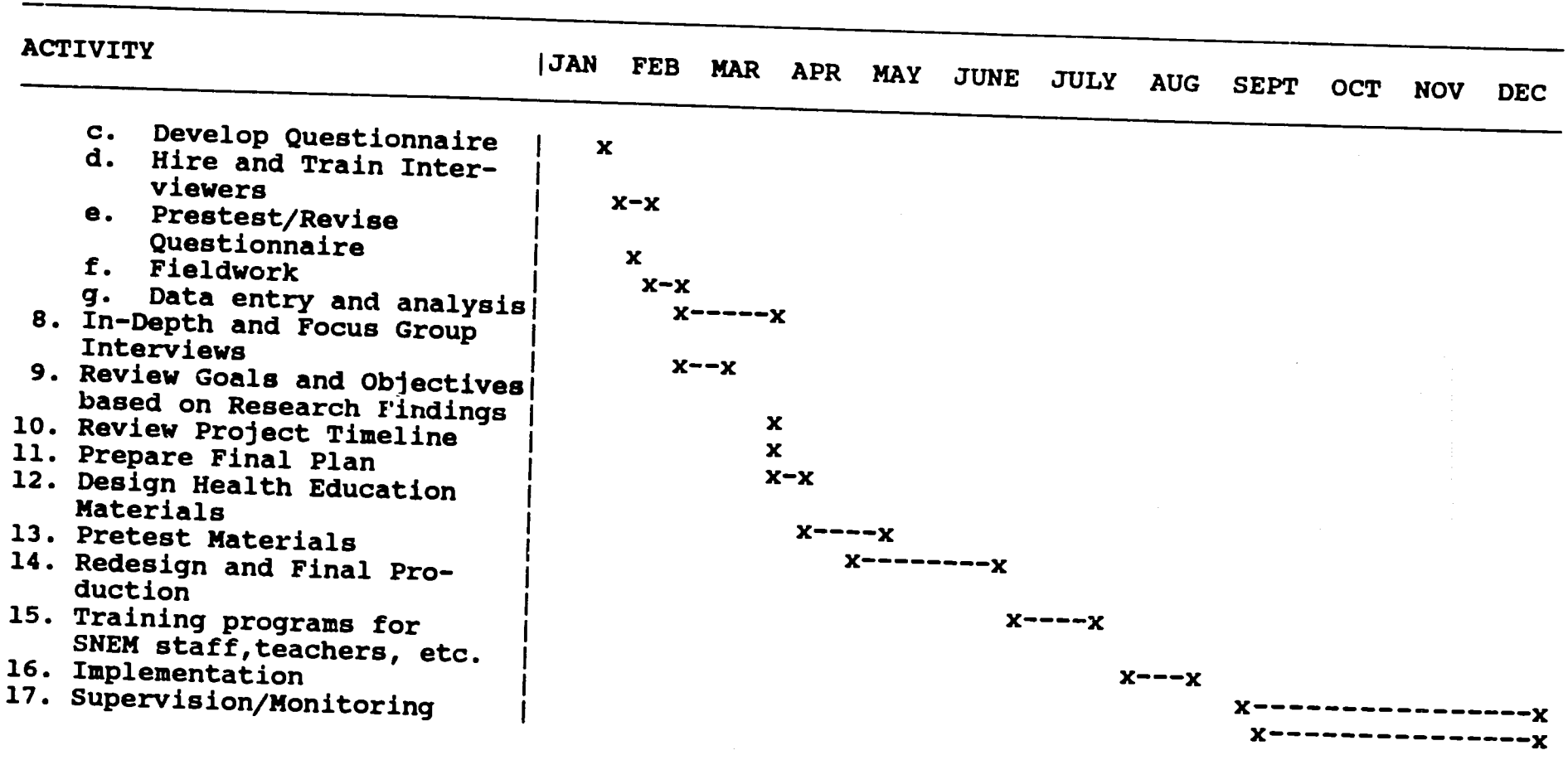
	COMMUNICATIONS CHANNEL			
SAMPLE MESSAGE	ROTAFOLIO	FLYER	CHILDREN'S BOOK	RADIO ETC.
1. Leave doors and windows open during ULV spraying	X	X	X	X
2. ULV schedule				X
3. Place and conserve Abate granules in large water containers	X	X		X
4. Tightly cover drinking water tanks	X	X	X	X
5. Sleep with mosquito net	X	X	X	X
6. Mosquito as a vector of disease	X	X	X	X
7. Malaria symptoms	X	X	X	X
8. Identify and eliminate A. aegypti breeding sites	X	X	X	X
etc.				

E.2 Project Timeline

The project timeline is intended to serve as a guide for implementing the HE/CP project in A. aegypti control. The timeline presented below should be followed as closely as possible. It is the operational blueprint of the communications activities. The timeline can be revised subject to approval by the Technical Committee.

PROJECT TIMELINE - 1988

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1. Contract new Personnel	x											
2. Form Technical Committee	x											
3. Technical Committee meets	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4. Basic Research												
a. Library Development	x-------->											
b. Study on Effectiveness of Mosquito Impregnated Nets		x-------->										
c. Classification of Positive <u>aegypti</u> containers by type						x						
d. Identify Community Groups, Schools, etc.		x------x										x
e. Design Cover for water		x-------->										
5. Staff Training Seminars												
a. Techniques of Community Participation		x										
b. Conducting Focus Group and In-Depth interviews		x										
c. Social Marketing		x										
d. Developing and Pretesting Printed materials			x									
e. Developing and Pretesting Radio Programs			x									
f. Operational and Evaluation Research				x								
6. International Study Tour				x-x								
7. KAP Studies												
a. Identify subcontractor	x											
b. Develop program plan and budget	x											


ACTIVITY
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
c. Develop Questionnaire
d. Hire and Train Interviewers
e. Prestest/Revise Questionnaire
f. Fieldwork
g. Data entry and analysis
8. In-Depth and Focus Group Interviews
9. Review Goals and Objectives based on Research Findings
10. Review Project Timeline
11. Prepare Final Plan
12. Design Health Education Materials
13. Pretest Materials
14. Redesign and Final Production
15. Training programs for SNEM staff,teachers, etc.
16. Implementation
17. Supervision/Monitoring

F. Design of the Health Educations Materials

Draft print and radio materials as well as training courses are designed based on the implementation schedule and communication objectives. Several formats should be developed for testing so that the best possible combination of communications channels can be developed. The educational content of the messages should emerge from the list of ideal behaviors (see above). SNEM should attempt to develop a coherent theme or motif for the educational messages. For example, a talking mosquito who can be the conveyer of both radio and print messages (especially for primary children) should be tested for potential effectiveness.

G. Materials Pretesting

Draft materials and training modules are tested with the target audience(s) to ensure that they are understandable, effective, and attractive. The term pretesting is used to describe the process of systematically gathering target audience reactions to messages and materials before they are produced in final form. Pretesting can determine which of several alternative executions of an item may be most effective. Or, it can identify the strengths or weaknesses in single executions. The findings can be used to revise and improve materials before they are distributed to target audiences. Pretesting of messages and materials are usually designed to assess their effectiveness in the following categories:

1. Attention - Does the message attract and/or hold the audience's attention?

2. Comprehension - Is the message clearly understood? Are the main points conveyed?

3. Personal Relevance - Does the target audience perceive the message to be personally relevant?

4. Believability - Is the message and/or its source perceived as believable?

5. Acceptability - Is there anything in the message that may be offensive or unacceptable to the target audience?

H. Redesign and Final Production

Modifications are made in the materials and training based on the test results. SNEM should not hesitate to repeat the pretesting exercise on second or even third drafts of materials. It is absolutely essential that the current SNEM staff be closely

supervised throughout the development, testing and final production of materials.

As noted previously, SNEM will have to contract an artist to do the drawings for the print materials. The drawings should also be tested for clarity, attractiveness and effectiveness.

I. Implementation

This step includes the implementation of training programs for teachers, SNEM staff, and any community groups who will be involved in materials distribution or face-to-face communications. Once training is completed, SNEM educators will initiate the distribution of print materials, broadcasting the radio spots, and other related activities (such as mass distribution of Abate granules with the help of the Red Cross, boy scouts, etc). The key to this step is that all of the products, materials and trained personnel are in place and interacting with the target audience in a mutually supportive manner.

J. Supervision and Monitoring

These two activities will allow SNEM to detect problems, to implement timely corrective measures, and to verify compliance with the proposed tasks. Discrete monitoring research, using the same operational research techniques applied in the developmental investigation, determines the changes in audience KAP and allows SNEM staff to reprogram or readjust messages and materials as needed. The importance of repeated audience research cannot be overemphasized.

ANNEX 1-A

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ANNEX 2

GUIDELINES FOR DEVELOPING A MALARIA EDUCATION PLAN

I. BACKGROUND

SNEM's approach to malaria education has been piecemeal due to its lack of trained staff and its failure to perform audience research and comprehensive strategic planning. Activities have included occasional development and distribution of isolated brochures, but such materials are not part of a long term strategy to provide specific information to a well-defined target audience. SNEM has not been able to integrate various communication channels (radio, print, face-to-face) around a single set of coherent themes, failing to maximize the potential strength of each message/channel.

SNEM currently faces severe institutional limitations to improving its malaria education program:

1. Severely limited human resources - a staff composed of one full time and one part time educator is insufficient for the magnitude of work needed to develop and implement the malaria education program. Because of the priority SNEM must give to controlling A. aegypti in Guayaquil to reduce the severity of a potential dengue fever outbreak, SNEM must assign both educators to A. aegypti education, leaving no available staff for malaria education.

2. SNEM has not conducted any of the sociological research including KAP (knowledge, attitudes, and practice) surveys or hired the sociological consultants as called for in the original A.I.D. Project Paper:

	YEAR	RESEARCH PROJECT	BUDGET
1.	1985	KAP (1 month)	$ 15,000
2.	1985	Sociologist (consultant)	15,000
3.	1986	Sociologist (consultant)	7,500
4.	1986	Extended KAP	10,000
5.	1987	Sociologist KAP	5,000
6.	1987	Sociological study to define and evaluate HE interventions	20,000
7.	1988	Sociologist (KAP)	10,000
8.	1988	Study HE system to define most effective interventions	15,000
9.	1989	HE study	30,000
		TOTAL	$127,500

Most of these studies are to be conducted through local contracts. Given this situation, the consultant recommended that SNEM consider the possibility of developing a subcontract for malaria education activities, using the $127,500 which have not been disbursed rather than funding a series of potentially disjointed research projects. This idea was accepted in principle by both USA advisor Arellano and SNEM Director Reyes, however the consultant's inquiries regarding potential funding for the subcontract were not answered.

The consultant identified potential subcontractors (see trip report) in Quito and Guayaquil and determined that communications specialist Dr. Marco Encalada was most appropriate because of his training and experience, as well as his ability to commit sufficient time to the project.

II. GUIDELINES FOR A MALARIA EDUCATION PROGRAM

The following general guidelines have been developed to assist SNEM/subcontractor in designing and implementing a malaria education program. The subcontractor will be responsible for developing the final plan based on repeated audience research.

A. Pilot Project in Quevedo

SNEM was recently approached by Quevedo Hospital and the Asociación de Productores de Ciclos Cortos (APROCICO) to assist them in implementing a malaria education program. These two organizations can arrange for materials distribution through already existing channels: radio, school teachers, health personnel, and community organizations. However, they need assistance in developing an appropriate mix of educational materials and an implementation plan.

At the present time, SNEM is not in a good position to assist them because of its lack of personnel and experience. It is therefore recommended that the malaria education program developed by SNEM/subcontractor have a strong initial focus in Quevedo. That is to say, Quevedo should be selected as one of the sites for baseline KAP research, materials development and testing, and early implementation. Quevedo could serve as a testing ground for the malaria communications strategy while it is being developed. Because of the counterparts in Quevedo, SNEM will have a relatively strong local base for program activities which it lacks in other areas. As counterparts are developed in other regions, the program should be expanded as quickly as possible. Extreme caution should be taken to ensure that Quevedo receives appropriate assistance from SNEM, but does not become the only malaria education program.

B. Responsibilities of the Subcontractor

Dr. Encalada has been briefed by Reyes, Arellano and O'Connor (November 24, 1987) regarding the history of SNEM's malaria education program, the desired focus of the new program, and the need for developmental research. If awarded the subcontract for the malaria program he has agreed to follow the strategy presented below: the final plan for malaria education will depend on budget considerations which the subcontractor, SNEM and the USA representative will determine. The consultant was not able to find out from the USA representative what the level of funding would be.

1. Diagnosis - consisting of KAP surveys, in-depth interviews, and focus group interviews in selected project areas. A draft of the KAP survey has been provided. The diagnosis will determine the focus of the educational program.

2. Presentation of a written profile which will include a summary of the current KAP, central program objectives, and potential activities. This report will be presented to SNEM and to the Quevedo group for commentary and necessary revisions.

3. Development of a Formal Plan for Malaria Education in Quevedo and other coastal communities. This plan will include the operational plan, timeline, and final budget; it will be subject to review by SNEM and the Quevedo group. The operational plan will describe the communications strategy (radio, print materials, face-to-face) and message content.

4. Design and pretesting of materials - to be done in Quevedo and other selected coastal sites.

5. Training local personnel in Quevedo (teachers, health educators, promoters, agricultural extensionists, etc.) in public health communications activities. If counterparts have been identified in other areas, additional training activities will be conducted.

6. Supervision of the project for six months following implementation of the operational plan.

7. Evaluation of the effectiveness of the Quevedo pilot project through a second KAP survey.

C. The Focus of the Malaria Education Program

The subcontractor will be responsible for the development of the preliminary research protocol, the educational goals and objectives, and the specific media mix (selection of media channels and message content). The malaria education program which is developed should have a clear focus which is easily promoted through mass media (radio) and which is consistent with SNEM's overall malaria control strategy. Currently SNEM's strategy focuses on residual spraying as a primary preventive intervention and treatment/testing of fever cases as a curative strategy. In addition, SNEM officials would like to see greater community participation in source reduction and personal protection. Given these considerations, the following general guidelines for developing the program focus are offered:

1. Preliminary research should focus on the following topics

   a. What is known about malaria?
   b. What are the misconceptions regarding its transmission, prevention?
   c. What are the existing positive, negative or ambivalent attitudes toward preventive and curative behavior?
   d. What is the understanding of how insecticides work?
   e. What are the perceived benefits of behavior change (e.g., leaving walls after spraying, using nets, etc.)?
   f. Who seeks treatment for fever?
   g. What is the level of treatment compliance?
   h. What radio stations are listened to at what times?

2. This research should be done in carefully selected communities which are representative of the various subpopulations affected by malaria. Particular attention should be given to Esmeraldas, Manabi and Guayas, which are SNEM's stated priority zones.

3. The education program should not promise services which SNEM cannot deliver. In particular, SNEM cannot promote the services of voluntary collaborators (particularly in Esmeraldas) if it cannot reduce the delay in obtaining results of the analyses of the blood smears. SNEM should perform a thorough analysis of the problem and develop mechanisms to improve turnaround time.

4. Repeated audience research will be necessary throughout the development and pretesting of messages. This research should focus on the potential impact of the message in changing negative behavior and reinforcing positive behavior. Focus group interviews will be the technique of choice and should address the following concerns:

    1. Audience comprehension of the message
    2. Audience recall of important point(s)
    3. Attractiveness
    4. Personal Relevance
    5. Identification of sensitive, controversial elements
    6. What are the strong and weak points of the message (believability)?

5. Quevedo research projects:

It is strongly recommended that SNEM give serious consideration to a series of six basic research projects which have been proposed by APROCICO. Brief project descriptions are included as Annex 2-A. The research which is being proposed is low-cost, basic research which will allow SNEM to improve the basis for malaria education activities. At the present time, SNEM's malaria control strategy is exclusively based on residual spraying and treatment of fever cases, a strategy which reflects the old school malaria eradication philosophy If SNEM is truly going to move toward a control strategy then it must begin to think about more cost-effective methods of mosquito and malaria control. A serious attempt to move into new territory should be devised on the basis of empirical research. Thus, the APROCICO projects could contribute heavily toward SNEM's goal of developing cost-effective, community-based control strategies over the long term. In particular, the APROCICO interest in testing new control strategies (impregnated nets, mosquito coils, and drainage) should be given serious consideration.

ANNEX 2-A

PILOT PROJECT FOR MALARIA CONTROL IN QUEVEDO
OUTLINE OF PROPOSED ENTOMOLOGICAL STUDIES

I. SURVEY OF MOSQUITO FAUNA IN CANTON QUEVEDO

A. Light-trap collections
B. Collections in houses
C. Collections of immatures

A necessary first step toward the ultimate goal of vector control is a thorough qualitative and quantitative mosquito survey. Sampling would be carried out at the same locations where blood collections are made in order to compare incidence of malaria with that of particular vector species. Goals of the three sampling procedures include: A. (light-trap) relative numbers and flight habits of adults near dwellings, B. (houses) incidence and habits of mosquito pests indoors, C. (immatures) incidence and habits of mosquito immatures in their breeding sites around settlements.

II. CONTROL

A. Efficacy determination for existing SNEM practices
B. Resistance monitoring
C. Testing of additional control methods

A. Existing control practices carried out by SNEM (Servicio Nacional de Malaria) consist of biannual sprays of DDT in a portion of rural dwellings and periodic ULV sprays of malathion in urban areas. In order to determine the efficacy of these practices, adult mosquitoes would be sampled (as in I, A and B) before and after treatments and in treated and non-treated areas. Again, entomological and malarial incidence data would be compared.

B. Of primary concern is possible resistance to insecticides presently used in mosquito control, i.e., DDT and malathion. It would be advisable to also monitor resistance to insecticides currently used by agriculture in the area in anticipation of the eventual need for changes in control practices. Resistance monitoring "kits" available from WHO could be used, at least initially.

C. Initial studies could include: (1) use of insecticide-impregnated mosquito nets, (2) mosquito coils, (3) control of immatures by drainage and/or treatment of breeding sites. Again, the sampling procedures of (I) along with blood data would be used to determine efficacy.

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