

ENVIRONMENT, HEALTH, & PEOPLE

An Update from USAID's Environmental Health Project

Fall 1998

A Minimum Package of Environmental Health Behaviors for Maximum Results

The success of environmental health interventions is greatly enhanced if program planners appreciate the importance of understanding and influencing human behavior. Latrines, improved water systems, or insecticide-treated bednets may be provided, but unless people use them as intended, no health impact will result.

Technology alone is no "silver bullet," and the silver bullet approach has lost much of its credibility, as research has demonstrated the need for behavior change to achieve a health impact. Most programs now include at a minimum a behavior change component, usually in the form of hygiene education.

To maximize health results, environmental health programs should begin



Hygiene behavioral change programs can start with the very young. Photo: UNICEF/90-0008/Ellen Tolmie.

with a process for identifying the health problems and associated behaviors that need to be changed. On the basis of that information, a strategy can be developed including—but not limited to—introduction of new or improved technologies. Technologies are but one component of a behavior-change strategy, a component that enables crucial behaviors to occur.

Behaviors to Improve Child Survival

EHP has identified four critical clusters of behaviors related to environmental health problems—a Minimum Package—to target in programs to improve child health:

- Safely dispose of human feces.
- Consume safe water.
- Consume safe food.
- Protect self and family from mosquitoes.

Child health programs that integrate promotion of this Minimum Package will enhance results in disease prevention and lessen the burden on the health care system.

The behaviors were selected with the assistance of a Technical Advisory Group (TAG) of specialists in child survival and behavior change convened by EHP in July 1998. Selection of the behaviors was based on the following criteria:

- Ability to reduce the number of disease-causing agents in the *environment* or protect people from them.
- Potential to improve *child survival* by reducing the incidence of one or more of three major causes of

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childhood illness and death in developing countries—diarrheal disease, acute respiratory infection (ARI), and malaria.

- Proven *efficacy* in reducing childhood morbidity and mortality.
- Shown to be *feasible, effective, and cost-effective* in operational settings.

A considerable body of evidence in the technical literature points to the effectiveness of the Minimum Package behaviors in reducing mortality and morbidity. Examples from selected studies appear throughout this article.

The Minimum Package of environ-

Wash Hands

In Burma, a 30% reduction in diarrhea was reported when mothers and children were provided with soap and encouraged to wash their hands after defecation and before meal preparation (MH Aung and H Thein. 1989. "Prevention of Diarrhoea and Dysentery by Handwashing." *Trans. Royal Soc. of Trop. Med. and Hyg.* 83:123-31).

mental health behaviors is consistent with the recommended priorities of the World Health Organization (WHO) and

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UPDATE: Current Activities of Note

Five-Year Effort to Improve Vector-Borne Disease Surveillance in Nepal Sets Course

In 1997, the U.S. Congress allocated \$50 million yearly for USAID to address the growing international problem of infectious diseases. One of the first efforts funded under this initiative is the enhancement of the Vector-Borne Disease Research and Training Center in Hetauda, Nepal. The institutional capacity-building program just underway will prepare the VBDRTC to serve as a national and regional center for surveillance, prevention, and control of vector-borne diseases.

The project is a joint effort of EHP and the Rational Pharmaceutical Management (RPM) project. EHP will concentrate on vector-borne diseases, while the RPM will be responsible for anti-microbial resistance issues. Other collaborating organizations are the U.S. Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and the International Center for Diarrheal Disease Research in Bangladesh (ICDDR,B).

EHP activities, which cover the start-up period (August 1998 to March 1999) are designed to improve the VBDRTC's ability to:

- monitor the presence and risk of vector-borne diseases through Nepal's Early Warning Reporting System,
- assess the epidemiological status of malaria, kala-azar, and Japanese encephalitis in Nepal,
- select appropriate interventions, and
- collaborate with neighboring countries on vector-borne disease surveillance and control.

The Center plans to play a role in developing collaborative mechanisms and activities for a regional approach to emerging and resurgent vector-borne diseases.

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Environmental Control of Mosquito Breeding Highly Successful in Jordan

In August 1997, residents in the Hashimiya area of Jordan, an hour's drive north of Amman, were reporting serious problems with biting insects and pests presumably coming from Wadi Dhuleil, a natural channel which carries off effluent from the As-Samra Wastewater Treatment Plant. A rapid assessment conducted by EHP at the request of the USAID mission in Amman confirmed what residents suspected. High larval densities of *Culex* mosquitoes were present, particularly in extensive effluent seepage and pooling areas of the wadi where vegetation was thick.

Culex mosquitoes breed most prevalently in stagnant water. Because Wadi Dhuleil is a natural channel it has a non-uniform shape with many irregular bends and crevices; the effluent flows through it slowly; sometimes the wadi gets clogged with items washed away in heavy rains; and farmers sometimes dam small sections to create a stable location for installing their irrigation pumps. These conditions further decrease the velocity of the effluent flow and create ideal breeding grounds for mosquitoes.

A household survey revealed that the cost for prevention and treatment of insect nuisance is 5-10% of monthly family income during the seven-month insect season (see photo, page 3).

However, thanks to environmental control activities carried out jointly by stakeholders, with assistance from EHP, residents will be able to use that money for something else.

A little over a year after the initial assessment, the problem appeared to be virtually solved. The wadi's 14 kilometers had been deepened, shaped, and cleared of vegetation to speed the flow of the effluent and eliminate mosquito breeding. Observation and a standard larval dipper sampling confirmed almost no mosquito breeding in areas where the wadi had been shaped. Evening and night-time person-biting counts produced no mosquitoes. Interviews with residents living directly adjacent to the shaped wadi confirmed a dramatic reduction of mosquitoes and virtually no nuisance either indoors or outdoors.

Before the entire length of the wadi had been shaped, non-chemical larvicides were applied in seepage areas in the unfinished portion, reducing the mosquito population by 80-90%. However, in two specific locations, high numbers of mosquitoes were collected in traps. A site investigation revealed that improperly sealed cesspools within 20 meters of the traps were the source of the mosquitoes. There are a large number of household cesspools in the area, but residents were unaware that

they could be breeding grounds for mosquitos. They assumed instead that all mosquitos bred in the wadi.

Now that the wadi is being "mosquito-proofed," the cesspool problem has been uncovered. For the equivalent of \$10, residents can seal up the cesspools with access covers and vent pipes to eliminate the problem. A key message in EHP's communications campaign is that households can easily reduce breeding in the cesspools. Until the cesspools are improved, larvicidal pellets are being applied.

Two follow-on actions are needed to sustain the excellent results achieved: (1) the re-shaped wadi must be maintained from year to year by controlling vegetation and eliminating new seepage areas created by winter rain floods and (2) a larvicide must be applied to seepage areas that cannot be eliminated.

Fortunately, the mosquitoes annoying the 50,000 residents of Hashimiya and surrounding towns do not carry malaria, and there is as yet no evidence that they are transmitting other diseases. The activity has addressed a nuisance, not a health problem. However, the environmental approach taken here has a potential role, in combination with prompt diagnosis and treatment and other preventive interventions, for malaria control in many areas.

— Fred Rosensweig

Update (from page 2)

In the August-October 1998 period, critical staff for the expanded Center were recruited and hired, including staff to support information and training activities.

Following a project start-up workshop in September, field and laboratory consultants were trained in medical entomology and socio-behavioral survey methods in preparation for baseline surveys and risk mapping using geographic information systems (GIS) to be carried out in 1999. Survey information will be used to devise control and prevention strategies.

The USAID mission in Nepal has been involved in malaria activities since the early 1950s. USAID support made possible expansion and reorientation of the Malaria Research and Training Center, which was renamed the VBDRTC in 1996 at its inauguration.

Missions Increase Requests for Assistance on Infectious Diseases

Support to the VBDRTC in Nepal is one of several activities under USAID's new Infectious Diseases Strategy. USAID missions have called on EHP for technical assistance in

- improving infectious disease surveillance in Tanzania, Malawi, and Mozambique;
- preparing a concept paper for improving surveillance reporting and

quality control at the community and national levels in Bolivia; and

- planning dengue control and prevention activities in Honduras.

In addition, EHP is participating on a committee formed by the Office of Health and Nutrition to develop surveillance activities under the new strategy and is producing an Applied Study reviewing what is known about the nature and magnitude of malaria in peri-urban and secondary cities in sub-Saharan Africa.

PHN/ENV Take Joint Action to Improve Health and the Environment

USAID Assistant Administrator for the Global Bureau Sally Shelton-Colby established a Joint Action Incentive Fund (JAIF) in 1996 to foster collaborative efforts between the various centers in the bureau. EHP is currently carrying out three FY98 JAIF-funded activities in which the Center for the Environment (ENV) and the Center for Population, Health and Nutrition (PHN) are working together.

The activities address problems of decentralization, community management, and sanitation.

Decentralization. JAIF decentralization activities aim to address the critical failure in environmental quality and public health manifested in these stark statistics: a third of all people in developing countries lack access to safe drinking water, two-thirds lack access to sanitation, and two-thirds of childhood illnesses in developing countries are related to poor environmental conditions.

To respond to this failure, professionals in environmental quality and public health have reached a new consensus on sustainable and integrated water resources management, calling for decentralization—ownership and authority at the “lowest appropriate level.” Decentralization is seen as having a positive impact on service, maintenance, and financial sustainability.

EHP-supported JAIF decentralization activities in Central America and the Dominican Republic include a regional analysis, technical assistance, an Internet-based information-sharing network, and a regional workshop to present and disseminate lessons learned.

In the Dominican Republic EHP is assisting the water agency, INAPA, to transfer operations and management of rural water systems to rural communities. In this decentralization plan, INAPA's role will shift from service delivery to monitoring and facilitation. Designated NGOs will work with the communities to set up local structures to manage their systems.

In El Salvador, EHP assistance will complement a \$44 million Inter-American Development Bank loan, which makes funding for construction contingent on sectoral reform. EHP activities are intended to advance the national dialogue on decentralization of water supply and sanitation. First, EHP will identify options for municipal water supply management and institutional arrangements to support community management of rural systems. Then it will train mayors and other municipal officials in their roles in water and sanitation and watershed management.

Community Management. Community associations in Ouled Teima, Morocco, a rapidly growing city of over 51,000, have been building sewers to serve areas outside the current reach of the municipal system. They are willing to make these investments because sewers



The number of insecticides and insect-bite medications stocked by local stores in the Hashimiya area indicated the severity of the mosquito nuisance problem. (See box on facing page.) Photo: EHP.

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DECNET Links Water and Sanitation Experts Seeking Information on Decentralization

DECNET, an e-mail network on decentralization of water and wastewater organizations in Central America and the Caribbean, was organized by EHP in July to promote collaboration and information exchange as part of the decentralization activities funded under the Global Bureau's Joint Action Incentive Fund (see article page 3). A new consensus on sustainable and integrated water resources management calling for ownership and authority at the "lowest appropriate level" has sparked new interest in decentralization. Membership in the network has grown to 105.

Members use the network to discuss issues, lessons learned, and current or proposed projects and to disseminate research findings. EHP keeps members up to date by issuing a periodic bulletin on news from members. Even though the network focuses on the Central American and Caribbean region, participation and members are welcome from other countries and regions.

The network and related e-mail bulletins may be accessed from the EHP web site:
<http://www.access.digex.net/~ehp>.

— Dan Campbell

Update (from page 3)

must be in place for residents to obtain title to the land on which their homes are built.

Under the JAIF activity, EHP will strengthen these associations, improve coordination among municipal and national government agencies, and examine the feasibility of reusing wastewater for agriculture in the surrounding areas.

KfW, the German aid agency, has recently agreed to fund expansion of wastewater collection and treatment in Ouled Teima. EHP's activities will feed directly into this project. The long-term goal of both USAID and KfW is to extend and improve wastewater services in Ouled Teima.

Sanitation Information Center: The Construction Resource and Development Center (CRDC), a Jamaican NGO, is establishing a Sanitation Information Sharing and Training Center to provide technical assistance and to foster collaboration among stakeholders in the water and health sectors. Using JAIF resources, the EHP librarian will assist this fledgling center in acquisition of books and periodicals; selection of computers, software, and data bases; and establishment of an Internet site.

More and more people in Jamaica realize that poor sanitation is largely responsible for groundwater and coastal water pollution and hence for increased health risks and threats to the tourism industry. The new center will be a focal point for collaborative action to improve sanitation.

Study in Zambia Examines Mosquito Net Knowledge, Attitudes, Behaviors, and Practices

Malaria control in the government of Zambia's "essential health package" consists of early recognition, care-seeking, effective treatment, insecticide-treated mosquito nets (ITNs) for children under five and pregnant women, and appropriate chemoprophylaxis for pregnant women.

USAID/Zambia's contribution to government malaria control efforts is being channeled through many collaborating organizations, including EHP, BASICS (USAID's flagship child survival project), and the U.S. Centers for Disease Control and Prevention (CDC). EHP has focused on needs assessment for prevention of malaria in three districts of Eastern Province: Chipata, Lundazi, and Chama.

Two assessments have been completed: a knowledge-attitudes-behaviors-and-practices (KABP) study in the three districts and trials of improved practices (TIPs) with ITNs in two rural communities in the program area.

In the KABP study, interviews of 240 households and numerous health personnel yielded useful information about community perceptions of malaria causation and techniques for prevention. The study honed in on KABP regarding ITNs and found that

only 6.7% of the households sampled utilized mosquito nets; none used ITNs, people believe that nets are highly desirable but beyond their reach economically, and cash is in short supply and is spent for food, school fees, medicines, and blankets; mosquito nets were not highly ranked as household priorities.

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- cash is in short supply and is spent for food, school fees, medicines, and blankets; mosquito nets were not highly ranked as household priorities.

TIPs evaluated the use of mosquito nets in 80 households. Participating households purchased their nets at a subsidized price from Neighborhood Health Committees, which also provided information about appropriate net use and retreatment. Participating households will be monitored for a year—until the end of 1998.

The mid-term report has already raised some important issues about ITN use. Aside from cost, which may be *the* key issue for sustainability, the most important question is who in the household has priority use of the ITNs. While children under five and pregnant women are using the nets to some extent, priority is being given to male heads of households. If the goals of the government's malaria program are to be achieved, children under five and pregnant women should use the nets consistently. Monitoring throughout 1998 will tell planners whether families continue to use the nets during the dry season and take them in for timely retreatment.

EHP is also assisting Eastern Province health teams to develop and monitor

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Update (from page 4)

information-education-communication activities promoting behavior change for malaria control.

Strategy for Achieving "Sanitation for All" Discussed at UNICEF Sanitation Workshop

UNICEF hosted a three-and-a-half-day Workshop on Environmental Sanitation and Hygiene in mid-June at UNICEF headquarters in New York. EHP helped plan and facilitate the meeting, which brought together approximately 70 professionals: 40 from UNICEF—staff from both the Health Division and the field—and 30 from other organizations and governments committed to raising the priority of sanitation and improving sanitation programs.

Workshop participants reviewed and evaluated UNICEF's sanitation approach in light of field experience and made recommendations on a strategy for achieving the "sanitation for all" goal defined in UNICEF's 1998-2000 Program Priorities document. Working groups were organized around urban sanitation, school hygiene and sanitation, sanitation promotion, and integrated approaches to achieve health goals.

Organizations attending included USAID, the U.N. Development Program, the World Bank, the World Health Organization, WaterAid, the Water and Sanitation Collaborative Council, and the Canadian, United Kingdom, and Norwegian aid agencies.

Regional Workshop Lays Groundwork for Scale-Up of Urban Environmental Health

EHP and USAID, with the Urban Management Program of the U. N. Development Program, held a three-day workshop on community-based approaches for improving environmental health in secondary cities in West Africa, May 18-20 in Cotonou, Benin.

USAID/Benin Mission Director Thomas Park opened the workshop,

which was attended by 40 government officials, community leaders, NGO directors, banking specialists, and donor representatives from six West African countries and South Africa. (See photo below.) Dr. Akin Mabogunje, Director of the Development Policy Centre, Ibadan, Nigeria, delivered the keynote address.

The workshop highlighted EHP's current CIMEP (Community Involvement in the Management of Environmental Pollution) project in Benin. CIMEP is being implemented on a pilot basis in three secondary cities. The goal is to improve public services—such as provision of drinking water, excreta disposal, and garbage collection—to improve the environmental health conditions of the urban poor and reduce environmentally related diseases.

The workshop emphasized the role of good governance and behavior change in addressing environmental health risk factors. Participants agreed that behavior change is just as important a strategy as building improved infrastructure.

Benin policymakers (specifically those responsible for municipal management

and public health) talked about their roles in providing necessary policy support for community-based disease prevention strategies. Some operational issues—such as cost recovery, municipal transparency, health impact measurement—and the broader issue of poverty alleviation, were also touched upon during the sessions.

Snapshots of Recent Activities

NCIH Panel. In June, EHP presented a panel discussion at the annual meeting of the National Council for International Health. Panelists from EHP, the Aga Khan Foundation, and the Institute of Water and Sanitation Development in Zimbabwe discussed the tension between donor goal priorities and community-based approaches.

WAWTTAR. In 1996, EHP developed an interactive computer software program for selecting the right sanitation technology for a given situation. The WAWTTAR program, in an improved and more user-friendly version, is now available from EHP. □



The Regional Workshop on Community-Based Approaches to Urban Environmental Health was opened by, left to right, Alioune Badiane, Urban Management Program of the U.N. Development Program; Léon Klouvi, Benin Ministry of Health; Thomas Park, Mission Director, USAID/Benin; and May Yacoob, EHP. (See article this page.) Photo: Margo Kelly, EHP.

Water and Sanitation Indicators Call Attention to Key Elements of Successful Programs

EHP collaborated with the IMPACT Project to develop a set of indicators for the use of PVOs implementing Food for Peace activities. EHP was responsible for performance indicators in water and sanitation-related programs.

Eight indicators were developed on the basis of applied research in the technical literature. They apply to water and sanitation programs that have reduction of childhood diarrheal disease as the ultimate goal.

- 1) *Health Effect*. Percentage of children under 36 months with diarrhea in the last two weeks.
- 2) *Water Quantity*. Quantity of water used per capita per day.
- 3) *Handwashing*. Percentage of child caregivers and food preparers with appropriate handwashing behavior.

4) *Toilet or Latrine Use*. Percentage of population using hygienic sanitation facilities.

5) *Water Access*. Percentage of households with year-round access to water.

6) *Toilet or Latrine Access*. Percentage of households with access to a sanitation facility.

7) *Cost Recovery*. Percentage of recurrent costs for water supply services provided by the community.

8) *Community Maintenance*. Percentage of constructed water supply facilities maintained by the community.

The indicators are intended to assist PVOs in planning and monitoring activities and in preparing proposals for submission to USAID and other donors.

— Patricia Billig

Minimum Package (from page 1)

UNICEF and with “Facts for Life” (WHO, UNICEF, UNESCO, and UNFPA).

The first three behaviors target diarrheal disease, the fourth, malaria. No behaviors in the Minimum Package target ARI. After careful consideration, the TAG decided to defer inclusion of behaviors to prevent ARI until more evidence is available about their feasibility and impact.

Behavioral Clusters

The behaviors in the Minimum Package are actually clusters of related behaviors, as shown in the table on page 7. These take place in the private or household domain as well as in the public or community domain.

The first three clusters are listed in priority order for preventing diarrhea. Top priority is the safe disposal of feces. The objective is for every person (including children) in every family to utilize a safe sanitary solution that prevents fecal matter from contaminating the environment. Next come consuming safe water and consuming safe food. To be safe, water must be

obtained from a safe source and stored and used safely; if it is contaminated at the source, it must be treated. To be safe, food must be prepared with clean hands, washed, cooked long enough at a high enough temperature, stored safely, and reheated if it remains uneaten too long. Community food vendors must also adopt appropriate food hygiene behaviors.

In addition, handwashing plays a key cross-cutting role in meeting the overarching objective of the first three behavioral clusters for the prevention of fecal transmission of diarrheal disease agents.

Where malaria is a significant public health problem, protecting oneself and one's family from mosquitoes is a high

Protect Self and Family from Mosquitoes

Trials of insecticide-treated bednets in Africa reduced clinical episodes of malaria by 46%, compared to controls with no nets, and brought about a 19% reduction in child mortality (C Lengeler and RW Snow. 1996. “From efficacy to effectiveness: insecticide-treated bednets in Africa.” *WHO Bull* 74(3):325-32).

priority. It can best be achieved through the consistent use year-round of insecticide-treated bednets, especially by children under five and pregnant women. In some situations, families and communities can also take action to reduce mosquito breeding through environmental controls.

The Importance of the Public Domain

The disease agents for environmentally related diseases can occur throughout a community. Even if individual and household hygiene behaviors improve, poor community behaviors can put residents at risk—particularly children. This is so because the natural behaviors of young children (hand to mouth) put them in greater contact with their environment.

Safely Dispose of Human Feces

The presence of feces in family compounds in Papua New Guinea was associated with a 48% increased risk of diarrhea (GB Bukonya and N Nwokolo. 1991. “Compound Hygiene, Presence of Standpipe and the Risk of Childhood Diarrhoea in an Urban Settlement of Papua New Guinea,” *Inter'l. J. of Epid.* 20(2):534-539).

Improved community hygiene is clearly important. For example, if community-wide defecation behavior contaminates food and water with fecal matter and causes diarrheal disease, then community-wide action is needed. Proper disposal of feces by one or two families may not be sufficient to protect the community's food and water.

To change a community's behavior, both groups and individuals must take action. Community groups can participate in the creation, maintenance, financing, and appropriate use of communal services, such as safe water sources, septic systems, garbage collection, and community “dipping,” or reimpregnation of insecticide-treated mosquito nets.

Individuals and families can also make household environmental

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Minimum Package (from page 6)

Consume Safe Water

Twenty-two of 43 studies of improved water supply showed reductions in diarrheal disease morbidity with a median reduction of 16%; 10 of 16 studies on improved *water quality* alone found positive impacts on diarrheal disease with a median reduction of 17%. (SA Esrey, JB Potash, L Roberts, and C Shiff. 1991. "Effects of Improved Water Supply and Sanitation on Ascariasis, Diarrhoea, Dracunculiasis, Hookworm Infection, Schistosomiasis, and Trachoma," *WHO Bull.* 69(5):609-21).

improvements and adapt new behaviors either related to the technologies or in response to a problem or risk. For example, a household may purchase treated mosquito nets and develop the habit of using them regularly. Perhaps most important, individuals need to support community-wide efforts to reduce disease risk factors.

Building Blocks of Implementation

Strategies for implementing the Minimum Package should include the following building blocks:

- *Identifying actual and perceived disease risk factors.* This key step should be carried out collaboratively between the community and technical experts in

Environmental Health Behaviors

Behavioral Clusters	Representative Specific Behaviors	
	Household	Community
Safely dispose of human (and animal) feces	<ul style="list-style-type: none"> • Build, use and keep clean a latrine or toilet • Wash hands after defecation or changing/cleaning the baby • Remove animal or children's feces from the home and safely dispose of them 	<ul style="list-style-type: none"> • Build, manage, and maintain safe, public sanitary solutions (for human and animal waste)
Consume safe water	<ul style="list-style-type: none"> • Keep all water containers covered • Use clean dippers and keep them hung or covered • Obtain water for drinking/cooking from the least contaminated source available 	<ul style="list-style-type: none"> • Build, manage, and maintain community water supply • Protect against contamination, thievery, wasting water
Consume safe food	<ul style="list-style-type: none"> • Wash hands before eating, feeding, or preparing food • Cook food at high temperatures • Before eating food cooked more than an hour before, re-heat it • Wash fruits and vegetables before feeding/eating 	<ul style="list-style-type: none"> • Build, manage, and maintain safe, sanitary garbage disposal
Protect self and family from mosquitoes	<ul style="list-style-type: none"> • Make sure young children and pregnant women always use an insecticide-treated mosquito net (ITN) • Use ITNs properly (fully covering people at peak biting hours, throughout the year) • Re-dip ITNs when recommended, usually every 6 to 12 months • Eliminate puddles/bushes near home where mosquitoes breed, rest 	<ul style="list-style-type: none"> • Drain puddles/swamps • Support spraying and application of larvicides (both chemical and biological) • Support convenient and affordable re-treatment of ITNs

the diseases of concern. What behaviors are targeted depends on the identified risk factors and an understanding of current behaviors and beliefs, cultural norms, environmental conditions, technologies in use, and community preferences.

- *Reaching out to the community.* Because environmental health is a significant community issue, community members must be involved from the beginning so that they gain an understanding of the relationship between environmental conditions and behav-

iors and the community's disease burden. Only then will they be motivated to take action to protect themselves.

- *Creating an enabling environment.* How national, regional, or local decision makers and the staff of governmental and private organizations interact with communities can affect the viability and sustainability of environmental health programs. These persons can provide resources and political support and can lift barriers that impede community action.



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Beyond the Silver Bullet

Remarkable gains have been made in achieving infrastructure coverage during the last 20 years. But they have not brought about as significant a health impact as donors had anticipated. These programs are still necessary, and new efforts—such as use of insecticide-treated bednets—need support. However, if programs are to achieve long-term success and sustainability in addressing the root causes of disease, a first step must be taken in making the Minimum Package of environmental health behaviors a part of child survival.

May Yacoub (EHP) with Mike Favin (The Manoff Group)

“Home Shopping” for EHP Reports Via the Internet

The Internet has opened doors for EHP to connect with its readers and other organizations, as no other technology has done. EHP has joined thousands of other organizations in making its resources available to the public through the Internet.

With the help of an Internet browser, such as Netscape Navigator, which comes with many of the Internet services, web “surfers” can get to EHP’s home page (www.access.digex.net/~ehp) and then select areas of further interest. For example, “What’s New” gives viewers a list of new EHP reports and instructions on how to subscribe to EHP information groups.

Information on organizations with goals and activities similar to those of EHP is available through links. IRC (International Reference Center), WEDC (Water, Engineering, and Development Centre, Loughborough University, U.K.), WHO (World Health

Organization), GARNET (Global Applied Research Network), and UNICEF—to name just a few—can be reached in a mouse click.

The majority of EHP reports can be downloaded—either the entire report or the executive summary—to viewers’ printers from the EHP home page. Or viewers can request copies by e-mail. Most reports are available in HTML (hyper-text mark-up language), which is easily read by most computer systems. Some highly formatted or illustrated publications are available in PDF (portable document file). When they are downloaded, none of the formatting or illustrations is lost. However, Adobe Acrobat, a special software, must be used to retrieve and print these publications. It is available free of charge on the EHP web site.

A list of all EHP publications can also be viewed and downloaded. To date, EHP has published approximately 50 Activity Reports on technical assistance assign-

ments, 6 Applied Studies on issues and developments in environmental health, several issues of the newsletter *Environment, Health & People* and *Prevention Notes*, special reports on urban environmental health and community participation, and bibliographies on malaria, diarrheal disease, and ARI.

The latest EHP report, “Community-Based Approaches for Environmental Health in Secondary Cities in West Africa and the Scale-Up Process,” is now available on the home page (see the article on page 5 on the workshop described in this report). We would like you to try accessing this, or some other, report via the Internet. Then give us feedback on how the system worked for you. We value your comments and suggestions, and hope you will get in the habit of shopping for EHP reports on the Internet.

— Betsy Reddaway



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