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An Assessment of Health Education Materials
for Control of Dengue and Malaria
in Honduras

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by

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—Linda S. Lloyd

ACRONYMS

ColVol	Volunteer Collaborator (in malaria program, working in rural areas) (<i>Colaboradores Voluntarios</i>)
DES	Division of Health Education
DETV	Department of Vector-Borne Diseases of the Ministry of Health (<i>Departamento de Enfermedades Transmitidos por Vectores</i>)
DHF	dengue hemorrhagic fever
DSS	dengue with shock syndrome
EHP	Environmental Health Project
IEC	information, education, and communications (plan)
MdeS	Ministry of Health (<i>Ministerio de Salud</i>)
MEP	Ministry of Public Education
PAHO	Pan American Health Organization
PNM	National Malaria Program (<i>Programa Nacional de la Malaria</i>)
Proyecto CID	Integrated Dengue Control Project of the Ministry of Health
RSM	Metropolitan Sanitary Region (<i>Región Metropolitana Sanitaria</i>)
TSA	Environmental Health Technician (<i>Técnicos de Salud Ambiental</i>)
UCI-DETV	Institutional Coordination Unit-DETV (<i>Unidad de Coordinación Institucional</i>)
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Due to a steadily increasing number of cases of both dengue fever and malaria, USAID/Honduras and the Honduran Ministry of Health have developed a two-year program targeting both diseases for intensified prevention and control efforts as part of USAID's Infectious Disease initiative.

Since 1992, there has been a steady increase in the number of reported cases of dengue fever. In 1995, a major epidemic resulted in 27,560 reported cases of dengue, 15 reported cases of dengue hemorrhagic fever (DHF), and 3 deaths due to DHF. After a significant decrease in the number of cases during 1996 (7,482), an equally significant increase was seen in 1997, with a total of 15,568 reported cases of dengue and 10 reported cases of DHF. The epidemic has continued into 1998, and at the time of the consultant's visit (October-November 1998), over 18,500 dengue cases had been reported, at least 18 cases of DHF reported, and 4 deaths due to DHF during the year.

There was also a steady increase in confirmed cases of malaria between 1994 and 1996, with a total of 61,736 cases in 1994; 74,346 cases in 1995; and 91,799 cases in 1996. Data for 1997 are incomplete due to underreporting during the last four months of the year (only 182,475 slides were taken, compared to 305,167 in 1996). Data reported so far for 1998 indicate that the delays in reporting and the pattern of taking fewer slides continue, since only 130,254 slides had been taken through the end of September 1998.

Because dengue and malaria result from environmental conditions favorable to the creation and maintenance of vector breeding sites, USAID/Honduras has been working with the Ministry of Health to develop an integrated environmental health approach for their prevention and control. This report describes the development of an integrated communications plan to increase community participation in the prevention and control of two vector-borne diseases, dengue and malaria, by the Institutional Coordination Unit (UCI) of the Department of Vector-borne Diseases (DETV) at the Ministry of Health. (These are two of the four diseases within the purview of DETV, the others being Chagas and leishmaniasis.)

The consultant reviewed the educational

materials produced by the UCI-DETV and made recommendations for revisions and distribution. While the dengue program has a variety of materials available, there are very limited educational materials regarding malaria. The consultant drafted a detailed two-year integrated communications plan for dengue and malaria (*Plan integrado de comunicación para la prevención y control de las enfermedades dengue y malaria, transmitidos por vectores, 1999-2000*), for implementation beginning in 1999. Recommendations for implementation of the plan follow.

General recommendations

1. Due to the limited staffing of the Institutional Coordination Unit (the head of the unit plus an assistant who started work in August 1998) and the key role this unit plays in the development, production, and implementation of all IEC activities for the four diseases addressed by DETV, short-term technical assistance should be obtained for the head of the UCI-DETV for at least the first six months of this project, given the intensity of work to be accomplished to get the project underway. The individual hired for this short-term consultancy must be a Honduran national, have a bachelor's degree in either social work or pedagogy and have experience working in health.
2. Due to the number of activities to be implemented simultaneously as part of the plan, a consultant should be brought in for a one-month period during the second trimester of the work plan, if at all possible, to assist the UCI-DETV in systematizing information collection, organizing materials production, overseeing development of radio and TV spots, and staging the communications events. Given the multiple tasks expected of this individual, USAID or EHP should consult with the author of this report or the head of the UCI-DETV regarding the identification of such a consultant. The consultant should be a Latin American with experience in managing all aspects of a community-based dengue control

program.

3. Due to the inadequate capabilities of the UCI-DETV computer, one of the computers to be purchased through the USAID/Honduras Infectious Disease initiative should be assigned to the UCI-DETV. This computer should contain updated versions of standard software programs, such as WordPerfect, a current anti-virus program, and a database/statistical analysis program such as EpiInfo (produced by CDC, in both English and Spanish). The computer equipment should also come with an uninterrupted power supply, given the frequent problems with interrupted electrical supply.
4. Given the investment of funds through this project in the purchase of computers (7) and the current infestation of all computers at the DETV offices with viruses because the anti-virus program is over one year old, USAID should require that the DETV provide routine maintenance to the computers and update anti-virus programs on a regular (at least semi-annual) basis. This precaution would prevent the loss of information and documents, which has already occurred on at least two occasions.
5. Because DETV personnel lack sufficient computer skills, a person with database design and data-entry skills should be hired for short periods of time to help the UCI-DETV set up its databases, train staff, and enter data as necessary.
6. Given the inadequate space allotted to the UCI-DETV (office is too small; water leaks in when it rains), a secure and accessible space for storage of educational materials and equipment needs to be identified by the DETV and the UCI-DETV before any materials are produced.
7. USAID should continue to facilitate the interchange of ideas, information, and

experiences between Central American countries with similar levels of dengue and malaria. Such interchanges stimulate creativity, provide a source of professional support, and save time and energy if ideas can be tested and shared among neighboring countries of the region.

Specific recommendations by area

1. Due to what appears to be a decision to consolidate production of radio and TV spots at the central Office of Publicity, radio spots have been produced for dengue without the participation of either the DETV or the UCI-DETV. This is particularly worrisome given the lack of technical expertise in vector-borne disease in the Office of Publicity and the companies contracted to design and produce the spots. For maximum benefit, all dengue and malaria messages, whether they be visual or verbal, should be produced within an integrated framework so that there is coherence and consistency between all communication channels and messages.
A meeting should be held with representatives of the DETV, UCI-DETV, National Malaria Program (PNM), the Office of Publicity, and USAID to discuss with the central office what the goals and objectives of the integrated communications plan are and how coordination of activities will benefit the different departments involved.
2. There is a serious lack of information on many aspects of the National Malaria Program, and the head of the PNM is interested in a program evaluation prior to the start of training activities to be conducted through the USAID Infectious Disease initiative. To accommodate these needs, a consultant (or a team of two consultants) should be contracted to conduct an in-depth evaluation of the malaria program, with special emphasis on the Volunteer Collaborator (or CoVol) component.

RESUMEN EJECUTIVO

La Agencia de Desarrollo Internacional de los Estados Unidos (USAID)/Honduras y el Ministerio de Salud de Honduras han desarrollado un programa intensificado de prevención y control de las enfermedades de dengue y malaria en respuesta a la subida constante en los números de casos, como parte de la iniciativa de enfermedades infecciosas de USAID. Este programa se llevará a cabo por un periodo de dos años.

Desde 1992, el número de casos reportados del dengue ha subido constantemente; en 1995 se detectó una epidemia a nivel nacional, con 27,560 casos reportados del dengue, 15 casos reportados del dengue hemorrágico (DH) y tres muertes por el DH. Después de una reducción en el número de casos durante 1996 (7,482), en 1997 el número de casos reportados del dengue empezó a subir otra vez, resultando en otra epidemia a nivel nacional con un total de 15,568 casos reportados y 10 casos reportados de DH. Este epidemia se ha continuado durante 1998, con un total de 18,500 casos reportados, por lo menos 18 casos de DH, y 4 muertes por DH hasta la fecha de la visita de la consultora de EHP (26 de oct. al 9 de nov., 1998).

En cuanto a la situación con la malaria, también se ha visto en Honduras una subida constante en los números de casos confirmados de la enfermedad, con un total de 61,736 de casos en 1994, 74,346 casos en 1995, y 91,799 casos en 1996. La información para 1997 no está completa por la falta de reportaje y toma de muestras durante los últimos cuatro meses del año (solamente tomaron 182,475 láminas comparado a 305,167 láminas tomadas en 1996). Los números de láminas tomadas en 1998 indica que los problemas con retrasos en reportaje y falta de toma de muestras sigue, resultando en solamente 130,254 láminas tomadas hasta el fin del mes de septiembre del 1998.

El dengue y la malaria son enfermedades que propician por las condiciones del medio ambiente favorables a su propagación. La USAID/Honduras ha trabajado con el Ministerio de Salud para desarrollar un enfoque integrado de salud ambiental para la prevención y control de estas dos enfermedades. Este informe incluye una descripción del desarrollo de un plan integrado de comunicación para aumentar la participación comunitaria en la prevención y el control de las

enfermedades transmitidos por vectores, el dengue y la malaria, por la Unidad de Coordinación Institucional (UCI) del Departamento de Enfermedades Transmitidos por Vectores (DETV), del Ministerio de Salud.

Se llevó a cabo una revisión extensiva de los materiales educativos producidos por la UCI-DETV, resultando en recomendaciones para cada tipo de material. Mientras el programa nacional del dengue cuenta con una variedad de materiales educativos, el programa nacional de la malaria carece de casi todo tipo de material. Un detallado plan integrado de comunicaciones para el dengue y la malaria para un periodo de dos años fue desarrollado (*Plan integrado de comunicación para la prevención y control de las enfermedades dengue y malaria, transmitidos por vectores, 1999-2000*), para implementación en 1999. También se incluye recomendaciones para la implementación del plan en este resumen.

Recomendaciones generales

1. Para la UCI-DETV, apoyo técnico profesional además de experiencia en el campo de la comunicación en salud (pedagogía, trabajo social o un periodista con orientación en salud) por un mínimo de los primeros seis meses, tiempo en el cual se desarrollarán acciones con mayor intensidad. El consultor debe ser de Honduras.
2. Para la UCI-DETV, apoyo técnico profesional de un consultor externo para un periodo de un mes en el segundo trimestre del plan de trabajo para apoyar la Jefe de la UCI-DETV en la sistematización de la información formativa y los instrumentos de evaluación, organización de la producción de los primeros materiales, desarrollo de cuñas radiales y anuncios de televisión, y la coordinación de eventos de comunicación. El consultor debe ser de Latino America, con experiencia en la coordinación de todos los aspectos de un programa del control del dengue basado en la participación comunitaria.
3. El nuevo equipo de cómputo que la Unidad de Coordinación Institucional recibirá por el

apoyo de USAID tendrá programas actualizados con ventanas incluyendo un programa antivirus, Wordperfect, una base de datos y una unidad de poder sin interrupciones (UPS).

* Se recomienda el programa EpiInfo, de los Centros de Control y Prevención de Enfermedades (CDC) en Atlanta, Georgia, para la base de datos y el programa estadístico. El programa viene con una base de datos y un programa estadístico en español o inglés. Es un programa sin protección de derechos, entonces es posible comprar una copia (el costo de los diskettes y el manual es alrededor de \$60) y copiarlo a otras computadoras.

4. Se recomienda que USAID requiera del DETV un programa de mantenimiento en forma regular para todas las computadoras compradas (7) por los fondos del proyecto en cuanto a limpieza de la computadora y respuesta a problemas que surgen, y que tendrá un programa antivirus que la DETV actualizará frecuentemente (al menos dos veces al año) para evitar la pérdida de la información (hecho ocurrido en un par de ocasiones).
5. Contrata un programador para el diseño de la base de datos y que capacite al personal disponible por un periodo a corto plazo y capacitar el recurso humano disponible en manejo adecuado de la computadora, incluyendo programa procesador de palabras y base de datos.
6. Local accesible y adecuado para almacenamiento de material y equipo porque en la presente oficina hay una falta de espacio y el agua entra en algunas partes de la oficina

cuando llueve.

7. Se recomienda que la USAID fomente el intercambio de ideas, información y experiencias entre los países de América Central con patrones parecidos de crianza del mosquito y la transmisión de la enfermedad. Este apoyo podrá servir como una forma de apoyo técnico, y ayudará en la prueba de materiales y ideas en diferentes países.

Recomendaciones específicas por área

1. Se recomienda que se lleva a cabo una reunión entre el DETV, la UCI-DETV, el PNM, la Oficina de Publicidad, y la USAID para discutir las metas y los objetivos del plan integrado de comunicación para evitar que la Oficina de Publicidad produce cuñas radiales o anuncios de televisión sin la coordinación de tales materiales de la UCI-DETV.
Cualquier mensaje educativo para los programas del dengue y la malaria debe ser producido dentro de un marco conceptual integrado para asegurar que hay una coherencia entre todos los canales de comunicación y los mensajes específicos.
2. Por la carencia de información sobre los varios componentes del programa nacional para la malaria y el interés expresada por la Jefe de este programa, se recomienda que se lleva a cabo una evaluación comprensiva del programa, con énfasis en el rol de los Colaboradores Voluntarios, antes de que se inicia los entrenamientos planeados.

1 INTRODUCTION

Dengue fever is a viral infection transmitted by the *Aedes aegypti* mosquito. The virus occurs in four distinct serotypes, all four of which are now circulating in Latin America and any one of which may cause “classic” dengue fever. Dengue fever may present with mild, moderate, or more painful symptoms, and successive infections may result in the more severe dengue hemorrhagic fever (DHF) or dengue with shock syndrome (DSS), both of which can be fatal. By the end of 1997, 27 countries in the Americas had reported cases of dengue or DHF to the Pan American Health Organization (PAHO), with over 250,000 cases reported each year in 1995 and 1996, and 397,000 cases in 1997 (Arata 1998).

The *Aedes aegypti* mosquito has adapted well to urban environments, especially in areas and during periods when household water must be stored because of unreliable supply. The mosquito prefers relatively clean water and lays its eggs just above the water level in man-made containers such as barrels, drums, large concrete basins used for washing laundry, and tires. (The mosquito also lays eggs in natural containers, such as plants and shells, but man-made containers are the most frequently used egg-laying sites.) The increasing presence of the mosquito vector in the region and the steadily rising number of cases of dengue fever and DHF have made dengue a priority vector-borne disease.

1.1 Recent History of the Diseases in Honduras

The Department of Vector-Borne Diseases (in Spanish, *Departamento de Enfermedades Transmitidas por Vectores* or DETV) of the Honduran Ministry of Health (*Ministerio de Salud* or MdeS) is responsible for the prevention and control of malaria, dengue, Chagas, and leishmaniasis. Of

these four diseases, most of the activities carried out through the DETV target malaria and dengue, due to the number of cases seen on an annual basis and the impact of large epidemics, especially dengue, on the country. In response to the United States Agency for International Development's (USAID) Infectious Diseases initiative, USAID/Honduras has identified as main targets the prevention and control of malaria, dengue, and tuberculosis through improved surveillance and case detection, and a consistent information, education, and communication program. In accordance with the scope of work for the current EHP activity, this report focuses only on dengue and malaria.

1.1.1 Dengue

Honduras first reported circulation of dengue virus in 1977, with its first epidemic in 1978 (Fernández 1997). Epidemics also occurred in 1987 and 1991; dengue hemorrhagic fever (DHF) was reported for the first time in the country during the 1991 epidemic. Since 1992, there has been a steady increase. A major epidemic occurred in 1995 with 27,560 reported cases of dengue, 15 reported cases of DHF, and three deaths due to DHF (see Table 1). Of 6,739 blood samples tested during the 1995 epidemic, 38.6% (2,601) resulted positive, 6.4% were indeterminate, and 55% were negative for dengue.¹

After a significant decrease in the number of reported cases during 1996 (7,482), an equally significant increase was seen beginning

¹ These data and those in the next paragraph are all taken from DETV 1995, 1996, 1997, and July 1998.

Table 1
Number of Reported Cases of Dengue
(and Incidence Rate per 10,000 Inhabitants
in Urban Areas), by Year

Year	Number of Cases	Rate per 1,000
1992	2,113	7.0
1993	2,687	8.6
1994	4,687	14.6
1995	27,560	82.8
1996	7,482	21.7
1997	15,568	43.7

Source: Fernández 1997 and DETV 1998a.

in mid-1997. A total of 15,568 cases of dengue were reported that year, with 10 reported cases of DHF. Of a total of 2,062 blood samples taken through September 1997, 39% (802) were positive, 21% were indeterminate, and 40% were negative. Data for 1998 indicate that another nationwide epidemic is occurring with an increased number of cases of DHF. At the time of the consultant's visit (Oct. 26-Nov. 9, 1998), over 18,500 reported cases of dengue in 1998, at least 18 reported cases of DHF, and four deaths due to DHF had been reported during the year (interview with the head of DETV, Oct. 26, 1998). Laboratory results were available only for the period January through June 1998, and no additional reports were received during the consultant's visit. Of a total of 528 samples processed, 39% (207) resulted positive, 9.8% (52) were indeterminate, 34.6% were negative, and 16% were still under study. It remains to be seen if the widespread impact and duration of Hurricane Mitch interrupted to any degree the transmission patterns that were evident prior to the hurricane (Oct. 26-Nov. 1).

Because of the alarming number of dengue cases in the 1995 epidemic and a steady increase in the number of malaria cases, a communications plan for the prevention and control of all vector-borne diseases was developed by the Community Participation Unit of the DETV (renamed Institutional Coordination Unit or *Unidad de Coordinación Institucional* [UCI-DETV] in 1996) (DETV June 1995). However, that plan was

never implemented as designed, and subsequent information, education, and communication (IEC) activities have targeted primarily dengue prevention and control activities (e.g., *Dengue attack plan [Plan de ataque contra el dengue]* developed and implemented in February 1998, and the *Dengue prevention and control plan for the Sixth Annual Central American Sports Olympiads [Plan de acción inmediato para el control y prevención del dengue con miras a la realización de los VI Juegos Deportivos Centroamericanos]* developed and implemented in November 1997). A number of campaigns have been designed but never implemented (e.g., *Plan nacional de movilización social por la lucha contra el dengue, Aug.-Sept. 1997; Un verano saludable, April 1998*).

The absence of systematic and continuous IEC activities reduces the longer-term impact which targeted campaigns could have. There are often several reasons for this:

- The populace usually does not receive regular reinforcement messages.
- If messages about dengue are broadcast or posted only during epidemic or emergency situations, residents tend to associate the recommended behavior change strategies as important during epidemics, and not viewing dengue as an endemic problem which calls for permanent behavior changes.
- Sporadic messages and activities during epidemics often focus on immediate emergency measures, not routine activities

that need to be incorporated into household patterns over a long period of time.

1.1.2 Malaria

The National Malaria Program (PNM) has been the key element of DETV activities since its formation because of the magnitude of the malaria problem and the difficulty of controlling the principal breeding sites of the vector (interview with the head of the PNM, Oct. 31, 1998). An examination of the annual incidence of malaria over time indicates that although the rate declined in the mid-1980s, since 1989 it has been between 12.5/1,000 habitants in malarious zones (1989) and 20.4 in 1996 (Table 2) (DETV 1998b). Data for 1997 are incomplete due to a lack of reporting and a reduced number of blood smear slides taken during the last four months of the year, among other problems. However, it is estimated that there were at least 78,000 cases of malaria (Fernández 1997) and possibly as many as 93,000 in 1997, resulting in an estimated incidence rate of 17/1,000.

There has been a steady increase in confirmed cases of malaria between 1994 and 1996, with a total of 61,736 cases in 1994; 74,346 cases in 1995; and 91,799 cases in 1996 (Fernández Nov. 1997). In 1996, of a total of 305,167 slides examined, 30% resulted positive for malaria; of those, the vast majority were *P. vivax* (98.7%), with *P. falciparum* accounting for only 1.3% of the cases (1,236) (DETV May 1998). Data for 1997 are considered significantly under-reported given the above-mentioned problems (only 182,475 slides taken with a 21% positivity rate). Data reported to date for 1998 indicate that the delays in reporting and fewer slides being taken may have continued, since only 130,254 slides were taken (with a 15.8% positivity rate) through the end of September (DETV October 1998a).

There is no specific plan for communications about malaria between health authorities and the

general public, nor does there appear to have been one in the past few years. The malaria program relies primarily on the use of chemical (ultra-low volume spraying) and biological (*Bacillus sphaericus*) measures, with limited environmental control measures (i.e., drainage), for the control of both adult and larval stages of the vector. Control of the disease is presumptive treatment of suspected cases with antimalarial medications. The National Malaria Program depends heavily on the work of an estimated 7,000 volunteer collaborators (CoIVols), located in rural areas where malaria is a problem. Volunteer collaborators are recruited on an as-needed basis; they must be able to read and write and to be in good standing with their community. The CoIVols are trained by local malaria vector control staff located at each health center. After training, each CoIVol is supposed to visit the health center to deliver blood smear slides and to pick up supplies, primarily antimalarial medication and clean slides; the supervising malaria staff person may also deliver such materials and collect slides during field visits. While PNM staff at the local level are supposed to provide supervision, it is unclear whether this is done on a regular basis. The CoIVol either visits individuals who are ill in their homes or residents go to the home of the CoIVol to have a blood smear taken. Presumptive treatment is initiated if the individual meets the malaria case definition, and follow-up of the case is provided as needed.

According to the Head of the PNM, the CoIVol system is the means by which the National Malaria Program is implemented since there are not enough staff at the local or regional levels to carry out the various aspects of such a comprehensive program. This shortage can be seen in the proportion of slides submitted for analysis to the nearest health center: the CoIVols submitted 98% of the slides, and the health center itself, only 2%. The positivity rate for slides submitted by the CoIVols was approximately 24%, with health

Table 2
Number of Cases of Malaria Confirmed by Microscopy (and Incidence Rate per 1,000 Inhabitants of Malarious Areas), by Year

Year	No. of Slides Positive for Malaria	Percent of Slides that are Positive	Annual Parasitic Incidence/1,000 Inhabitants in Malarious Areas
------	------------------------------------	-------------------------------------	---

1980	43,010	24.49	14.22
1981	49,377	22.26	16.23
1982	57,482	17.81	18.25
1983	37,536	11.14	11.52
1984	27,332	6.04	8.16
1985	33,828	8.24	9.71
1986	29,130	7.09	8.03
1987	19,095	4.91	5.26
1988	29,737	7.06	8.14
1989	46,177	11.70	12.49
1990	53,099	12.69	14.31
1991	73,352	15.65	19.33
1992	70,838	15.01	18.05
1993	51,977	13.97	12.75
1994	61,736	17.07	14.72
1995	74,346	19.91	17.14
1996	91,799	30.08	20.35
1997	67,870*	21.83	14.63

Stadistica DETV

Rephonma

* 1997 data are under-reported.

centers around 10% (interview, data entry staff, Oct. 27, 1998); this difference is not unexpected since a wider range of illnesses are seen at health centers, while the ColVols screen only for malaria.

1.2 Scope of Work

USAID/Honduras has identified malaria, dengue, and tuberculosis as the three diseases to be addressed through the Infectious Disease initiative. Because both dengue and malaria are diseases which result from environmental conditions favorable to the creation and maintenance of vector breeding sites, USAID/Honduras has been working with the Ministry of Health to develop an integrated environmental health approach for their prevention and control. The scope of work directed the EHP consultant to develop an integrated communications plan to increase

community participation in the control of the vector-borne diseases, dengue and malaria (see Appendix A, List of Contacts).

The scope of work included the following tasks:

1. Review training and educational materials produced by the Institutional Coordination Unit of the DETV.
2. Review existing information, education, and communications plans, and discuss with national counterparts implementation of such plans at the regional and local level.
3. Work with national counterparts to develop a plan to monitor the effectiveness of the training and educational materials, including use of materials at the local level, dissemination of messages through various

communications channels, and cost of materials production.

4. Review educational materials developed in Guatemala for dengue control.
5. Review materials from Guatemala with the Head of UCI-DETV, and assist in organizing a site visit to Guatemala to exchange information and practical experiences with Guatemalan counterparts.
6. Submit a written report to EHP with recommendations about further development, expansion, and/or improvement of the training and educational materials to be used in the control of dengue and malaria programs.

1.3 Limitations to Completion of the Scope of Work

Due to the impact of Hurricane Mitch, some tasks were only partially completed (see Appendix B for a detailed itinerary with unexpected complications

resulting from the hurricane). For example, a field visit to one of the priority regions for dengue control, San Pedro Sula (Region III), was canceled three days after the EHP consultant's start of work due to the serious flooding and lack of land communication which resulted from the presence of Hurricane Mitch off the coast of Honduras. At that time, no one foresaw that the center of the hurricane would move inland to approximately 50 miles west of Tegucigalpa, resulting in a state of emergency and complete closure of the city for four days.

The heavy rains from Hurricane Mitch led to serious flooding of the city itself, landslides, and severe damage to many buildings in the downtown area. Offices and businesses closed at noon on Friday, Oct. 31, and did not open again until Wednesday, Nov. 5. Due to the national disaster, many of the staff at DETV were called out to meetings to develop emergency plans for the prevention of outbreaks of dengue and malaria. The areas of the scope of work which still need to be completed have been identified in writing and discussed by the EHP consultant with her counterparts in DETV.

2 PRESENT STATUS OF EDUCATIONAL AND TRAINING MATERIALS

2.1 Dengue

2.1.1 Summary

In April 1995, a Pan American Health Organization (PAHO) Dengue Technical Advisory Team visited Honduras to examine the print materials available; the current consultant (author) was a member of that team. Around 1995, considerable energy was put into improving the quality of educational materials. Just before the PAHO visit, a series of materials on dengue were produced using formative research, pre-testing at the community level and through a technical review process, and revision based upon the pre-test results. This series of materials included radio spots, a teacher's guide and student workbooks for dengue prevention, a poster, and a flipchart for each of the four diseases that DETV covers—dengue, malaria, Chagas, and leishmaniasis. The flipcharts are small, with plasticized pages, and very portable. (The flipcharts for Chagas and leishmaniasis were not reviewed in this consultancy. They should be reviewed and revised as needed, in parallel with suggestions made for flipcharts about dengue and malaria.)

In addition to those listed above, other print materials have since been produced as a result of smaller, focused campaigns or in response to the current dengue epidemic. Overall, a wide variety of print materials regarding dengue prevention and control have been produced. Where possible, the consultant collected sample copies for a critical review.

The Heads of DETV and UCI-DETV have been very creative in obtaining outside funding for printing costs since there is little or no money in the DETV budget for educational materials development and production. The Head of the UCI-DETV continues to work towards the production of materials that:

- identify specific behavioral actions to prevent *Aedes aegypti* mosquito breeding (i.e., elimination of principal breeding sites),

- give greater clarity to the specific behavioral actions required for each distinct breeding site, and
- can be used in appropriate communications channels for specific target populations.

This process has required that changes in attitudes and beliefs occur first at the central institutional level before the messages are disseminated to the communities. An example of change required at the institutional level is the entrenched but mistaken belief that bottles and small cans are important breeding sites; entomological data do not support the idea.

The Head of the UCI-DETV has attempted to implement a process for evaluating the materials once produced and in use at the regional and local levels. However, such a process has been neither continuous nor comprehensive due to a lack of human and material resources. It is expected that implementation of the USAID-funded two-year integrated communications program will systematize and institutionalize this process.

2.1.2 Assessment of educational materials

Materials were assessed using the following criteria:

- overall quality,
- accuracy of information presented,
- efficacy of recommended behavior for mosquito control,
- appropriateness of recommended behavior for target population and communication channel,
- appropriateness of communication channel for target population, and
- seasonality.

In addition to the summary below, this information can be found in Spanish in Annex 1 of the *Integrated Communications Plan for the Prevention and Control of Dengue and Malaria, 1999-2000*. This

document can be requested from the EHP office in Arlington, Virginia.

A list of materials reviewed, funding source and date in parentheses, and quantity at the UCI-DETV office as of November 1998 is presented below. Following that list is an assessment of the materials, based on the six bullet points above:

Flipchart

- *Dengue* (DETV/PAHO, 1995), 26 remaining

Posters

- *Management of out-patient cases of dengue and DHF cases* (2 versions - 1st produced by DETV/PAHO, 1996 or 1997, 2nd produced by SmithKline Beecham, 1998), 8 of second version remaining.
- *Treatment for dengue and DHF cases* (2 versions - 1st produced by DETV/PAHO, 1996 or 1997, 2nd produced by SmithKline Beecham, 1998), 19 of second version remaining.
- *Extra strong Panadol®* (brand name for acetaminophen, SmithKline Beecham, 1998), 23 remaining.
- *Dengue can be fatal* (2 versions - both produced by DETV but 2nd version updated, probably 1997), 20 of second version remaining.

Pamphlets

- *Alert! Dengue hemorrhagic fever* (DETV, July 1998), there do not appear to be any left. (See Figure 1.)
- *Let's avoid Aedes aegypti breeding sites* (School of Nursing, July 1998), there do not appear to be any left.
- *Methods to prevent dengue in the business place* (Ministry of Work and Social Security, July 1998), there do not appear to be any left.

Flyers

- *Eliminate the mosquito vector of dengue* (DETV, 1997 or 1998), there do not appear to be any left.
- *Know your enemy, the mosquito Aedes aegypti* (DETV/CAMOS, private industry, probably 1997), there do not appear to be any left.
- *Extra strong Panadol®* (brand name for acetaminophen, SmithKline Beecham, 1998), approximately 500 remaining.
- *Attention: do not touch* (DETV, not new), photocopied as needed.

Brochures

- *Dengue hemorrhagic fever: signs and symptoms, how it is transmitted, treatment, and prevention methods* (DETV/DES/ PAHO, April 1992), 1,000 copies remaining.
- *Let's understand how to avoid dengue hemorrhagic fever - the Cazamosquitos ("Mosquitobusters")*: Teacher's guide and student workbook (DETV/PAHO, 1995). Used at both the school and health center level. Teacher's guide - 20 remaining, student workbook - 520 remaining.
- *Dengue - Clinical guidelines for the intra-hospital management of patients with dengue/DHF* (DETV/PAHO, August, 1995), approximately 50 left.

- Stickers** (consultant reviewed photocopies since there are no more stickers left. This is designed to be placed over the laundry basin or "pila")
- *New: The "Untadita"* (Proyecto CID, MdeS, 1996), photocopied as needed. (See Figure 2.)

Radio spots were not reviewed as the originals were lost when the DETV offices moved to their current location in early 1998. However, the Head of UCI-DETV and the EHP consultant did review and revise four radio spots for immediate release in response to the

Figure 1
Pamphlets on Dengue

emergency conditions resulting from Hurricane Mitch.

Included below are materials which were not critically reviewed since they are products of Proyecto CID, a five-year project of the Ministry of Health, funded by the Rockefeller Foundation. They are listed, however, as they might possibly be used in the integrated communications plan.

School curriculum (compare with the Cazamosquitos booklet)

- *Domestic Hygiene and Environmental Health:* Teacher's guide and three student workbooks (Proyecto CID/MdeS/MEP, 1996), in the office there are approximately 20 sets but the municipal government of El Progreso has recently printed 500 sets for distribution to 10 elementary schools.

Photonovel

- *Ana Luisa's graduation* (Proyecto CID, MdeS, 1996), approximately 50 copies in the central office; there are more in the Proyecto CID office in El Progreso.

-
1. **Quality:** The materials are generally of good quality, especially those produced more recently and those produced by Proyecto CID. The flipchart for dengue is of very good quality, with drawings which, for the most part, are easy to understand (see recommendations for educational materials below), easy for the presenter to read, and colorful.

The three posters produced by SmithKline Beecham (*Management of out-patient cases of dengue and DHF cases, Treatment for dengue and DHF cases, and Extra Strong Panadol®*) are of excellent quality. The posters are printed on heavy duty cardboard, with good use of colors and clear steps to follow. The first version produced by DETV/PAHO was also of good quality, although the paper was lighter weight and some of the words were in colors which were difficult to read. The flyer produced by SmithKline Beecham which accompanied the poster was of excellent

quality; it was printed on paper with a sheen and the picture of the family on front attracts the attention of the reader.

While the pamphlets are principally in black and white, two of the three are easy to read although the drawings became more difficult to understand immediately if the pamphlets were not photocopied well. The flyers are also primarily in black and white, and tend to photocopy well as long as the original is in good condition and the photocopy machine is working well.

2. **Accuracy:** In general, materials developed in 1997 and 1998 which deal with mosquito control and prevention are more accurate than those developed earlier, because the UCI-DETV office has used data collected from Proyecto CID to improve the messages and to refine the prevention strategies. For example, the "Untadita" strategy for cleaning pilas, which are very large cement basins with a laundry scrub board built across one side, resulted from entomological and behavioral studies conducted through that project. The five steps required to carry out the "Untadita" are included in the more recent materials. This approach has become the primary recommended strategy for cleaning the pilas, which have been the principal *Aedes aegypti* breeding site. Another example of incorporation of relevant data from Proyecto CID is the recommendation to use lime or salt in any tires that might hold water, to prevent them from becoming mosquito breeding sites.

Most of the materials produced prior to 1997 include irrelevant information, such as burying trash, and/or outdated information not useful at the household level, such as filling in tree holes, although the pamphlet produced in July 1998 by the School of Nursing falls into this category also.

The materials produced for medical personnel—the clinical management of patients with dengue/DHF both in- and out-patient (a poster and the 1995

Figure 2

brochure) and the treatment of patients with dengue/DHF (a poster)—are of good quality and follow the standards of practice for those areas. The brochure produced in 1992 gives an overview of dengue and DHF and includes some preventive measures. It needs to be reviewed for medical accuracy.

- 3. Efficacy of recommended behavior:** The materials printed in 1998 tend to include newly developed and tested control measures for domestic settings, such as the “Untadita” with pilas and the use of lime or salt in tires. Some materials also include “effective” behaviors for some containers, such as disposal of containers no longer in use and which might contain water, but which are not important producers of mosquitoes (e.g. bottles, jars). Other “effective” measures, such as filling holes in trees with cement or dirt, may not be necessary if tree holes are not mosquito breeding sites in the target area.

All of the older materials include control measures which need to be updated with more recent findings.

- 4. Appropriateness of recommended behavior for target population and communication channel:** The flipchart is an excellent means to present the many components of a dengue prevention and control program, including clinical signs and symptoms, life cycle of the mosquito transmitter, treatment, and prevention and control measures at both the individual and community levels. Some of the drawings and prevention and control measures need to be updated.

The two posters, *Management of out-patient cases of dengue and DHF cases* and *Treatment for dengue and DHF cases*, primarily target medical personnel at health centers, private clinics, and hospitals. They are attractive and, if well positioned, would be easy to refer to in a busy medical center. The posters contain fairly complex information with a good use of arrows and colors to assist the reader in

following the prescribed protocol; they are appropriate for the target audience.

The poster, *Dengue can be fatal* (see Figure 3), and all the pamphlets target the general population. The pamphlets are intended for distribution during home visits by vector control personnel, and at community activities such as health fairs and health clinics. Although the amount of information that can be provided through pamphlets is limited, they can illustrate a behavior through a series of drawings and address a specific issue in detail, such as the five steps to prepare and then use the “Untadita.”

Again, the more recently produced pamphlets include newly identified behaviors which are more appropriate for the target population (e.g., use of the “Untadita” for women, lime or salt for owners of tire shops or homeowners with tires on their property). These pamphlets had resulted in a reduced number of mosquito breeding sites. As mentioned earlier, the exception is the pamphlet developed by the School of Nursing, which includes overly general information and covers too many topics.

The flyers tend to include very specific messages focused on one or two breeding sites or, in the case of the *Don't touch* flyer, one specific action. The *Don't Touch* flier reminds people not to remove the small bag containing Abate® (a larvicide) which is placed in some large water-holding containers.

- 5. Appropriateness of the communication channel for target population:** With the exception of one or two materials already discussed in other areas of this assessment, most of the materials currently available are appropriate channels for communicating with the target population. This does not mean that all channels are being used as effectively as they might be, nor does it mean that all channels are even being used (see Chapter 3). The flipchart, designed for group meetings, can be used with audiences of varying levels of

Figure 3

awareness or familiarity with dengue, since it is based on drawings to which the group participants respond with descriptive information.

- 6. Seasonality addressed:** Through segmentation of messages by importance of the breeding site in the production of mosquitoes, the later materials do to some extent address the issue of seasonality of breeding site productivity. Since the principal breeding sites in Honduras are permanent water-holding containers such as pilas, barrels and drums used to store water, cisterns, and tires, these sites are productive throughout the year. Some of the older materials (e.g., the brochure on DHF produced in 1992) mix all types of containers, including those which might be potential breeding sites during the rainy season (coconut shells and bottles) and actual containers (pilas and tires). This mixture of containers dilutes the message about key behavior changes needed and draws attention away from the behaviors which may be more complex, such as the “Untadita,” by focusing on relatively “easy” behaviors such as disposal of small refuse items.

2.1.3 Recommendations for educational materials²

Dengue Flipchart

An updated flipchart should be printed with the following revisions:

- Change the drawing of people on the cover to reflect an urban population. (At present the group illustrated is obviously rural, while dengue is primarily an urban problem.)
- Clarify some of the drawings (pgs. 4 and 6), and revise other pages based upon data obtained through open interviews (pg. 5) and existing data on effective control measures at the domestic level (pg. 7).
- Put plastic coating on both sides of the pages (only the drawing side is protected now), and add a base or stand to the back sheet to provide greater stability and ease of use.

² More detailed information is included in Spanish in the *Integrated Communications Plan*, available from EHP.

Posters

- *Management of out-patient cases of dengue and DHF cases and Treatment for dengue and DHF cases* (SmithKline Beecham, 1998): reprint to make sure that all health centers and clinics in the target regions for the integrated plan (RSM, Region II, Region III, and Region VI) have more than one copy; remove the company logo, unless SmithKline Beecham offers to cover printing costs.
- *Extra strong Panadol®* (SmithKline Beecham, 1998): do not reprint.
- *Dengue can be fatal* (DETV, 1997): reprint after revising the community control action drawing; print on heavier paper for greater durability.

Pamphlets

- *Alert! Dengue hemorrhagic fever* (DETV, July 1998): reduce some of information in sections 1 and 2 (“What is DHF?” and “DHF symptoms”), and make drawings in section 4, “control actions,” larger for ease of understanding
- *Let’s avoid Aedes aegypti breeding sites* (School of Nursing, July 1998): do not reprint
- *Methods to prevent dengue in the business place* (Ministry of Work and Social Security, July, 1998): identify businesses which need to be targeted, such as tire shops, refuse recyclers, and pila factories, and develop a pamphlet targeted to each.

Flyers

- *Eliminate the mosquito transmitter of dengue* (DETV, 1997 or 1998): colorful but also photocopies well in black and white; may be useful to reprint on heavier paper.
- *Know your enemy, the mosquito Aedes aegypti* (DETV/CAMOS, private industry, probably 1997): do not reprint. It would be better to develop a new flyer.
- *Extra strong Panadol®* (SmithKline Beecham, 1998): do not reprint
- *Attention: do not touch* (DETV, not new): continue to photocopy as needed.

Brochures

- *Dengue hemorrhagic fever: signs and symptoms, how it is transmitted, treatment, and prevention methods* (DETV/DES/ PAHO, April 1992): distribute remaining copies; reprint only after a critical

review of entire document in comparison with other materials and revision of some of the information provided.

- *Let's understand how to avoid dengue hemorrhagic fever—los Cazamosquitos*: Teacher's guide and student workbook (DETV/PAHO, 1995). Do not reprint, since the Proyecto CID school curriculum places dengue prevention and control into a broader environmental health framework and is currently in use in 10 schools in El Progreso.
- *Dengue—Clinical guidelines for the intra-hospital management of patients with dengue/DHF* (DETV/PAHO, August, 1995): reprint as necessary.

Stickers

- *New: The "Untadita"* (Proyecto CID, MdeS, 1996): produce this as a sticker, not as a photocopy to be taped over the pila. The sticker lasts for over a year, even if exposed to the elements.

School curriculum

- *Domestic Hygiene and Environmental Health*: Teacher's guide and three student workbooks (Proyecto CID/MdeS/MEP, 1996): this is being reproduced by the municipal government and the curriculum will be expanded through a \$5,000 grant recently received from PAHO.

Photonovel

- *Ana Luisa's graduation* (Proyecto CID, MdeS, 1996): continue to use only if formative research indicates it is appropriate for the target population.

2.1.4 Materials development

The dengue program has a fairly good range of print materials. To supplement them, radio and television spots would be very appropriate since urban areas are to be targeted, where the majority of households have both radios and a television. In addition, a broader variety of materials need to be developed for use at the household level, such as stickers and reminder messages in water and electricity monthly bills. Materials should also be developed for community programs, such as demonstrations of the "Untadita" at health fairs or other community activities or attaching the "Untadita" flyer to promotional bags of detergent

or bleach when companies introduce a new brand.

2.2 Malaria

2.2.1 Summary

There are only three print materials available—a poster, a companion pamphlet to the poster, and the malaria flipchart. Thus, it appears that the malaria program relies heavily on oral communication of educational messages, although, to date, there has been no evaluation of the effectiveness of the Volunteer Collaborators (CoVol) in disseminating them.

2.2.2 Assessment of educational materials

Materials on malaria were assessed using the same criteria as for dengue:

- overall quality,
- accuracy of information presented,
- efficacy of recommended behavior in mosquito control,
- appropriateness of recommended behavior for target population and communication channel,
- appropriateness of communication channel for target population, and
- seasonality.

In addition to being summarized below, this information can be found in Spanish in Annex 1 of the *Integrated Communications Plan for the Prevention and Control of Dengue and Malaria, 1999-2000* (available on request from EHP).

The materials reviewed, funding source and date in parentheses, and quantity at the central offices are as follows:

Flipchart

- *Malaria* (DETV/PAHO, 1995), 1 remaining

Poster

- *Be careful! with malaria* (DETV/PAHO, 1995), 26 remaining

Pamphlet

- *Be careful! with malaria*, companion pamphlet to poster (DETV/PAHO, 1995), there do not appear to be any left.

-
1. **Quality:** The malaria flipchart is of very good quality. The drawings are for the most part easy to understand (see recommendations for educational materials below), with good use of color. It is easy for a presenter to read.

The poster and pamphlet are attractive, although to be more durable, they should be printed on heavier paper. (A reduced copy of the poster is shown in Figure 4.)

2. **Accuracy:** Information on community control measures in all three materials needs to be critically reviewed for how realistic the recommended strategies are, especially since the most productive *Anopheles* breeding sites do not fall within the domain of domestic or community control (see recommendations, below).
3. **Efficacy of recommended behavior:** Information included in all three materials regarding symptoms and medical treatment falls within the clinical norms for malaria. However, the value of draining relatively small areas of stagnant water and cutting back vegetation on the banks of larger areas of water to reduce malaria transmission needs to be critically assessed, since nearby rice fields and irrigation canals produce a continuous supply of mosquitoes.
4. **Appropriateness of recommended behavior for target population and communication channel:** Some of the

drawings and prevention and control measures should be critically reviewed. This consultant questions whether some of the recommended behaviors are appropriate, effective, or even feasible for individuals or communities.

The flipchart is an excellent means to present the many components of a malaria prevention and control program, including clinical signs and symptoms, life cycle of the mosquito vector, treatment, and some prevention and control measures which individuals can take.

The poster and pamphlet are useful for highlighting specific information or for describing in detail, either pictorially or with text, one or two actions the target population is expected to take.

5. **Appropriateness of communication channel for target population:** The flipchart is designed to be used at group meetings. It can be used in discussions with groups of varying levels of awareness since group participants respond to the drawings with descriptive information.

If they are carefully designed, posters and pamphlets can be useful in group discussions with rural populations with lower educational levels. The malaria poster is mostly pictorial, with a minimum of written information, and thus could be useful in rural settings with populations with low literacy levels. The pamphlet, however, is mostly text, with few drawings. An individual with low reading

Figure 4

skills would probably find it difficult to follow.

- 6. Seasonality addressed:** None of the malaria materials address the issue of seasonality of breeding sites, although there are seasonal issues which affect the presence or absence of some of the sites. Seasonality also is directly related to the issues mentioned above regarding efficacy and feasibility of the recommended actions.

2.2.3 Recommendations for malaria educational materials³

Malaria Flipchart (DETV/PAHO, 1995)

- Clarify the recommended actions shown in the drawings on pgs. 3 and 4.
- Add a page which deals only with the importance of taking the full antimalarial treatment cycle.
- Critically review whether the individual actions represented on pgs. 6 and 7 are effective in reducing mosquito breeding, feasible for the population, and realistic to recommend using entomological data to prioritize breeding sites by their productivity and seasonality.
- Critically review the last page, pg. 8, as to what the message is and whether it is realistic to expect a worker to deal with mosquito breeding in irrigation canals of large farming entities.

Poster

- *Be careful! with malaria* (DETV/PAHO, 1995): reprint copies after revising the community preventive actions; print on heavier paper to

increase durability.

Pamphlet

- *Be careful! with malaria*, companion pamphlet identical to poster (DETV/ PAHO, 1995): do not reprint; develop new pamphlets with separate messages for treatment compliance, personal prevention measures, and realistic community prevention measures.

2.2.4 Materials development

Additional educational materials are needed for the malaria program. More materials are needed for use at the domestic level; for use by health personnel, teachers, and other organized groups; and for use in different communication channels, such as radio spots. Television spots should be considered only after a survey of media consumption habits in the target area is conducted. Materials which address specific key issues for malaria control, such as compliance with the treatment regimen, are also needed to focus community attention on that particular problem. Messages must be based on a sound review of entomological and epidemiological data and community feedback.

2.3 Dengue and Malaria Training Materials

Materials for most training sessions are prepared at the time of the event, and thus could not be reviewed. There are no standardized training materials beyond official documents such as national norms or national guidelines for program activities, and a Volunteer Collaborator manual. The CoVol manual serves as a reference document; it is not useful for training purposes. In addition, the manual focuses primarily on malaria, with small sections on the other three diseases covered by DETV.

³ More detailed information is included in the Spanish version, *Integrated Communications Plan*, available from EHP.

3 INTEGRATED COMMUNICATIONS PLAN

3.1 Goals and Objectives

One of the principal tasks of this activity was to develop a draft integrated communications plan (and a proposed budget). The key sections of the plan are summarized in this chapter. The complete document, *Plan integrado de comunicación para la prevención y control de las enfermedades dengue y malaria, transmitidos por vectores*, can be obtained in Spanish from EHP.

The consultant's assignment was to develop a systematic program with clearly defined steps and approaches for operationalizing and implementing the communications plan over a two-year period. Two general objectives helped to shape the dengue and malaria programs.

- The program to prevent dengue and to control the *Aedes aegypti* mosquito must involve the community.
- The malaria program should inculcate in populations living in malarious areas the importance of full compliance with the antimalarial treatment regimen and the use of effective prevention measures in their households.

The following Ministry of Health "regions" were selected for implementation of the integrated communications plan using entomological and epidemiological data.⁴

- The Metropolitan Sanitary Region (RSM, which includes Tegucigalpa) and Region III (which includes San Pedro Sula) were selected for the dengue component since these two sanitary regions together account for over 30% of dengue cases reported to date.

- Region II was selected primarily for dengue messages and programs since approximately 70 environmental health technicians (TSAs) were recently trained there as part of a new environmental health approach for the control of diseases which have an environmental basis for their continued circulation.
- Region VI (which includes La Ceiba) was selected for the malaria component since this region alone accounted for 33% of confirmed malaria cases in 1996 and 23% in 1997.

The following steps were adopted in the program design for each of the areas:

1. Develop and implement a sustained information, education, and communication plan for dengue control and prevention.
2. Evaluate the acceptability of prevention measures promoted through the plan, concordance of messages with recommended behaviors, and appropriateness of the communication channels.
3. Develop and implement a sustained information, education, and communication plan for malaria control by addressing lack of compliance with the antimalarial treatment regimen, protective measures which can be taken at the personal level, and protective measures which can be taken at the domestic and peri-domestic levels.

An additional step applied only to Region II:

4. Evaluate the degree of integration of the communications plan into the environmental health framework of the TSAs, specifically assessing the ability of TSAs to use the educational materials in their daily activities and the application of communication

⁴ The Ministry of Health will be reorganizing the regional health care system in 1999 as a result of decentralization. The pre-decentralization "regions" are used here for identification purposes.

concepts to other areas of their work.

3.2 Formative Research

Prior to the design of additional educational materials or training sessions for regional and local staff, formative research should be carried out to develop methods and messages which are effective, feasible, and acceptable to the target population. This information could be collected through in-depth interviews, focus groups, group interviews, or surveys, such as media consumption surveys. It is expected that most of this information could be collected in two or three months if the Head of the UCI-DETV were to receive assistance in data collection from a technically qualified assistant. A logotype, or unifying theme, for DETV IEC activities will also need to be identified and pre-tested.

3.2.1 Dengue

A significant amount of information has been collected about dengue through focus groups, surveys of various types, and interviews with community members conducted by the Head of the UCI-DETV. Proyecto CID has also produced a substantial amount of data regarding community practices, from which effective and appropriate behaviors for control of *Aedes aegypti* were then developed. Gaps in information were identified for each region. Topics still to be investigated include the acceptability of the “Untadita” in the RSM, the acceptability to owners of tire shops of putting lime or salt into unused tires, popular communication channels in areas where information has not yet been collected, and local concepts regarding the presence or absence of larvae/pupae in water-holding containers.

3.2.2 Malaria

To date, little formative research has been conducted by DETV staff to assess community concepts of malaria or practices regarding its treatment or prevention. In addition to gathering community-level information, DETV needs to collect more precise entomological information on breeding sites and control measures before developing any educational materials.

Focused formative research should be conducted to collect information on local beliefs

and practices regarding treatment of malaria, with particular attention to reasons why individuals do not take the full regimen of antimalarial medication. Since malaria treatment is generally in pill form, as opposed to injection or IV for serious cases, it would be useful to examine whether “pills” are viewed as sufficient to treat malaria and whether there are other “pills” being used by the population for malaria treatment or prevention. Information should be gathered on why and when individuals seek assistance from the ColVol, as compared to why and when they seek attention from health centers (e.g., quality of care, confidence in the diagnosis). It is also important to find out whether individuals believe that malaria can be prevented, including local preventive measures currently in use and their effectiveness in controlling *Anopheles* breeding sites.

3.3 Training by Region

Health staff must be taught how to use educational materials so that the flipcharts, brochures, and posters effectively generate community interest in the messages (and behaviors) being promoted. The importance of such training in the use of printed materials was demonstrated with the introduction of the “Untadita.”⁵ Initially, there was significant resistance to the introduction of this method by senior MdeS officials because they themselves did not believe that it worked, even after being presented with entomological data demonstrating its effectiveness. Not until one of the officials himself tested it on the pila at his home and announced at a meeting that there had been no larvae in the pila for two weeks was the “Untadita” message allowed to be used. Because of time pressure due to the ongoing dengue epidemic, the health staff was not trained in how to present the “Untadita.” Although the flyer explains each step of the process, health staff were

⁵ The “Untadita” is a paste made of bleach and powdered detergent which is applied to the water level area of the pila, left for 10 minutes, then scrubbed and rinsed. The mixture destroys the casing around the eggs of *Aedes* mosquitoes, and scrubbing the sides of the pila removes the eggs and prevents any possible reproduction.

sometimes confused as to its purpose (e.g., how it worked, why the old “scrubbing-the-pila” message wasn’t good enough), and did not understand the importance of following all the steps exactly as specified (Head, UCI-DETV, interview, Oct. 26, 1998).

Training sessions in effective use of the educational materials will be organized for health center teams in priority areas of the target regions. Each training session will include a presentation of the communications plan, group activities, role plays, and observation in the field. Each session will be evaluated through a short pre- and post-session information survey, recorded observations of field activities, and a participant evaluation form.

Specific training needs by region are as follows:

RSM (which includes Tegucigalpa):

- Train 18 health teams made up of four or five individuals each (e.g., nurse, health promoters, supervisor of vector control staff) in the use of the educational materials.
- Train physicians working at the 18 health centers on clinical management of patients with dengue, in particular out-patient treatment.
- Train a core group of five people from the vector control staff of the 18 health centers to assist in formative research and data collection over the two-year period.

Region II:

- Train the six environmental health technicians (TSAs) working in areas with dengue transmission (Comayagua and La Paz) in the use of the educational materials.
- Train physicians working at health centers in those two areas on clinical management of patients with dengue, in particular out-patient treatment.

Region III (which includes San Pedro Sula):

- Train seven teams made up of four or five individuals in the use of the educational materials.
- Train physicians working at the 18 health centers on clinical management of patients with dengue, in particular out-patient treatment.

Region VI:

- The number of teams to be trained in malaria prevention, control, and treatment is still to be determined, as is how training of the ColVols in those areas will be carried out.

3.4 Monitoring and Evaluation

Each activity developed will include a monitoring component, and all activities will be evaluated throughout the process to provide feedback to staff managing the IEC plan. To date, monitoring and evaluation have not been a routine part of UCI-DETV activities, although some specific activities have been evaluated. The lack of staff to assist in collecting monitoring information and entering data into the computer has limited this process. Most analysis of data has been done by hand.

In the proposed IEC program, regular visits to the target regions will be conducted to monitor implementation at the local level. These visits will also provide opportunities for direct supervision, additional training where necessary, and corrective action based upon local “hands-on” experience. These visits will be conducted by staff from the Institutional Coordination Unit, the National Malaria Program, and staff in other divisions within the MdeS, such as the Division of Social Participation. During the first year, visits will take place twice per trimester due to the number of new activities and strategies being implemented; in the second year, these visits will be once per trimester.

Messages disseminated through mass media will be evaluated through household surveys conducted around the release of the radio and/or TV spots. Periodic social/ entomological surveys and individual interviews regarding knowledge of the principal behavior change recommendations and status (presence of pupas or 4th stage larva) of the targeted breeding sites will be conducted as well. It is expected that the core group will be responsible for organizing these evaluation activities (e.g., through routine household visits by vector control staff, training of high school students where appropriate).

The Head of the UCI-DETV will review the work plans of the TSAs in Region II to assess integration of dengue prevention and control issues and communication strategies into an environmental health framework.

3.5 Other Issues

3.5.1 Budgetary considerations

Budgets of US\$40,000 for the first year and \$45,200 for the second year have been identified in the USAID/Honduras Infectious Disease initiative's total budget for information, education,

and communication activities (UCI-DETV responsibilities). As shown in Table 3, there are three general line items within this category, including training programs (US\$6,000 and US\$9,200, respectively, for years 1 and 2), development and reproduction of communications materials

Table 3
Proposed Two-Year Budget

	Item	Source	Amount(\$)
Year 1	Training	USAID	6,000
	Development and Reproduction of Communication Materials	USAID	28,000
	AV Equipment	USAID	6,000
	General Support	GOH	10,000
<i>Subtotal—Year 1</i>			<i>50,000</i>
Year 2	Training	USAID	9,200
	Development and Reproduction of Communication Materials	USAID	36,000
	General Support	GOH	11,000
<i>Subtotal—Year 2</i>			<i>56,200</i>
Total			106,200

(US\$28,000 and US\$36,000, respectively), and audio-visual equipment (US\$6,000 for year 1 only). In addition, the Honduran government has committed US\$10,000 and US\$11,000 for years 1 and 2, respectively, to support IEC activities. It is unclear as of this writing (December 1998) whether the government can keep those commitments given the emergency needs resulting from Hurricane Mitch. The EHP consultant briefly discussed with the Head of the UCI-DETV the need for a more detailed line-item budget. Working up a budget is a way of prioritizing activities. It will be important to identify potential areas of overlap with other components of the malaria and dengue programs, to take advantage of training sessions or monitoring and evaluation activities already being conducted as part of the national programs. A more detailed budget should be part of the final integrated communications plan for dengue and malaria.

3.5.2 Storage and distribution of materials

The current office of the UCI-DETV is very small and has no storage space. More importantly, it is damp and there are leaks in various parts of it. There is no room in it for storage of educational materials yet to be produced. The DETV will need to identify a storage area which is not only clean and dry, but convenient for the individuals who will be using the materials.

Educational materials are currently distributed by someone from the health center picking them up when they are in town. Although the Head of the UCI-DETV prefers to give the materials directly to vector control or community participation staff, that is not always possible. The only other reliable means of delivering materials is by personal hand delivery of the materials to each health center and health post by the Head of the UCI-DETV or by a courier

service. Courier service has been used in the past, but there have been occasions when the staff person signing for the materials did not deliver them to vector control and the materials lay in an office for weeks. For the proposed program, it is envisioned that each member of the health center team will receive supplies of materials during training sessions. If additional materials are needed they will either be hand delivered or sent by courier, depending upon the cost of shipping. The Head of the UCI-DETV will develop a system by which she can monitor when materials are delivered, who receives them, and what their status is during regularly scheduled supervisory visits.

3.5.3 Development of radio and television spots

Interviewees indicated that recently (July 1998) the central Office of Publicity has been assigned the responsibility of producing radio and TV spots for all health programs. This is cause for concern given a recent episode where radio spots for dengue control were developed by the Office of Publicity which included both productive and non-productive breeding sites in one message and which did not mention new control strategies being promoted by the DETV, such as the use of salt or lime in tires and the “Untadita” for pilas. It is also worrisome that neither the Office of Publicity nor the media companies subcontracted to produce the spots have the necessary technical expertise. If messages are developed by groups outside of the integrated communication process, there is the danger that they will be inconsistent with messages being disseminated by the program through other communication channels.

3.5.4 Assessment of Guatemala materials

The materials produced as part of a USAID-funded community-based dengue control program in Guatemala were reviewed by the consultant. In discussions with the Head of UCI-DETV, it was agreed that a number of items from the Guatemalan program could be of use in Honduras, in particular the instruments developed to monitor the project, and the community monitoring instrument based on pictures. The demonstrations of how to cover a well and how

to cover the larger water storage containers in the TV spots also appeared useful.

On the other hand, the EHP consultant found the mixing of less important breeding sites, such as bottles, and more important breeding sites, like washtubs, in short TV spots to be confusing. Combining these breeding sites diluted the message regarding what actions to take for the larger, generally permanent mosquito-producing containers. Additionally, bottles have not been shown to be principal breeding sites of mosquitoes and therefore should not be included in educational materials with items that are. Messages such as “throw away trash” imply that cleanliness will result in a dengue-free home, which is incorrect. The mosquito prefers cleaner rather than dirtier water to reproduce in.

It would be useful for the Head of the UCI-DETV to visit Guatemala. Many practical issues being addressed in Guatemala, such as implementation challenges, training techniques which were particularly successful, and a better understanding of how the community-based surveillance system is working, could be of help in launching the program in Honduras.

3.5.5 Staffing constraints

There is limited staffing of the Institutional Coordination Unit, with Ms. Mercedes Martínez as the only staff person for the UCI-DETV. A new assistant was assigned to work with her in late August 1998. However, while enthusiastic about the work, that person has no experience in health or communications and will require a substantial amount of training before being able to work more or less independently.

3.5.6 Laboratory status

The consultant did not visit the laboratory since, according to Dr. Luis Castellanos of PAHO, it has not progressed since the visit of Drs. Arata and Clark in March 1998 (Arata and Clark, 1998). USAID has committed almost US\$50,000 for the purchase of equipment and materials to help get the laboratory operating, and PAHO is coordinating the work necessary to finish the remaining building work. Dr. Castellanos estimates that the laboratory should be up and running within a year (this estimate was given pre-Hurricane Mitch).

The current surveillance systems for malaria

and dengue need to be assessed as to how accurately the cases reported reflect the actual disease incidence. Information obtained at the community level should serve as the basis for any surveillance system, which would then support work conducted at the laboratory level. Implementation of a community-based surveillance system could result in earlier detection of outbreaks or epidemics, which the laboratory would then identify and/or confirm through blood sample testing.

3.5.7 Consultant meetings and site visits

National Malaria Program

Interviews were held with Dr. Laura Julia Salgado, Head of the PNM, and Dr. Luis Rivera, entomologist. Information from Dr. Salgado regarding the National Malaria Program has been incorporated into the body of the integrated communications plan and the recommendations. Information on *Anopheles* breeding sites was obtained from Dr. Rivera. According to him, most *Anopheles* breeding sites are outside the control of individuals, and thus public information on prevention strategies probably lie primarily in personal protection or treatment practices. (This is in contrast with dengue, where personal and household strategies are key to reducing or controlling most *Aedes* breeding sites.)

Personal prevention strategies for malaria might include the use of bednets, mosquito repellent, screening in the house, and, should malaria be diagnosed, adherence to the full treatment regimen. For those sites amenable to individual-level strategies, such as smaller watering holes for cattle, standing water caused by blocked drainage, or temporary pools caused by rains, actions such as unblocking or digging new drainage paths or cutting vegetation away from the edge of the water might be reasonable.

Principal *Anopheles* breeding sites, by health region, are as follows:

- Regions III and VI: permanent breeding sites include creeks and streams; temporary breeding sites depending upon agricultural and livestock practices are rice cultivation fields, irrigation ditches found mostly on banana and African palm plantations, and watering holes for cattle (all of which may be

man-made).

- Region II: watering holes for cattle, the dam reservoir, and irrigation ditches.
- Region I: watering holes for cattle.
- Region IV: old causeway for the Choluteca River, where large pools of water sit and in other areas where water does not run freely, watering holes for cattle, and shrimp ponds.
- Region VII: fish ponds (approx. 40 blocks of standing water) and watering holes for cattle.
- Region VIII: rice cultivation fields and watering holes for cattle.
- Region V: the reservoir behind another large dam.

PAHO

The consultant met with Dr. Luis Gerardo Castellanos, Advisor in Communicable Diseases, at the PAHO offices. At this meeting, the Head of the UCI-DETV presented preliminary objectives regarding the two-year integrated communications plan, and the three of them discussed implementation and evaluation needs. Dr. Castellanos offered additional assistance to the communications program, such as training or technical assistance, should such needs arise. Dr. Castellanos informed the Head of the UCI-DETV that PAHO had just approved a US\$5,000 grant submitted by her for expansion of the school-based environmental health and dengue prevention curriculum, developed by the Integrated Control Project in El Progreso, into additional schools in the San Pedro Sula area.

Metropolitan Sanitary Region (RSM)

The only site visit was made to the Metropolitan Sanitary Region, consisting of 33 health centers in both urban and rural areas, to discuss current dengue prevention and control activities. Both the Head of Vector Control for Area #1 and the Head of Education for the RSM met with the consultant and Head of UCI-DETV. The Head of Vector Control for Area #1 had been very active in initiating community-based *Aedes aegypti* control programs when he was assigned to the Monterey Health Center in the mid-1990s. Vector control in the region is based upon the use of biological control measures for small permanent bodies of water, where the RSM routinely stocks fish in the shallower areas; the use of fish in some domestic breeding containers; salt in cemetery

flower vases; limited use of Abate® in areas of population concentration, such as schools, health centers, churches, and markets; and community education conducted on a door-to-door basis.

According to both interviewees, there are no materials to distribute to households. The Head of Education stated that a variety of materials are needed, such as pamphlets, stickers, flyers, and radio and television spots; she did not think the population in the RSM would find the sample

photonovel of interest, since it is associated with more rural communities. She also felt that pamphlets are useful if they are explained to the homeowner during a home visit; otherwise they are discarded. Both interviewees agreed that the community has high levels of knowledge about the disease and symptomatology, but little understanding of the aquatic phase of the mosquito.

4 FUTURE USAID ASSISTANCE

The DETV, and the UCI-DETV in particular, need both short- and long-term assistance. The most immediate need (i.e., within the next six months) is for consultants to work with the Head of the UCI-DETV in a number of areas.

Although the recently assigned assistant to the UCI-DETV is willing and eager to learn about health education and vector-borne diseases, she has no experience in health and will require a significant amount of time with the Head of the UCI-DETV training her so that she can work somewhat independently. At this time, the Head of the UCI-DETV is unable to dedicate that much attention to her training.

USAID can play an important role in encouraging and supporting a more visible role for IEC by allocating monies to IEC activities, supporting training and technical assistance to the Head of UCI-DETV, and requiring that IEC be included as a key component of the national dengue and malaria prevention and control programs.

4.1 Short-term Assistance

1. A consultant or team of two consultants is needed right away to conduct an in-depth evaluation of the National Malaria Program, and the role of the CoVols in particular. The Head of the National Malaria Program has expressed strong interest in and support for such an evaluation, and would like this to be conducted as soon as possible so that the results can be used in training activities planned through the USAID initiative.
2. A consultant with experience in the development and management of multi-component communication programs is needed to give technical assistance to the Head of the UCI-DETV in systematizing implementation of the diverse components, data collection, and production of complex materials such as TV spots. The most

opportune time for this assistance would be in the second trimester of the plan (around April, May, and June 1999), after the formative research is completed and during development of new messages and channels. The consultancy should be about one month, to complete the envisioned scope of work. Hopefully, the consultant would be a Latin American with experience in community-based dengue control programs (for example, Ms. Lourdes Rivas Gutiérrez, in Mérida, Mexico).

4.2 Long-term Assistance

1. USAID should make a long-term commitment to strengthening the UCI-DETV so that high-quality services can be provided to all four disease programs within the DETV, not just one or two. USAID should recognize that there is turnover of MdeS personnel, and it is necessary to work with staff on a long-term basis. Strengthening the DETV includes provision of consultants to assist with specific tasks, exchanges between countries in the Central American region to share experiences and ideas, and financial support to continue production of high-quality educational materials.
2. USAID should provide continued assistance in community-based surveillance of dengue and malaria by supporting a fever surveillance system to collect data through pharmacies, neighborhood grocery stores, and CoVols. This program was not addressed to any degree during the current activity, but the benefits to having a fever surveillance system, based on active surveillance once the passive, community-based system notes an increase in febrile cases, would be earlier detection of increased dengue and/or malaria activity, increased IEC activities for control efforts, and hopefully earlier interruption of the

epidemic cycle.

3. The current budget for the integrated communications program (MdeS-DETV/USAID) should be reviewed in light of the catastrophic impact of Hurricane Mitch

on Honduras. There may be need for emergency funding.

5 RECOMMENDATIONS

5.1 General Recommendations

1. Due to limited staffing of the Institutional Coordination Unit (one person, the Head, and an assistant who started in August 1998) and the key role the unit plays in development, production, and implementation of all IEC activities for four major diseases, short-term technical assistance should be obtained for the Head of the UCI-DETV for at least the first six months of this project, given the intensity of work to be accomplished to start the project. The individual contracted for this short-term consultancy must be a Honduran national with a bachelor's degree in either social work or pedagogy. The individual should have experience working in the health field.
2. Due to the number of activities to be implemented simultaneously as part of the integrated communications plan, a consultant should be provided for a one-month period, hopefully during the second trimester of the work plan, to assist the UCI-DETV in systematizing information collection, organizing materials production, developing radio and TV spots, and staging communications events. Given the multiple tasks expected of the consultant, USAID or EHP should confer with either the consultant on this current activity or the Head of the UCI-DETV regarding the selection of such a consultant. The consultant selected should be a Latin American with experience in managing all aspects of a community-based dengue control program.
3. Due to the inadequacies of the UCI-DETV computer, one of the computers that will be purchased through the USAID/ Honduras Infectious Disease initiative should be assigned to the UCI-DETV. That computer should have updated versions of standard software programs, such as WordPerfect, a recent anti-virus program, and a database/statistical analysis program such as EpiInfo (produced by CDC, in both English and Spanish). The computer equipment should also include a back-up system for uninterrupted power supply, given the frequent problems with the electrical supply in the office.
4. Given the investment of funds through this project in the purchase of computers (seven are being purchased) and the current infestation of all computers at the DETV offices with viruses due to an antiquated anti-virus program (over one year old), USAID should require that the DETV provide routine maintenance to the new computers and update anti-virus programs on a regular, at least semiannual, basis. Such a program would prevent the loss of information and documents, as has occurred recently on at least two occasions.
5. Since personnel lack up-to-date computer skills, a person with database design and data entry skills should be hired for short periods of time to help the UCI-DETV set up databases, train staff, and enter data as necessary.
6. Due to the inadequate size of the UCI-DETV office and the water leaks, it is recommended that a secure (dry) and accessible space for storage of educational materials and equipment be identified by the DETV and the UCI-DETV before any materials are produced.
7. USAID should continue to facilitate an exchange of ideas, information, and experiences between Central American countries with similar levels of dengue and malaria. Sharing experience between

countries would stimulate creativity, provide a source of professional support, and save time and energy.

5.2 Specific Recommendations by Area

1. Due to the apparent decision to consolidate production of radio and TV spots at the central Office of Publicity, radio spots have been produced for dengue without the participation of either the DETV or the UCI-DETV. This is particularly worrisome given the lack of technical expertise in the areas of dengue and malaria in the Office of Publicity and the companies contracted to design and produce the spots. All dengue and malaria messages, whether they be visual or verbal, should be produced within an integrated framework so that all communication channels and messages are coherent.

It is recommended that a meeting be held

with the DETV, UCI-DETV, PNM, the Office of Publicity, and USAID to discuss the goals and objectives of the integrated communications plan and how to coordinate activities for the benefit of the different organizations involved.

2. Given the serious lack of information on many aspects of the National Malaria Program and the interest of the Head of the PNM in a program evaluation prior to the start of training activities to be conducted through the USAID Infectious Disease initiative, a consultant or team of two consultants should be contracted to conduct an in-depth evaluation of the malaria program, with special emphasis on the ColVol component.

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Appendix A

LIST OF CONTACTS

USAID/Honduras

Mr. Herbert Caudill (primary contact)
Water and Sanitation Officer

Dr. Mary Ann Anderson
Director
Office of Human Resource Development

Ministry of Health - Honduras

Department of Vector-Borne Diseases (DETV)
Dr. Eduardo Fernández
Head, DETV

Dr. Laura Julia Salgado
Head, National Malaria Program

Ms. Mercedes Martínez (national counterpart)
Head, Institutional Coordination Unit

Dr. Luis Rivera
Entomologist

Ms. Catalina Sherman
Entomologist

Metropolitan Sanitary Region (RSM)
Mr. Virginio Espinal
Head, Vector Control Department for Area #1

Ms. Juana Haydeé Avila Varela
Head, Department of Education

Pan American Health Organization

Dr. Luis Castellanos
Advisor in Communicable Diseases

Appendix B

ITINERARY

- Sat., Oct. 24 Arrival in Tegucigalpa, Honduras
- Mon., Oct. 26
- Meeting with Mr. Herbert Caudill, Sanitary Engineer, USAID and primary contact for EHP consultant
 - Meeting at DETV with Mr. Caudill, Ms. Mercedes Martínez (EHP consultant's primary contact at DETV), and Dr. Laura Julia Salgado (acting Head of DETV and Head of PNM)
 - Initiation of work activities with Ms. Martínez, review of DETV and UCI-DETV documents, preliminary discussion re: Guatemala materials
 - Warnings about Hurricane Mitch, in north Atlantic region released
 - Brief meeting in evening with Head of DETV prior to his departure for vacation
- Tues., Oct. 27
- Continued review of DETV documents
 - Meeting with data entry staff person re: malaria and dengue statistics
 - Begin writing Integrated Communications Plan
- Wed., Oct. 28
- Provide dates for Ms. Martínez's trip to Guatemala to Ing. Caudill
 - Field site visit to Region III, San Pedro Sula, canceled due to state of emergency in the region
 - DETV staff advised of travel to north Atlantic regions for emergency vector control actions. Ms. Martínez assigned to Region III, San Pedro Sula, Nov. 3 through Nov. 13
 - Ms. Martínez and EHP consultant focus on integrated communications plan due to unexpected travel for DETV staff
 - Drop off first rough draft of plan to Ing. Caudill for preliminary comments
- Thurs., Oct. 29
- Field site visit to Metropolitan Sanitary Region (RSM). Meeting with Head of Vector Control Dept. for Area 1 of RSM and Head of Dept. of Education of the RSM
 - DETV staff assigned shifts at Emergency Information Center
 - Continue work on integrated communication plan
 - Warnings about heavy rains due to Mitch
- Fri., Oct. 30
- Ms. Martínez detailed to afternoon shift at the Emergency Information Center
 - Interviews with Dr. Laura Julia Salgado re: current status of malaria program and Dr. Luis Rivera re principal breeding sites of *Anopheles* by region and temporality
 - State of emergency declared in Tegucigalpa due to flooding downtown and offices closed at 12:00 pm
- Mon., Nov. 2
- Governmental offices closed due to damage from flooding
 - EHP consultant continued work on plan
- Tues., Nov. 3
- Most governmental offices still closed
 - EHP consultant continued work on plan
 - USAID to print document and discuss status of work with Ing. Caudill
- Wed., Nov. 4
- DETV offices open. Revised emergency plan for vector control efforts finalized

- Ms. Martínez and EHP consultant continue to work on integrated communications plan, with significant interruptions, including lack of electricity
- Thurs., Nov. 5
- Dr. Salgado at PAHO offices all day working on emergency proposal to World Bank, most DETV staff called out to meetings
 - Review of draft integrated communications plan and discussions about section which are still incomplete with Ms. Martínez, with significant interruptions and unreliable electricity
 - Review and editing of four radio spots for dengue control for immediate release
- Fri., Nov. 6
- Dr. Salgado at PAHO offices all day, Ms. Martínez in meetings all day
 - Final checks on plan
 - Printing and photocopying of draft integrated communications plan for Ms. Martínez and Dr. Salgado
 - Brief discussion with Martínez and Salgado at end of day re status and next steps
- Mon., Nov. 9
- Presentation of plan and final report at USAID/Honduras
 - Departure for U.S.