



Strategic Report 10

Advancing Hygiene
Improvement for Diarrhea
Prevention: Lessons Learned

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Acronyms

ACF	<i>Action Contre la Faim</i> — Action Against Hunger
AHJASA	<i>Asociación Hondureña de Juntas Administradoras de Sistemas de Agua</i> or Honduran Association of Management Boards of Water Systems
AVS	Association Voahary Salama
BASICS	Basic Support for Institutionalizing Child Survival
CESH	Community-based environmental sanitation and hygiene
CHW	Community health worker
C-IMCI	Community-Integrated Management of Childhood Illness
CRS	Catholic Relief Services
DHS	Demographic and health survey
DR	Dominican Republic
DR Congo/DRC	Democratic Republic of the Congo
EHP	Environmental Health Project
ENACAL-GAR	The Rural Water Supply Department of the Nicaraguan Water Supply and Sewerage Company
EWOC	Emergency Water Operations Center
GESCOME	<i>Gestion Communautaire de Santé Environnementale</i> — Community Management of Environmental Health
HI	Hygiene Improvement
HIF	Hygiene Improvement Framework
IMCI	Integrated Management of Childhood Illnesses
IRC	International Rescue Committee
ISM	Institutional support mechanism
M&E	Monitoring and evaluation
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
NGO	Non-governmental organization
PAHO	Pan American Health Organization
PHC	Primary health care
PHE	Population-health-environment
PPP	Public-Private Partnership
PVO	Private voluntary organization

SAFE	Sanitation and Family Education project
TIPS	Trials for improved practices
TOM	Technicians for Operations and Maintenance
USAID	U.S. Agency for International Development
WS&S	Water supply and sanitation
WSSCC	Water Supply and Sanitation Collaborative Council

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About the Authors

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Dr. May Post joined the Environmental Health Project as the Information Center Coordinator in July 2000. She is a Burmese-born, U.S.-licensed public health physician with over 25 years experience in international health. Dr. Post has worked for a variety of international organizations — USAID, the World Bank, UNICEF, PAHO and DfID — as well as a range of USAID cooperating agencies. She has also worked in national ministries of health in Liberia, Gambia and Burma. She has written a wide range of technical papers and reports covering primary health care, maternal and reproductive health, emerging/re-emerging diseases, and HIV/AIDS/sexually transmitted infections (STIs) related to women's health, as well as cross-cutting HIV/AIDS/STI issues such as integrated service delivery and partner notification. Before joining EHP's Washington Office, she was a consultant at the EHP/Nepal office in Kathmandu.

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Executive Summary

According to WHO's Global Burden of Disease 2002 estimates, diarrhea accounts for nearly 1.6 million deaths or 15% of under-five mortality each year in developing countries.¹ Based on a June 2003 Lancet article, the number may be as high as 2.3 million.² Child mortality from diarrhea has declined by about two-thirds from 4.6 million deaths in 1980. Yet, a parallel reduction in diarrhea-related morbidity has not been seen, which seriously impacts children's health, nutritional status and learning abilities.

Lack of safe water, basic sanitation and hygiene may account for as much as 88% of the disease burden due to diarrhea.³ The Bellagio Child Survival Study Group also includes water/sanitation/hygiene as one of the top ten proven preventive interventions for deaths of under-fives.⁴ To facilitate further progress in reducing the overall morbidity associated with diarrhea, more attention will need to be paid to hygiene improvement interventions, which have been demonstrated to be effective in terms of public health impact. Hygiene Improvement (HI) is defined as a comprehensive approach to prevent childhood diarrhea through a focus on improving key hygiene behaviors, especially ensuring safe household drinking water, proper hand hygiene, and effective use of sanitation.

The second contract under USAID's Environmental Health Project (EHP) was launched in June 1999, and had one overarching objective — to reduce mortality and morbidity from diarrheal disease in children under-five, or mortality and morbidity associated with infectious diseases of major public health importance, by improving environmental conditions or reducing exposure to disease agents. A decision was made early on in EHP to develop a rigorous, health-centered, programmatic framework. This culminated in the Hygiene Improvement Framework (HIF).

The intent of the HIF is to help programmers think comprehensively about the inputs and activities required to achieve these critical behaviors through a combination of: (1) improving access to water and sanitation hardware and household technologies; (2) promoting proper hygiene; and (3) strengthening the enabling environment to ensure the sustainability of hygiene improvement activities. The HIF has been discussed in detail in Joint Publication 8: *The Hygiene Improvement Framework — A Comprehensive Approach for Preventing Childhood Diarrhea* and in other EHP reports.

Over five years of implementation from 1999–2004, EHP supported diverse activities to improve hygiene outcomes in more than 19 countries. In each setting, EHP's work included diverse mixes of: hygiene promotion; "hardware" such as community water supply; and other "software" such as policy support and capacity building. From these activities, EHP has identified fourteen lessons learned in hygiene improvement. The lessons are presented in this report to assist all those involved

¹ World Health Organization. 2003. World Health Report 2003: Shaping the future.

² Black Robert E, Morris Saul S, Bryce Jennifer. 2003. *Where and why are 10 million children dying every year?* Lancet 2003; 361:2236-34

³ WHO/UNICEF *Joint Monitoring Programme for Water Supply and Sanitation*. Global Water Supply and Sanitation Assessment 2000 Report

⁴ The Bellagio Study Group on Child Survival. 2003. *Knowledge into action for child survival*. Lancet, 362(9380): 323-27.

in health-focused water supply and sanitation program design, implementation, monitoring, and evaluation.

The key lesson from EHP was the flexibility and utility of the HIF. The flexible approach allowed adaptation by program planners to different program contexts (child health programs, primary health care programs and other programs such as urban health); specific country circumstances; and different budget constraints. This was seen throughout EHP's work. Related to design and implementation, EHP found that local institutions and organizations could scale-up hygiene improvement activities with direct supervision, knowledge, and skill-building, provided they have a clear mandate and implementation resources. To create an enabling environment, national sanitation policies were found to be critical to encourage increased access to sanitation services. Another lesson was the importance of strategic partnerships — partnerships were crucial in creating an enabling environment and provided an opportunity to leverage investments in hygiene promotion and achieve complementary benefits and gains. Hardware access and use clearly are important and need to be monitored. The HIF brought clarity and organization to hygiene improvement indicators for decision-making at various levels. EHP also found that the use of the HIF enabled better M&E guidance to pave the way for a more systematic assessment of hygiene improvement at country and local levels.

The lessons learned have been organized under four categories: *programmatic context*; *designing and implementing hygiene promotion activities*; *creating an enabling environment* and *monitoring and evaluation* (Figure 1 on the next page provides the complete list of HI lessons learned).

Although EHP has shown that integration of HI into different program platforms is technically feasible, several challenges have yet to be addressed. For example, more evidence needs to be gathered that shows how HI interventions can be effectively targeted to households at highest risk from diarrheal disease, and more field examples with measurable results are also needed.

It is also important to relate the lessons learned to the three most important dimensions of any public health program: effectiveness or impact; scale; and sustainability. The Hygiene Improvement Framework has been instrumental in achieving results in all three dimensions. It has been used to design programs and activities systematically in a wide variety of field settings with varying resource constraints and to respond to different hygiene improvement needs and opportunities.

Clearly, hygiene improvement has an important role to play in lowering the diarrheal disease burden that still claims far too many lives of young children every year.

Figure 1. Hygiene Improvement Lessons Learned

Programmatic Framework

- The HIF is a flexible tool that allows program planners and managers to use single or multiple HIF components in different programmatic contexts to achieve results.
- Improved hygiene behaviors with a reduction in childhood diarrhea diseases can be achieved when all three components of the Hygiene Improvement Framework are in place.
- Hygiene improvement interventions can be effectively integrated into ongoing programs — such as child health, primary health care, or other programs.
- The HIF can be applied even in a crisis or post-natural disaster (reconstruction) situation. While the timeframe and pressures for project completion are compressed in a crisis/reconstruction situation, the principles of project planning and implementation remain the same.

Designing and Implementing Hygiene Promotion Activities

- Local institutions and organizations can scale-up hygiene improvement activities with direct supervision, knowledge and skill building, provided they have a clear mandate and implementation resources.
- Hygiene behavior change has a better chance of becoming sustainable if the community is actively involved.
- Identifying and working through existing community structures is the only sustainable solution to effectively convey key hygiene promotion messages in circumstances where formal systems barely exist, communities are poor, and many other public health priorities compete for resources.

Creating an Enabling Environment

- National sanitation policies are critical to creating an enabling environment to encourage increased access to sanitation services because without a sound policy framework, scaling up sanitation is difficult; conversely, policy development is facilitated when there is substantial consensus among program implementers on the essential elements for assessing national sanitation policies.
- Improving sanitation in small towns at scale requires a long-term perspective and supportive national policies that provide financing mechanisms, appropriate technical norms and standards, and a decentralized system that puts the small town as the primary decision maker, but before any country begins to replicate and scale up sustainable sanitation programs for small towns, it is very helpful to have one good example or pilot program.
- The sustainability of community-managed rural water supply and sanitation systems requires backup support after the systems are operating; however, there is no single way to provide post-construction support to a community-managed system.
- Partnerships are crucial in creating an enabling environment and provide added value and an opportunity to leverage investments in hygiene promotion and achieve complementary benefits and gains.
- Partnerships facilitate transfer of skills, sharing of lessons learned and provide a venue for mainstreaming HI approaches in partners' health agendas.

Monitoring & Evaluation

- Having standard indicators for each component of the HIF and guidelines helps field programs to monitor and evaluate hygiene improvement activities systematically and effectively.
- International targets such as the Millennium Development Goals are a strong motivator for harmonizing indicators of access to safe water and basic sanitation and for introducing new indicators.

1. Introduction

Background

WHO estimates that environmental risk factors account for 25% of the overall burden of disease, and 30% of that burden falls on children under-five, particularly in developing countries.⁵ Of the many diseases and hazards that fall within the purview of environmental health, a major one related to child mortality and morbidity is diarrheal disease.

According to WHO's Global Burden of Disease (GBD) 2002 estimates, diarrhea accounts for nearly 1.6 million deaths or 15% of under-five mortality each year in developing countries.⁶ Based on a June 2003 Lancet article, the number may be as high as 2.3 million.⁷ Still, a review of 60 studies of diarrhea morbidity and mortality published from 1990 to 2000 concluded that diarrhea causes 2.5 million deaths per year, although morbidity remains relatively unchanged.⁸ Despite different methods and sources of information, each successive review of the diarrhea burden over the past decades has demonstrated relatively stable morbidity despite the decline in mortality.

To facilitate further progress in reducing overall diarrhea morbidity, more attention will need to be paid to diarrhea prevention through hygiene improvement interventions, which have been demonstrated to be effective in terms of public health impact.

Lack of safe water, basic sanitation and hygiene may account for as much as 88% of the disease burden due to diarrhea. Studies have shown that hygiene improvement interventions such as improved water, sanitation and hygiene have resulted in a 30%–50% reduction in the burden of diarrheal diseases.⁹ The Bellagio Child Survival Study Group also includes water/sanitation/hygiene as one of the top ten proven preventive interventions for deaths of under-fives.¹⁰

The second contract under USAID's Environmental Health Project (EHP) was launched in June 1999, and had one overarching objective — to reduce mortality and morbidity from diarrheal disease in children under-five, or mortality and morbidity associated with infectious diseases of

⁵ Briggs D. 2003. Making a Difference: Indicators to Improve Children's Environmental Health. World Health Organization.

⁶ World Health Organization. 2003. World Health Report 2003: Shaping the future.

⁷ Black Robert E, Morris Saul S, Bryce Jennifer. 2003. *Where and why are 10 million children dying every year?* Lancet 2003; 361:2236-34.

⁸ Kosek M., Bern C., Guerrant R.L. 2003. *The global burden of diarrheal disease, as estimated from studies published between 1992 and 2000.* Bulletin of the World Health Organization 81(3):197-204.

⁹ Esrey, S.A., Potash J.B., Roberts L., Shiff C. 1991. Effects of Improved Water Supply and Sanitation on Ascariasis, Diarrhoea, Dracunculiasis, Hookworm Infection, Schistosomiasis, and Trachoma. Bulletin of the World Health Organization 69 (5): 609-621; The World Bank. 1993. World Development Report 1993: Investing in Health; Curtis V., Cairncross S. 2003. *Effect of washing hands with soap on diarrhoea risk in the community: a systematic review.* Lancet Infectious Diseases, 3(5): 275-281.

¹⁰ The Bellagio Study Group on Child Survival. 2003. *Knowledge into action for child survival.* Lancet, 362(9380): 323-27.

major public health importance by improving environmental conditions or reducing exposure to disease agents.

A decision was made early on in EHP to develop a rigorous health-centered programmatic framework. What emerged was the Hygiene Improvement Framework (HIF), a comprehensive approach to diarrhea prevention through water supply, sanitation and hygiene interventions. The HIF has been discussed in detail in Joint Publication 8: *The Hygiene Improvement Framework — A Comprehensive Approach for Preventing Childhood Diarrhea* and in other EHP reports.

Hygiene Improvement

Hygiene Improvement (HI) is a comprehensive approach to prevent childhood diarrhea through a focus on improving key hygiene behaviors, especially ensuring safe household drinking water, proper hand hygiene, and effective use of sanitation. The intent of the HIF is to help programmers think comprehensively about the inputs and activities required to achieve these critical behaviors through a combination of: (1) improving access to water and sanitation hardware and household technologies; (2) promoting proper hygiene; and (3) strengthening the enabling environment to ensure the sustainability of hygiene improvement activities.

EHP's work included diverse mixes of hygiene improvement interventions:

- Integrating the key hygiene behaviors into community child health
- Strengthening the hygiene component of water supply and sanitation projects
- Assisting PVOs in developing guidelines and training materials
- Integrating hygiene improvement indicators into maternal and child health programs
- Joining the public with the private sector to promote practices beyond the child health audience and increase the availability and use of soap
- Improving practices in disaster situations where hardware rehabilitation is the priority
- Improving hygiene practices and supportive hardware in urban slums
- Assessing national sanitation policies to provide a key element of the enabling environment for improved sanitation
- Building a programmatic infrastructure to carry out hygiene behavior change activities

Lessons Learned in Hygiene Improvement

The lessons learned presented here are derived from EHP's experience in hygiene improvement for diarrhea prevention — they are approaches and practices that offer ideas about what works in a given situation and have implications for future programming. The intended audience is USAID, international organizations, PVOs and NGOs working in environmental health programming.

The lessons support the United Nations' Millennium Development Goals (MDG) involving environmental sustainability, child mortality, and urban poverty. A significant MDG target is to

halve the proportion of people lacking safe drinking water and basic sanitation by 2015. These lessons may be useful to those planning activities aimed at these targets, and as part of the upcoming Water Decade beginning in 2005 as recently announced by the United Nations.

In addition, these lessons can help maximize the public health impact of investments in improved water supply and sanitation. EHP's experience has demonstrated that improved access must be accompanied by improved hygiene behaviors in order to contribute to the MDG target of reducing under-five mortality by two-thirds.

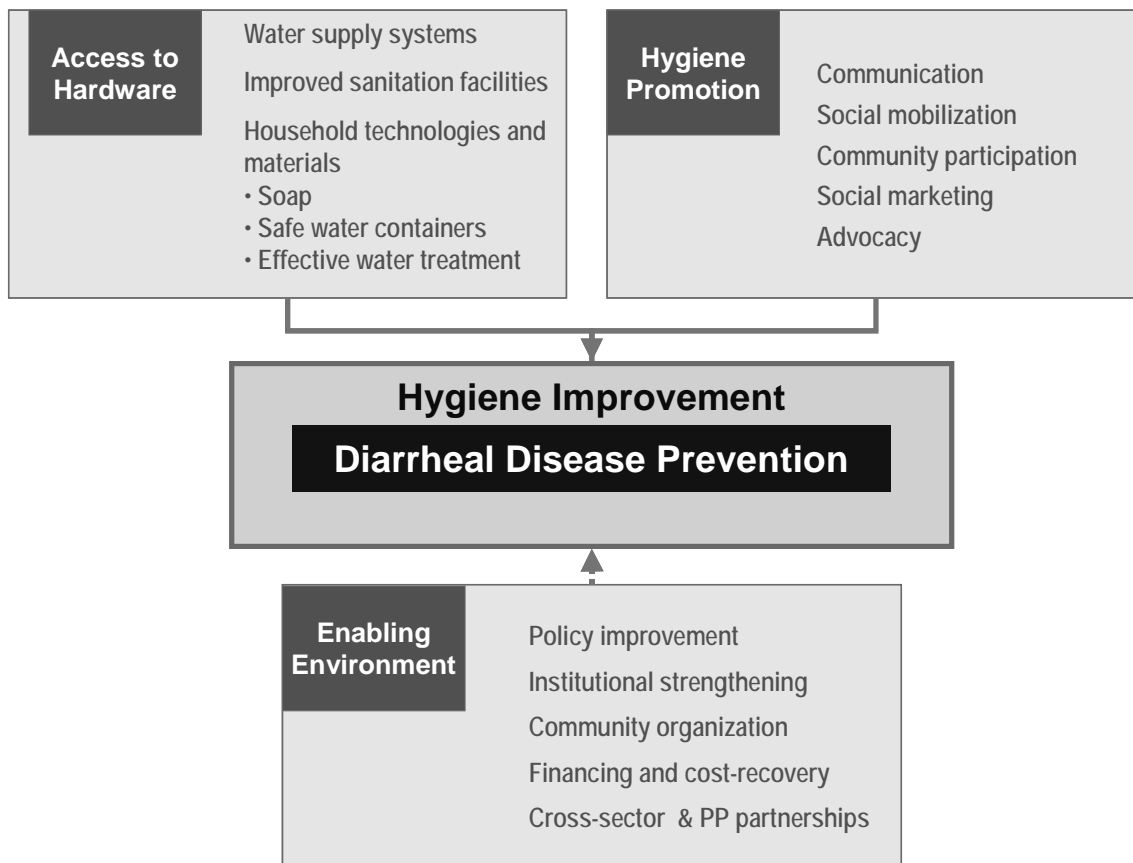
The lessons are presented under four categories: *programmatic context; designing and implementing hygiene promotion activities; creating an enabling environment; and monitoring and evaluation.*

2. The Hygiene Improvement Framework

EHP developed the Hygiene Improvement Framework (HIF) (see below) as a comprehensive approach to diarrhea prevention. The HIF addresses three key elements to prevent diarrheal disease:

1. Improving access to water and sanitation “hardware”
2. Promoting hygiene
3. Strengthening the enabling environment

The Hygiene Improvement Framework



Source: EHP Joint Publication 8. *The Hygiene Improvement Framework — A Comprehensive Approach for Preventing Childhood Diarrhea*

While a comprehensive approach — combining hygiene promotion with increased access to hardware and an enabling environment — is designed to achieve maximum impact, selective or sequential approaches that start with hygiene promotion can also be effective entry points in child, maternal, and other health programs. Strategies to promote hygiene practices include social mobilization, communication, social marketing, and community participation. Successful hygiene behavior change depends on other components of hygiene improvement, especially improved access to safe water and basic sanitation, and an enabling environment.

Increasing access to hardware has these three elements:

1. **Community water systems** address both the water quality and water quantity issues and reduce the contamination risk of food and drink.
2. **Sanitation facilities** dispose of human excreta in ways that safeguard the environment and public health, typically in the form of various kinds of latrines (pit, ventilated, pour-flush, ecological or dry), septic tanks, and flush toilets.
3. **Household technologies and materials** refer to the increased availability of such items as soap (or ash), chlorine (or other water treatment methods), covered water containers with narrow necks, and potties for small children.

Hygiene promotion is based on a good understanding of how behaviors in households and communities contribute to diarrhea morbidity in children. It includes five essential elements:

1. A comprehensive **communication strategy** that raises awareness of hygiene facilities and practices, shares information, and promotes behavior change.
2. The **social mobilization** process obtains and maintains the involvement of various community groups and sectors to control disease.
3. **Social marketing** makes use of marketing principles and strategies to achieve social goals, such as better hygiene and sanitation.
4. **Community participation** may involve collectively examining community barriers to hygiene promotion, designing measures to improve hygiene facilities or practices, or community-based monitoring of progress in achieving hygiene improvement goals.
5. **Advocacy** is an important strategy used by donors and program managers to seek support from governmental and nongovernmental stakeholders for hygiene improvement. Advocacy is woven into hygiene promotion.

In the Hygiene Improvement Framework, promoting hygiene refers to advocating for and supporting behaviors that are known to reduce diarrheal disease, namely handwashing with soap at critical times, safe disposal of feces, and treatment and safe storage of water for drinking and preparing food. Integrating a hygiene promotion component into an existing child, maternal or other

health program is often quite feasible since many of these programs already address behavior change.

Strengthening the enabling environment involves creating an environment — whether at the community, municipal, regional, or national level — that supports the water supply and sanitation hardware and hygiene promotion envisioned in the framework. If these interventions are to be accepted, implemented, and sustained, they must be built on a firm foundation.

This component of the HIF typically takes the form of one or more of these activities:

1. **Policy improvement** is conducted to encourage and promote sustainable water supply and sanitation services and hygiene promotion to prevent diarrheal disease. It involves changing public health priorities, for example, influencing public policy to include diarrheal disease prevention as equally important as the care for sick children.
2. **Institutional development** includes helping institutions to clearly define their mission and staff's roles and responsibilities, improve their leadership, develop sound systems and procedures, increase their technical skills, and train their staff.
3. Promoting **community involvement** means developing local structures that are responsible for operating and maintaining local systems.
4. **Financing and cost-recovery** activities include the up-front infrastructure costs of hygiene improvement, ongoing operating and maintenance expenses, and program costs for training and technical assistance.
5. **Cross-sector and public-private partnerships** emphasize the collaboration and coordination among a number of government entities or a type of public-private partnership.

Every hygiene improvement effort will be somewhat unique, as players in different settings will tailor the activities to their needs. While the specifics will vary from place to place, the overall strategy should be a comprehensive approach that addresses as many of the three key components as possible — increasing access to hardware, promoting hygiene, and strengthening the enabling environment.

3. Lessons Learned

Over the past five years, the Hygiene Improvement Framework has been used to design programs and activities systematically in a wide variety of field settings with varying resource constraints and to respond to different hygiene improvement needs and opportunities. The EHP lessons learned highlight accomplishments and activities where EHP took the technical lead for HI, but field programs were implemented by partner organizations. The lessons learned were drawn from experiences, which occurred during different programming phases such as the program design, implementation, and monitoring and/or evaluation. All the lessons and examples are based on activities that are either complete or far enough along to draw lessons learned from the experience.

PROGRAMMATIC CONTEXT

HI interventions can be implemented in different program settings. All HIF components can be fully integrated into health and other program platforms or selectively applied. Lessons learned from implementing HI in different programmatic contexts are discussed below.

- **Lesson: The HIF is a flexible tool that allows program planners and managers to use single or multiple HIF components in different programmatic contexts to achieve results.**

The key lesson from EHP is the flexibility and utility of the HIF. The flexible approach to the use of the HIF by program planners allows adaptation to: different program contexts (child, maternal, primary health care and other programs such as urban health and integrated population, health and environment); specific country circumstances; and different budget constraints.

HI interventions can be implemented in different program settings. For example, EHP added a sanitation and hygiene component to community child health programs in Nicaragua and Peru. In Madagascar, hygiene was incorporated into an effort to integrate population, health, and environment. In the West Bank, hygiene was an essential component of a rehabilitation activity in response to an emergency situation. And in the DRC, hygiene was added to a broad-based public health project. Each of these has achieved measurable improvements in essential hygiene practices or hardware or both, but through very different programmatic approaches. Since this lesson is the overarching lesson in this document, there is really not one single program that shows the flexibility of the HIF. Rather all hygiene improvement activities contribute to this lesson.

➤ **Lesson: Improved hygiene behaviors with a reduction in childhood diarrheal disease can be achieved when all three components of the hygiene improvement framework are in place.**

In examining the implementation of hygiene improvement programs in child health, water supply and sanitation (WS&S) and other areas, EHP found that programs that are using all three HIF components can achieve significant results. For example, integrating hygiene promotion into a water supply and sanitation intervention resulted in a decrease in diarrhea prevalence by as much as two-thirds and an improvement in hygiene behavior for handwashing alone by 70–80% according to the SAFE study in Bangladesh.¹¹

Dominican Republic (2000–2004): After Hurricane Georges wreaked havoc in the Dominican Republic (DR), USAID brought together the national water authority, the Ministry of Health, and 16 local non-governmental organizations (NGOs) under the Hurricane Georges Reconstruction Initiative. The initiative aimed at replacing infrastructure and improving hygiene behaviors for diarrhea prevention in the hurricane-impacted communities. Nine communities in the Hato Mayor municipality were targeted.

The DR program successfully improved hygiene behaviors and reduced childhood diarrhea using a comprehensive hygiene improvement approach that included: promoting healthy behaviors; access to technology (construction of infrastructure); and strengthening the enabling environment (working with the national water authority to establish decentralized community management of WS&S systems). EHP provided intensive training in behavior-change techniques to 40 staff from 16 NGOs and other government staff involved in the program. Additionally, participants from three NGOs (Catholic Relief Services, MUDE and World Vision) trained as health promoters successfully replicated this approach for a Title II program that incorporated hygiene promotion into a school-based hygiene and nutrition curriculum. Using the skills and knowledge they had gained, the health promoters used a workshop for teachers as a venue to identify key messages and develop classroom materials. This successful result demonstrated the marketability of both the process and approach, and the knowledge and skill transfer to local organizations.

Overall, improved infrastructure combined with a well-designed behavior change program produced measurable results. A decrease in diarrhea prevalence for children under-five from 27% at baseline (December 2001) to 13% at final survey (March 2004) was reported. Observed use of soap during handwashing increased from 59% to 69%, and an increase from 33% to 49% was recorded for reported handwashing of the youngest child before eating. There was also an increase in sanitary disposal of children's excreta (in latrines) from 28% at baseline to 67% at final survey.

¹¹ O. Masee Bateman, Raquiba A. Jahan, Sumana Brahman, Sushila Zeitlyn, Sandra L. Laston, "Prevention of Diarrhea Through Improving Hygiene Behaviors: The Sanitation and Family Education (SAFE) Pilot Project Experience," English, EHP, USAID, ICDDR,B Centre for Health and Population Research, CARE, July 2002.

➤ **Lesson: Hygiene improvement interventions can be effectively integrated into ongoing programs — such as child health, primary health care, or other programs.**

Hygiene improvement interventions have been part of primary health care (PHC) even before the 1978 Alma Ata Conference. The advent of selective PHC and child survival shifted the focus to oral rehydration therapy and immunization, and with the introduction of Integrated Management of Childhood Illnesses (IMCI) in the early 1990s, interventions became more health facility-centered. However, with renewed interest, especially among NGOs, in community-based child health, i.e., the community component of IMCI (C-IMCI), EHP has been able to effectively integrate hygiene promotion into ongoing programs in collaboration with PVO, NGO and partner organizations.

Democratic Republic of the (DR) Congo/SANRU (2002–2004): In the DR Congo, USAID supports a range of integrated activities in SANRU III, a five-year, \$25 million, rural PHC project that the Interchurch Medical Assistance and Christian Church of Congo are implementing. SANRU III operates in 56 of DR Congo’s decentralized health zones with a target population of approximately 8 million people. EHP assisted SANRU III in revitalizing the network of zonal water and sanitation coordinators established under SANRU I/II in the 1980s, while increasing program emphasis on hygiene promotion. C-IMCI has provided the framework for SANRU III to promote and extend primary health care to rural communities. Linking hygiene promotion to C-IMCI was a major factor in hygiene promotion gaining acceptance in this integrated PHC project. While in the past, SANRU always had a WS&S component, it was not well integrated with the other primary health care interventions. Using the C-IMCI framework got the attention of the project’s key technical and zonal level health staff and of USAID. In addition, by incorporating hygiene behaviors actively into C-IMCI, a wider audience was reached than when using facility-based channels. Existing community leaders, such as priests and teachers, also played a strong role in reinforcing key messages and enabling change.

Nicaragua and Peru: Partnering with PLAN International in Nicaragua and Peru, EHP and the Pan American Health Organization (PAHO) integrated hygiene promotion activities into the IMCI context and expanded the IMCI focus from a facility-based to a community-based approach. The strategy was modeled after a successful approach used in the DR, where EHP field-tested a community-based hygiene promotion approach and developed materials. The emphasis of the approach was on community and household practices and preventative behaviors. The approach emphasized strong formative research and trials of improved practices (TIPS) that focused on hygiene behaviors. In addition to extensive training-of-trainers sessions in hygiene promotion for NGOs working in C-IMCI in high diarrheal disease incidence districts in Nicaragua and Peru, a behavior change communication strategy was also designed in consultation with the community, to promote the desired behaviors and overcome the barriers.

Key components of the strategy included communication, training, community mobilization, and development/promotion of materials. The pre-tested materials included protocols, a field manual, graphics and audio tapes. Graphics were developed during discussions with community groups about hygiene, where graphic artists designed sketches based on input from community members. Monitoring and evaluation of the materials was conducted over the life of the project. The materials formed the basis for the development of a hygiene behavior change process guide (*EHP Joint Publication 7: Improving Health through Behavior Change-A Process Guide on Hygiene*

Promotion), which will be used by PAHO for implementing hygiene-related key family practices in PAHO's C-IMCI module.

Madagascar: Over a five-year period, the EHP team planned and implemented an activity in Madagascar to link population-health-environment (PHE) activities and demonstrate synergies resulting from integrated programming. Hygiene promotion, point-of-use water treatment, and small-scale water supply systems were integrated into NGO activities that were primarily focused on voluntary family planning or improved agriculture. Natural resource management activities provided a useful entry point for incorporating reproductive health activities, mostly to populations who would not be easy to reach otherwise. Madagascar demonstrates the successful use of a partnership strategy that brings together local NGOs, USAID and other donor projects, foundations, and the government to achieve positive development outcomes in multiple sectors while conserving the environment and biodiversity. Through the partnership approach, activities were implemented at scale from the beginning, covering 120,000 people in 160 communities in a four-year period, which is a quarter of the target population around threatened ecosystems. Results from an impact evaluation conducted by the Voahary Salama Association showed that contraceptive prevalence rates, a key family planning indicator, increased from 12% at baseline to 17% overall, and to 26% in one area. Immunization rates for fully immunized children increased over 10% (to close to 60%). Access to improved water sources rose from 19% to 24% in intervention areas overall, and more than doubled in some NGO-supported villages. Access to improved sanitation facilities increased slightly, from 52% to 55% overall, but by almost 20% in one area. Intervention areas performed generally much better than control areas for all these indicators. Handwashing with soap was not assessed at baseline, but was very low with approximately 6% at any of the five critical times during the impact survey. Diarrhea prevalence nearly doubled in all intervention and control areas, possibly due to two major cyclones that passed through Madagascar before and during the second survey. The unabated high level of malnutrition that affects one in two children under five is likely to be another contributing factor.

- **Lesson: The HIF can be applied even in a crisis or post-natural disaster (reconstruction) situation. While the timeframe and pressures for project completion are compressed in a crisis/reconstruction situation, the principles of project planning and implementation remain the same.**

Nicaragua: In the aftermath of Hurricane Mitch in the fall 1999, grants were given through EHP to a group of U.S. PVOs to plan and implement a comprehensive water supply, sanitation and environmental health reconstruction program to protect the health of families affected by Hurricane Mitch. Under the program, EHP's PVO partners — Action Against Hunger, the Adventist Development and Relief Agency, Alistar/Raya Ka Laya, CARE, Plan International, Save the Children/USA — worked together with their Nicaraguan partners (Nicaraguan Water and Sewage Company and Nicaraguan Directorate of Water Supply) in 289 rural communities in Northern Nicaragua.

USAID allocated nearly US\$10 million over a 28-month period. While the timeframe and pressures for project completion were compressed into a two-year period, elements of effective programming were in place and functioning, to enable the program to be successfully implemented.

Effective programming elements for successful implementation of the Nicaragua program included: a sound understanding of the implementation area during the design phase, including prior knowledge of key institutions involved, topical issues and policy, to inform decision-making in the strategy design; clear and focused objectives, timelines, and implementation approaches; forming partnerships with PVO grantees and local organizations to function as program implementers; a defined organization and management structure capable of providing proactive management; and constant monitoring, assessment, and re-assertion of planning targets and key goals throughout the program.

The program included all three HIF components. For example, to promote an enabling environment, capacity building of communities was done at the local level to enable communities to manage and operate the rehabilitated infrastructure. At a higher level, EHP helped promote improved synergy and coordination among implementing agencies by organizing workshops, and knowledge sharing forums for information sharing and dissemination.

The program reached an estimated 215,000 beneficiaries. It met its hardware targets — 2,692 water supply systems, 7,226 household latrines, 295 bore holes and WS&S services to 40 health clinics established — and also made progress in “software” areas. For example, increases in improved hygiene practices were seen in correct handwashing (from 53% to 86%) and safe excreta disposal (from 62% to 86%), and there was a reduction — from 20% to 30% — in households with children under-five reporting diarrhea during the two weeks preceding the survey.

West Bank: In September 2001, the Village Water and Sanitation Project was initiated under a task order to bring water and sanitation services to 44 communities near the West Bank towns of Hebron and Nablus. The project included all three components of the HIF, but due to the emergency situation in the West Bank where thousands of people had no fresh water, the project was redirected in April 2002 and became more of a disaster response project. The project assisted in the reconstruction and management of damaged water and sanitation infrastructure and the establishment of the Emergency Water and Operations Center (EWOC), while at the same time attempted to implement hygiene promotion and environmental health assessments.

The HIF was applied in the preliminary planning of the West Bank activity, in particular in the implementation of environmental health assessments. Based on the assessment findings, steps were initiated to enhance health gains among 170,000 people living in 50 villages in the West Bank — with the provision of reliable, treated water, improvement in household management of water quality, improvement in handwashing practices and household and facility level management of diarrhea.

Due to prevailing political situations, the project focused on a combination of simple, community-based interventions that could potentially lead to a reduction of childhood diarrhea and intestinal parasites.

Working under these difficult and insecure conditions required intensive and detailed planning and management procedures to be set in place, but the progress of the project to date supports the lesson that, even in areas of war and crisis, HIF components can be applied, and project activities are similar to those implemented under non-crisis situations.

DESIGNING AND IMPLEMENTING HYGIENE PROMOTION ACTIVITIES

EHP focused on the design and implementation of hygiene promotion interventions at scale. While much remains to be learned in how to program hygiene improvement interventions at scale, EHP has learned several lessons that offer promise. One approach that EHP used was to concentrate on integrating activities into child health, WS&S infrastructure, and other programs. This set of lessons details lessons learned in designing and implementing hygiene improvement programs that address community needs and barriers to hygiene behavior change, and lead to measurable results in essential HI indicators.

➤ **Lesson: Local institutions and organizations can scale-up hygiene improvement activities with direct supervision, knowledge and skill building, provided they have a clear mandate and implementation resources.**

A definition of scale would include several elements. It would include for example, the population covered by a program, the number of people reached with interventions, the sustainable capacity of organizations that have broad reach and are likely to continue to operate in the foreseeable future, the political and financial commitment by the public and the private sector to support hygiene improvement in the long run, and the affordability of interventions by the people who are targeted. While much is still to be learned on how best to go to scale, EHP has learned some valuable lessons. There are a range of factors that must be taken into account in going to scale. The most strategic approaches to program scale-up have been drawn from several countries and include the following:

- Work in partnership or through a network of organizations and use a multi-sector platform whenever feasible.
- Facilitate the development of a shared goal of diarrhea prevention through hygiene improvement.
- Develop the capacity of local institutions to implement sound technical approaches that meet international standards in water supply, sanitation and hygiene promotion.
- Keep approaches simple and limit hygiene messages to a few feasible behaviors based on the systematic use of formative research.
- Work in a participatory manner through sustainable community-based structures and change-agents.

Dominican Republic (DR): The strategy for developing local capacity to implement hygiene promotion activities varies according to the situation. Since EHP was working with 16 local NGOs, the strategy was different than if EHP had been working with a single organization. The approach included several key elements that could be conveyed in a workshop setting.

In the DR program, key programming elements included:

1. Developing a multisectoral team of partners that encouraged program ownership and commitment to integrating methodology and materials into ongoing work.

2. Implementing a systematic hygiene promotion methodology and developing community-specific educational materials with and for the community using the following steps:
 - Conducting formative research (understanding knowledge, existing attitudes and practices and factors that will promote or inhibit changing unsafe practices)
 - Prioritizing behaviors that occur most often/highest risk (targeted behaviors were safe disposal of excreta and handwashing at critical times)
 - Working with the community to identify feasible alternative behaviors
 - Developing and testing educational materials with the community to use in household counseling/negotiation (graphics, reminders, taped dramas)
3. Building institutional capacity for hygiene promotion through a series of workshops.
4. Developing and applying a methodology for conducting a home visit for hygiene promotion based on negotiation rather than lectures on safe hygienic practices. The team trained health promoters in how to use the home visit to: identify current behaviors and their rationale; negotiate safer alternative behaviors; and seek a commitment to try safer behaviors. The outstanding challenges were ongoing refresher training and reinforcement of negotiation and counseling skills.

DR Congo/SANRU: In the DR Congo, unlike the DR, EHP worked with a single organization — SANRU — with a very large reach. The success factors in implementing the hygiene promotion activity at scale were to:

- **Think big from the beginning.** Scale-up is more likely to happen when the activity is designed to “think big” from the beginning. Working with a local organization that has the infrastructure to scale-up makes the task much easier. In the DR Congo, SANRU has the infrastructure to scale-up to reach 8 million people.
- **Be practical and realistic.** The DR Congo is a huge country with poor infrastructure. While all the steps in developing a hygiene promotion program were followed (formative research, strategy development, materials development, pre-testing, etc.), decisions were made all along to be practical. For example, the number of formative research zones was limited to two even though more would have been preferable.
- **Provide external technical assistance to develop local organizations’ capacity.** Local organizations were able to conduct the major steps in developing a hygiene promotion program with targeted EHP assistance. SANRU had the overall responsibility, but the School of Public Health at the University of Kinshasa conducted the formative research and strategy development. With this structure, external technical assistance could be reduced substantially. Working with these organizations as true partners resulted in a high degree of local ownership. This was not EHP’s program. It was a SANRU and health zones’ program.

➤ **Lesson: Hygiene behavior change has a better chance of becoming sustainable if the community is actively involved.**

While EHP advocates a range of strategies for effective hygiene promotion, EHP generally places strong emphasis on local participation. This participation can take many forms including working through existing community committees and/or consultation with community members in focus groups, individual interviews, and public meetings. Participation should occur in both planning and implementation, and most importantly, include active involvement in decision-making. Community engagement has two overall benefits. First, it informs the process and ensures that the strategy is on target and grounded in the reality of the community. Second, it enhances local ownership and increases the chances for program success.

Benin: The Benin GESCOME project (*Gestion Communautaire de Santé Environnementale* — Community Management of Environmental Health) showed that with minimum external supervision local communities can successfully establish and manage effective, decentralized, autonomous decision-making structures.

Under GESCOME, EHP worked with USAID/Benin from 1999 through 2001, to optimize decentralized decision-making related to diarrheal disease prevention in selected medium-sized towns in Benin. The activity resulted in the provision and well-structured management of much wanted and needed public latrines and water points. In addition, “participatory community health communication,” an innovative approach to cooperative learning ensured proper use of latrines in the communities (e.g., as high as 7,000+ users in Sinende) and led to improved hygiene behaviors, such as handwashing after latrine use, covering food, covering water jars, and improving the general cleanliness of the environment. There was also a change in the understanding of diarrhea’s causes and an increase in participatory decision-making. In addition, coalitions between local government, civil society, and communities led to an increase in participatory decision-making and health problem solving.

Key success factors included:

- Effectively linking community groups and informal neighborhood groups with local elected officials, the municipal/commune-level government, and the departmental administration.
- Delegating decision-making powers to local communities to organize and manage the micro-projects that they chose and as they saw fit.
- Establishing, applying, and enforcing rules designed to ensure transparency and accountability.

DR Congo/Urban Environmental Health: During 2000–2001, the USAID Mission to the DR Congo supported an urban environmental health pilot project that focused on diarrheal disease prevention in urban markets. International NGOs — Action Against Hunger (Action Contre la Faim ACF-USA) and the International Rescue Commission (IRC) — collaborated with the University of Kinshasa’s School of Public Health and local community-based organizations to implement the pilot project.

In less than a year, high participation levels (60%–80%) in education sessions by food vendors and restaurant managers resulted in improving knowledge and key hygiene behaviors by 10% or more; unhygienic practices, such as food unprotected from dirt and insects decreased from almost 56% to 40%; knowledge of the five steps in proper handwashing by market clients increased from about 14% to 33%; and vendors increased their execution of the five steps in proper handwashing from 38% to almost 48%. The project also resulted in the construction of nine sanitation units and 11 water distribution points that local organizations managed in the seven targeted markets.

The project's most noteworthy achievement was its collaboration with market vendors to educate and mobilize market communities to address their own sanitation needs and to bring about visible improvements.

- **Lesson: Identifying and working through existing community structures is the only sustainable solution to effectively convey key hygiene promotion messages in circumstances where formal systems barely exist, communities are poor and many other public health priorities compete for resources.**

While creating new structures takes time and often is not successful, existing structures have already established their credibility and developed their own capacity to be a force for change in the community. As a result, EHP generally did not seek to develop new community structures, but instead worked through existing ones. The following two examples illustrate this lesson.

DR Congo/SANRU: The DR Congo/SANRU hygiene promotion activity was launched in five health areas in 10 pilot zones and reached an estimated target population of 375,000. Program outputs included developing behavior change materials through a rigorous process of formative research, integration into an overall C-IMCI framework, and training 10 zonal level health teams to train health area personnel.

One of the DR Congo activity's key success factors was tapping into existing community structures rather than creating new ones. The church and schools were two key existing structures used to convey messages, in addition to community development committees and mothers' clubs. The hygiene promotion program included developing communication materials and training "institutional relays" — priests and teachers — to use these materials in their everyday work. In addition, the program identified and trained "volunteer relays." These were usually mothers who would convey the messages to other mothers. Using training materials that SANRU and EHP had developed, zonal health staff at the health centers conducted training for the institutional and volunteer relays. While time did not allow for a complete post-intervention survey to measure actual behavior changes, a mini knowledge, practice and coverage (KPC) survey implemented by the School of Public Health showed the following preliminary results: households where only adults have access to stored water (safe water management) increased from 69.6% at baseline to 88.6% at follow-up survey; households with access to an improved water supply increased from 30.1% to 50.1%; households that wash their hands correctly and air dry them increased from 31.3% to 33.3%; households that have latrines rose from 73.8% to 85.7%; and households that dispose of children's feces immediately in a latrine increased from 72.0% to 91.2%.

This follow-up survey was conducted in three zones, two of which were in the baseline survey. Independent samples were drawn from the zones during each survey.

CREATING AN ENABLING ENVIRONMENT

Hygiene improvement interventions cannot be scaled up or be sustainable without a supportive enabling environment that includes policy improvement, institutional strengthening and partnerships.

EHP's efforts to strengthen the enabling environment took many forms including policy reform, training, strengthening NGO capacity, and developing public-private and cross-sectoral partnerships. Over the course of the project, EHP worked extensively on three specific enabling environment issues: national sanitation policies; improving sanitation in small towns; and developing institutional support mechanisms to provide backup support to community-managed rural water supply and sanitation systems after they are operational. Each issue was studied extensively, methodologies were developed and applied in the field, and guidance documents produced. The key lessons are presented below.

National Sanitation Policies

- **Lesson: National sanitation policies are critical to creating an enabling environment to encourage increased access to sanitation services because without a sound policy framework, scaling up sanitation is difficult; conversely, policy development is facilitated when there is substantial consensus among program implementers on the essential elements for assessing national sanitation policies.**

Over the past five years, many external support agencies and some national governments have been advocating and promoting sanitation as a critical intervention to reduce diarrhea. Activities to promote sanitation and create political will have occurred in a number of countries. Some countries have also implemented pilot sanitation projects and generally paid increased attention to sanitation. Despite these efforts, however, sanitation coverage still lags behind water supply coverage. In the past few years, practitioners and policymakers have recognized that a key constraint to replicating and scaling up successful pilot programs have been unclear, contradictory or nonexistent national sanitation policies within which public and private sector organizations operate. For scale-up to be successful, countries have become increasingly aware that a coherent set of national sanitation policies is needed that promotes the importance of sanitation, sets priorities, and provides the basis for action. To address this issue, EHP developed the *Guidelines for Assessing National Sanitation Policies*.

To identify the essential elements for assessing national sanitation policies, EHP reviewed the literature on sanitation and WS&S policy reform and identified nine key elements for assessing national sanitation policies. These elements were then reviewed in a workshop with key international partners that are active in promoting sanitation. These elements are as follows:

- **Political will** in terms of policy support by politicians, government officials, and representatives of influential organizations

- **Stakeholders' acceptance of policies** as an indicator of agreement with their general purpose
- **Legal framework** as the basis in the form of laws, legislative acts, decrees, and regulation
- **Population targeting** where programs are aimed at groups needing priority attention, namely the urban poor, residents of small towns, and rural populations
- **Service levels** where the technology level is based on cost, willingness to pay, and technical issues
- **Health considerations** are being addressed by sanitation efforts
- **Environmental considerations** being addressed by sanitation efforts
- **Financial considerations** are addressed through sustainable financing for capital, recurrent, and program costs
- **Institutional roles and responsibilities** are clear and defined among key national agencies and the local government

In collaboration with a number of partners, EHP developed guidelines for the assessment of national sanitation policies. These guidelines are intended to assess the adequacy of national sanitation policies and to focus attention on the key elements of sound sanitation policy. In partnership with the Water and Sanitation Program and PAHO, EHP applied these guidelines in **Peru** in October 2003 (*EHP Joint Publication 12. Evaluation of Peru's National Sanitation Policies*). Additionally, other international agency partners have recently used these guidelines in **Madagascar, Laos, and Honduras**.

Improving Sanitation in Small Towns

- **Lesson: Improving sanitation in small towns at scale requires a long-term perspective and supportive national policies that provide financing mechanisms, appropriate technical norms and standards, and a decentralized system that puts the small town as the primary decision maker, but before any country begins to replicate and scale up sustainable sanitation programs for small towns, it is very helpful to have one good example or pilot program.**

In recent years, the international community has paid increased attention to small towns. One reason for the increased interest is the sheer number of small towns that range in size from 5,000 to 25,000. In 19 Latin American countries, there are over 14,000 municipalities of which 74% have populations under 20,000. Most efforts in small towns were aimed at improving water supply, and a few addressed sanitation. Over two years, EHP explored the sanitation issue in small towns in Latin America and concluded that the primary constraints to improving sanitation in small towns are as follows:

- Lack of resources for financial investment in wastewater collection and treatment
- Lack of demand for sanitation
- Limited institutional capacity

- A bias among engineers towards more conventional wastewater collection and treatment

To address these constraints, EHP designed a strategy and a practical methodology, then field-tested the methodology for sustainable sanitation services in a small town.

Peru and Honduras: In two sub-regional workshops in Peru and Honduras in 2002, participants clearly identified the importance of creating an enabling environment to improve sanitation in small towns. Specifically, they cited the importance of supportive national sanitation policies, clearly designated responsibilities for small towns, better coordination among national agencies, availability of financing mechanisms, political will to address sanitation in small towns, and the strengthening of the local government's capacity.

Panama: In 2003, EHP worked with Panama's Ministry of Health to organize a national workshop to increase awareness of the sanitation problem in small towns and identify the key national issues that need to be addressed.

Before any country begins to replicate and scale up sustainable sanitation programs for small towns, it is very helpful to have one good example or pilot program. Pilot programs serve to define the issues that must be addressed and to fine-tune the approach and methodology. Once the pilot is operational, others can visit and learn from the experience.

EHP found that there are very few examples of sustainable town-wide sanitation services in small towns in Latin America.

Panama, Paraguay and Jamaica: In Panama and Paraguay, national authorities made it very clear that an example was needed before any national program could be developed. In both countries, the sanitation plan implementation is actively underway. In Panama, a feasibility study is underway and financing arrangements are nearly in place. A similar process has begun in Paraguay. In Jamaica, financing for the plan is in place.

Establishing Institutional Support Mechanisms for Community-managed Rural Water Supply and Sanitation Systems

- **Lesson: The sustainability of community-managed rural water supply and sanitation systems requires backup support after the systems are operating; however, there is no single way to provide post-construction support to a community-managed system.**

Despite donor and government investments, there is widespread evidence that, after a few years of operation, many community-managed rural systems face management, technical, or financial problems. Without external support, reliance on community management has not been sufficient to make the system sustainable. National agencies have generally been unable to provide adequate back-up support. Increasingly, donors and governments have recognized the limits of community management and that some form of ongoing support is needed to ensure sustainability. In response to this problem, EHP identified and documented in case studies four successful models for providing post-construction support. EHP then developed a guidance document for establishing institutional support mechanisms (ISMs) for community-managed systems.

However, EHP's review of successful ISM models indicates that there is no single way to provide post-construction support.

Honduras: In Honduras, the TOM (Technicians for Operations and Maintenance) model is a national system serving two million people. It is based on the circuit rider concept that the US-based National Rural Water Association uses. TOMs are employees of SANAA, the national water and sewer agency, and work for regional offices that have substantial authority to make decisions. Each TOM is responsible for 50 communities and visits each one twice a year to provide a range of support.

Another model also in Honduras is AHJASA (*Asociación Hondureña de Juntas Administradoras de Sistemas de Agua* or Honduran Association of Management Boards of Water Systems). In this model, 300 communities formed an association of water boards. AHJASA's four promoters respond to requests and do not make regular monitoring visits.

Nicaragua: In Nicaragua, the model is based on collaboration between municipal government and ENACAL-GAR (the Rural Water Supply Department of the Nicaraguan Water Supply and Sewerage Company). This model serves the Jinotega and Matagalpa departments, which have a total rural population of 540,000 people. Promoters are municipal government employees but work under the ENACAL-GAR's technical supervision. Each promoter serves an average of 30 communities and provides the same type of support as the TOM in Honduras. As in the previous two examples, promoters do not make regular monitoring visits.

All these models have common elements but are institutionally quite different. All have promoters who provide a similar range of services to communities. All have well-defined roles, responsibilities, and operating procedures. All have a well-defined information system. The TOM model is implemented through a decentralized national agency. The Nicaragua model is a hybrid of a local government and national agency. AHJASA is an independent organization tied neither to local government nor to a national agency. The choice of which model is most appropriate is quite situational. It will depend on the technology level, the local private sector's capacity, the economic development level, the degree of local government decentralization, each community's capacity, and the financial resources to support the ISM.

Partnerships

- **Lesson: Partnerships are crucial in creating an enabling environment and provide added value and an opportunity to leverage investments in hygiene promotion and achieve complementary benefits and gains.**

Central American Handwashing Initiative: Under the Central American Handwashing Initiative (1996-99), USAID through EHP and the Basic Support for Institutionalizing Child Survival (BASICS) project, was the catalyst in the development of a Public-Private Partnership (PPP) involving four soap companies, the ministries of health from Guatemala, El Salvador, and Costa Rica, and numerous NGOs and development organizations. The partners developed a strategy and handwashing campaign that involved the media, social mobilization, and hygiene promotion programs enacted through PVOs and soap companies to reach communities and schoolchildren throughout Central America. For example, 450,000 schoolchildren were reached in 2001 alone. The

Partnership resulted in a 50% increase in handwashing with soap among mothers and a 4.5% reduction in diarrheal disease prevalence among children under-five. Additionally, the PPP leveraged significant private sector resources and sustained the private sector's involvement in social programs. Based on the success of the Central American Handwashing Initiative, other PPP initiatives are being implemented in Peru and Nepal with EHP support. In PPPs, the soap industry (private sector) stands to gain by selling more soap while the public agencies move toward the desired objective of improved hygiene practices and a reduction in diarrheal diseases (see Annex 2 for Hygiene Improvement partnership activities).

- **Lesson: Partnerships facilitate transfer of skills, sharing of lessons learned and provide a venue for mainstreaming HI approaches in partners' health agendas.**

EHP's partnership with the **Child Survival Collaborations and Resources Group (CORE Group)** provided access to several PVO organizations for skills transfer and promoting hygiene improvement. Partnering with **Catholic Relief Services (CRS)** provided EHP with a venue for mainstreaming HI approaches in partner agendas. EHP had significant input in the development of the "CRS Community Health Workers' Training Manual" that CRS will use for community health worker training related to prevention of diarrhea in CRS countries. Similarly, EHP provided significant input related to hygiene improvement in the development of training manuals for the management and prevention of diarrheal disease by **Freedom from Hunger**. EHP also worked with the **Hesperian Foundation** to provide input on sanitation and hygiene in a community environmental health book written by the Foundation.

In the field, EHP partnered with international Private Voluntary Organizations (PVOs), local NGOs and international organizations. For example, EHP worked with **PAHO** and **Plan International** for diarrheal prevention in the C-IMCI context in Nicaragua and Peru. Under the **West Africa Water Initiative (WAWI)**, 14 partner institutions including USAID collaborated to achieve a common goal — to increase access to sustainable safe water and environmental services and reduce the prevalence of water-borne diseases — in Ghana, Mali and Niger. Leadership and major funding for WAWI was provided by the Conrad N. Hilton Foundation. USAID (through the Integrated Water Resources Management, implemented by ARD) played a lead role in developing the WAWI monitoring and evaluation plan with technical assistance from EHP. To promote the harmonization of existing water and sanitation indicators and set standards for new hygiene indicators, EHP collaborated extensively with **WHO** and **UNICEF Joint Monitoring Programme (JMP)**, with the USAID-funded **MEASURE Project** and the **CORE Group**. These are just a few of the many examples where EHP promoted hygiene improvement broadly through strategic partnerships.

MONITORING AND EVALUATION

Without appropriate guidance, programs are left to their own devices to define indicators and develop appropriate assessment instruments. While some programs, such as child health, have well-established standards and detailed guidelines, hygiene improvement interventions do not. This makes monitoring and evaluation of hygiene improvement difficult in two ways. First, in the absence of standard program indicators for several important hygiene improvement elements, such as household water treatment, hygiene behaviors, or community capacity as a measure of

sustainability, a multitude of survey instruments with numerous indicators and countless questions have been used. Although these questions show some similarity, they were applied inconsistently; and the evidence about the validity and reliability is insufficient for many. Second, even where indicators have been adopted and used for almost two decades, these still lack harmonization between important population surveys. EHP worked with international organizations, PVOs and country programs to develop, test and disseminate standard indicators for HI and facilitated the process of harmonizing indicators and survey questions. This process resulted in the following lessons.

➤ **Lesson: Having standard indicators for each component of the HIF and guidelines helps field programs to monitor and evaluate hygiene improvement activities systematically and effectively.**

On a program level, EHP provided a practical reference for program personnel about essential, priority and supporting hygiene improvement indicators, assessment instruments, and data collection methods. Data for these indicators can be collected primarily through household surveys, but several indicators are also useful for qualitative assessments of the enabling environment at the community level and institutions such as schools and health facilities. EHP worked closely with the London School for Hygiene and Tropical Medicine and the Water Supply and Sanitation Collaborative Council (WSSCC) to develop guidelines and model questionnaires. As a result, standardized hygiene improvement indicators were used for household and community surveys in the **DR, DR Congo SANRU, India, Madagascar, Nicaragua, Peru, and West Bank** and M&E plans for the West African Water Initiative (WAWI) in **Ghana, Mali and Niger**. The standard knowledge, practices, and coverage survey instrument used by PVOs in the CORE Group was updated. Hygiene improvement indicators were included in USAID's Child Health Indicator Guide. The guidelines for assessing hygiene improvement at the household and community levels had been developed and reviewed by UNICEF, WHO, WSSCC, the World Bank, and several other organization with a vested interest in measuring water supply, sanitation and hygiene.

➤ **Lesson: International targets such as the Millennium Development Goals are a strong motivator for harmonizing indicators of access to safe water and basic sanitation and for introducing new indicators.**

Consensus has been reached on coverage indicators for water supply and sanitation on an international level, which will improve their consistent use in major population surveys such as the Demographic and Health Survey (DHS), Multiple Indicator Cluster Survey (MICS) and WHO World Health Survey. This harmonized set of indicators and the accompanying survey questions are an important step in measuring progress towards MDG targets. As part of the harmonization process, additional indicators, especially to measure hygiene behaviors such as handwashing with soap, have been proposed for testing and possible inclusion in these major household surveys. EHP worked with the WHO/UNICEF Joint Monitoring Programme (JMP) and its member organizations, including Measure DHS and The World Bank, to harmonize indicators and survey questions. EHP contributed to the expansion of essential hygiene improvement indicators in the DHS and MICS and the coverage of a broad range of indicators that are proposed for a separate DHS environmental health module. The latter also addressed special issues related to data collection in urban slums.

4. Hygiene Improvement Challenges

Although EHP has shown that integration of HI into different program platforms is technically feasible and within the means available from donors and local partner organizations, many programs have yet to incorporate hygiene improvement, and several HI challenges have yet to be addressed.

- ❑ **More evidence needs to be gathered that shows how hygiene improvement interventions can be effectively targeted to households at highest risk from diarrheal disease, which are also among the poorest.**

Hygiene improvement especially hygiene promotion, needs to be integrated in many more field programs especially maternal and child health, food aid and security (Title II), HIV/AIDS, hygiene education for schools, adult literacy, and water supply and sanitation infrastructure investment programs at health facilities and in the community. While EHP has shown that the integration into different program platforms is technically feasible and within the means available from donors and local partner organizations, too many programs have yet to incorporate hygiene improvement. While the case for including household water treatment or handwashing with soap can be easily made in the context of food aid and families with people living with HIV/AIDS, the evidence needs to be gathered that shows how hygiene improvement interventions can be effectively targeted to households at highest risk from diarrheal disease, which are also among the poorest.

- ❑ **While EHP has been able to demonstrate that hygiene improvement can be programmed at scale through strategic partnerships and capacity building, more successful field examples with measurable results are needed.**

Additional intervention research is necessary to better understand what sustains hygiene practices in the long run, what enables communities to manage water supply systems effectively, or what can boost demand for and use of basic sanitation technologies and point-of-use water treatment. Answering these and other questions will be essential for implementing hygiene improvement interventions at scale in many more countries.

- ❑ **More evidence about the effectiveness and sustainability of public-private partnerships is crucial.**

Although the evidence from Central America has shown that the private sector can be successfully engaged, stronger evidence is needed about the long-term sustainability of these partnerships, their effectiveness in achieving health impact, their ability to reach poor population groups, and their cost effectiveness.

❑ **Models of partnership approaches and experiences in implementing hygiene improvement that minimize the demands on time and resources are needed.**

Working in partnerships to promote and implement hygiene improvement interventions widely has been shown to be essential, but working with other organizations requires patience and commitment to stay with the partnership for the long haul. Partnerships often take time to get started — this was mainly due to the time required to reach consensus about strategies and key technical issues, to manage the activity, and to facilitate key work elements such as meetings. Where the funding depends on various sources, progress may not be possible as planned if there is a lack of resources needed to support all necessary elements of an activity. For example, in the case of the West African Water Initiative (WAWI), all partners needed to first agree on a common set of indicators and a monitoring and evaluation plan, but the implementation of the plan depended on the initiative and each partner having the necessary personnel with skills in monitoring and evaluation, which initially was not the case.

❑ **The design and provision of technical assistance and training need to take the different strengths and capacity of local organizations into account to maximize their impact and create lasting competence.**

Small NGOs like CRS and MUDE in the Dominican Republic have strong community and outreach skills, but they may find it a challenge to maintain intensive training and monitoring activities without additional funding.

❑ **Barriers and motivating factors for changing essential hygiene behaviors need to be better understood through operations research to inform program design and implementation.**

The promotion of hygiene behaviors has been identified as an intervention that could have considerable impact in the reduction of diarrheal diseases in young children in developing countries. Among the behaviors, the **sanitary disposal of human feces**, particularly those of children, have been the least studied area. Few studies have been done describing the disposal practices of young children's excreta at the household level and very few have investigated its relationship with diarrhea. With EHP support, the International Institute for Nutrition (IIN) in Lima, Peru, reviewed the current knowledge of children's excretal practices in developing countries and the epidemiological evidence that associates some of these practices with diarrheal diseases. The objective of the review was to identify interventions that could improve the sanitary disposal of feces at the household level. Based on the review, toddler's feces disposal in the open field was highlighted as probably the most important contaminant in the household environment, and the prevention of open defecation or direct contamination with children's feces was identified as an important area to focus attention. Additionally, the use of diapers or similar devices in young infants (including appropriate techniques to dispose or wash them) and the promotion of potties in toddlers were found as the most promising interventions to be developed and evaluated. The immediate removal of feces from the household environment and its disposal in more appropriate places (either disposal in a latrine or burying) was another area identified in the review that deserves further evaluation.

The most common methods used to evaluate hygiene behaviors have been questionnaire surveys, but dissatisfaction with the reliability of the information from questionnaire surveys has led to the use of alternative approaches like structured observation. Qualitative methods are also very important complements to observations and questionnaire data. The IIN review also suggested that using a variety of methods offers a better understanding of these behaviors that could lead to better designed community participatory hygiene promotion programs. This review highlighted the urgency of further intervention research to identify barriers and motivating factors for changing essential hygiene behaviors, not only in sanitary disposal of children's feces but related to other hygiene behaviors as well.

5. Conclusions

The three most important dimensions of any public health program are effectiveness or impact, scale, and sustainability. The Hygiene Improvement Framework has been instrumental in achieving results in all three dimensions. It has been used to design programs and activities systematically in a wide variety of field settings with varying resource constraints and to respond to different hygiene improvement needs and opportunities. In addition to these three dimensions, conclusions are also provided in two key areas — monitoring and evaluation and partnerships — both of which were central to EHP's work in hygiene improvement.

Effectiveness

- When the interventions are focused on a few elements of hygiene improvement and have clear and simple hygiene messages, results such as improved hygiene behavior and reduced diarrheal disease prevalence can be achieved in a relatively short amount of time. These results can be achieved using different program strategies and approaches appropriate to the specific country context.
- Selective implementation of hygiene improvement components works well when integrated into ongoing child health programs, such as the C-IMCI in Nicaragua and Peru or when combined with hardware improvements, such as in the DR.

Scaling-up

- The feasibility of implementing hygiene improvement components at scale, in particular hygiene behavior change such as handwashing with soap to prevent diarrheal disease, compares favorably to other childhood diseases prevention measures such as exclusive breastfeeding or use of insecticide-treated materials for malaria protection.
- Programs that include hygiene promotion can be designed at scale from the start, especially if they work in partnership with existing programs and organizations in the private and public sectors.

Sustainability

- Although hygiene behavior change was a goal in many EHP activities, the relatively short-term nature of many programs has not allowed for an evaluation of the long-term sustainability of targeted behaviors. Further exploration is needed on effective approaches for implementation at scale and how to maximize sustainability. This should be revisited during the follow-on project.
- Strengthening the roles of communities and municipalities in managing local systems and services is essential for sustaining improvements.

- An estimated 2.4 billion people are without access to improved sanitation according to the WHO Global Assessment Report 2000. National policies need to be implemented to close the sanitation gap. In many countries supportive policies either do not exist or are ineffective. Assessing sanitation policy is a first step to starting the policy process.

Monitoring and Evaluation

- The HIF brought clarity and organization to hygiene improvement indicators for decision-making at various levels, in particular for program managers. Better M&E guidance lays the groundwork for a more systematic assessment of hygiene improvement at country and local levels. Having better data available will facilitate their use for making important programmatic and policy decisions.

Partnerships

- Partnerships play a crucial role in advancing the HI agenda (see Annex 2 for list of EHP partnerships). Public-private partnerships in Central America demonstrated how resources can be pooled to provide added value. The private commercial sector — the soap manufacturers — committed substantial resources to promoting a public health intervention. The approach remains to be evaluated in Peru and Nepal.
- Introducing hygiene improvement to NGOs and international organizations through a range of collaborative efforts and partnerships greatly increased the reach of hygiene improvement efforts.

In summary, the work of the Environmental Health Project has established hygiene improvement as an important and viable public health intervention in the child health context. Despite these achievements, much work remains to be done to reduce diarrheal disease mortality and morbidity. Future investments should aim at integrating hygiene improvement into a broader range of programs and implementing interventions at scale, using the experiences in Central America, the DRC, the DR, and Madagascar as models. Point-of-use water treatment, demand for sanitation solutions, and a greater use of multi-sector platforms for programming hygiene improvement should be key areas. As new experiences are gained from countries like India, Peru, Nicaragua and Nepal, these approaches should be refined. Ongoing and new field programs provide an opportunity for testing new approaches to effectively sustain hygiene behavior change and answer other questions of vital importance to the integration and scaling up of hygiene improvement.

Annex 1. EHP Reports for Further Reading

These and other EHP reports are available on the EHP web site: www.ehproject.org.

Activity Report 103. *Forum for Knowledge Sharing and Lessons Learned, Programa Rural de Agua Potable, Saneamiento y Salud Ambiental, Managua, Nicaragua.*

Activity Report 105. *Operations and Maintenance Strategy for Community-Managed Rural Water Supply Systems in the Dominican Republic Technical Assistance to Acueductos Rurales, Instituto Nacional de Aguas Potables y Alcantarillados, Santo Domingo.*

Activity Report 106. *Nicaragua. Rural Water Supply, Sanitation, and Environmental Health Program.*

Activity Report 113. *End of Project Report. Environmental Health Project CESH Benin Activity. Gestion Communautaire de La Sante Environnementale II (GESCOME II).*

Activity Report 115. *Integration of Health, Population and Environmental Programs in Madagascar. Midterm Progress Report.*

Activity Report 116. *Urban Environmental Health Pilot Activities Evaluation of Progress and Lessons Learned USAID/Democratic Republic of Congo.*

Activity Report 117. *Sanitation in Small Towns, Summary Report on Sub-regional Workshops, Environmental Health Project, Water and Sanitation Program, Pan American Health Organization.*

Activity Report 119. *Urban Environmental Health Strategies: Three Community-based Environmental Sanitation and Hygiene Projects Conducted in the Democratic Republic of Congo.*

Activity Report 120. *Combining Hygiene Behavior Change with Water and Sanitation: Monitoring Progress in Hato Mayor, Dominican Republic.*

Activity Report 124. *West Africa Water Initiative (WAWI) Monitoring and Evaluation Plan, Program Framework and Indicators.*

Activity Report 125. *Combining Hygiene Behavior Change with Water & Sanitation: A Pilot Project in Hato Mayor, Dominican Republic. April 2000 – May 2002.*

Activity Report 128. *Planning Tools for the Nepal Public Private Partnership for Handwashing Initiative.*

Activity Report 132. *Developing a Hygiene Promotion Program: Summary of Assistance to SANRU III in the Democratic Republic of Congo.*

Activity Report 137. *Combining Hygiene Behavior Change with Water and Sanitation: Monitoring Progress in Hato Mayor, Dominican Republic. Part II. (December 2001–March 2004).*

Activity Report 138. *Strengthening Hygiene Promotion in the West Africa Water Initiative (WAWI) Partnership in Ghana, Mali and Niger. Assessing the Capacity of WAWI Partners to Promote Hygiene.*

Activity Report 139. *Summary Report: Combining Hygiene Behavior Change with Water and Sanitation in the Dominican Republic. A Pilot Project in Hato Mayor and Follow-on Activities to Institutionalize and Scale-up the Behavior Change Approach.*

Activity Report 141. *Implementing Participatory Community Monitoring for Water, Sanitation, and Hygiene in Nicaragua. The NicaSalud Experience.*

Activity Report 143. *Final Report. Promoting Hygiene Behavior Change within C-IMCI: The Peru and Nicaragua Experience.*

Joint Publication 1. *The Story of a Successful Public-Private Partnership in Central America Handwashing for Diarrheal Disease Prevention.*

Joint Publication 2E. *Public-Private Partnerships: Mobilization Resources to Achieve Public Health Goals, The Central American Handwashing Initiative Points the Way.*

Joint Publication 4. *Prevention of Diarrhea Through Improving Hygiene Behaviors: The Sanitation and Family Education (SAFE) Pilot Project Experience.*

Joint Publication 5. *USAID Village Water and Sanitation Program West Bank of Palestine—Environmental Health Assessment—Phase I.*

Joint Publication 6. *USAID Village Water and Sanitation Program, West Bank—Environmental Health Assessment—Phase II.*

Joint Publication 7. *Improving Health through Behavior Change — A Process Guide on Hygiene Promotion.*

Joint Publication 8. *The Hygiene Improvement Framework—A Comprehensive Approach for Preventing Childhood Diarrhea.*

Joint Publication 11E. *Behavioral Study of Handwashing with Soap in Peri-urban and Rural Areas of Peru.*

Joint Publication 12E. *Evaluation of Peru's National Sanitation Policies.*

Joint Publication 13. *The Hygiene Improvement Framework—A Comprehensive Approach for Preventing Childhood Diarrhea.*

Strategic Report 1. *Case Studies on Decentralization of Water Supply and Sanitation Services in Latin America.*

Strategic Report 2. *Guidelines for the Assessment of National Sanitation Policies.*

Strategic Report 3. *Improving Sanitation in Small Towns in Latin America and the Caribbean — Practical Methodology for Designing a Sustainable Sanitation Plan.*

Strategic Report 4. *Creating an Enabling Environment for Community-Based Rural Water Supply, Sanitation and Hygiene Promotion Systems: Case Study: Reforming the Rural Department of the National Water Agency (INAPA) in the Dominican Republic.*

Strategic Report 5. *The GESCOME Difference. Lessons Learned From Gestion Communautaire de Santé Environnementale (GESCOME). The Environmental Health Project II CESH Benin Activity.*

Strategic Report 6. *Institutional Support Mechanisms for Community-Managed Rural Water Supply & Sanitation Systems in Latin America.*

Strategic Report 8. *Assessing Hygiene Improvement — Guidelines for Household and Community Levels.*

Strategic Report 11. *Children's Feces Disposal Practices in Developing Countries and Interventions to Prevent Diarrheal Diseases: A Literature Review.*

Annex 2. EHP Guidelines and Tools

These and other EHP reports are available on the EHP web site: www.ehproject.org.

Activity Report 124. *West Africa Water Initiative (WAWI) Monitoring and Evaluation Plan, Program Framework and Indicators.*

Activity Report 128. *Planning Tools for the Nepal Public Private Partnership for Handwashing Initiative.*

Joint Publication 7. *Improving Health through Behavior Change A Process Guide on Hygiene Promotion.*

Joint Publication 8. *The Hygiene Improvement Framework—A Comprehensive Approach for Preventing Childhood Diarrhea.*

Strategic Report 2. *Guidelines for the Assessment of National Sanitation Policies.*

Strategic Report 3. *Improving Sanitation in Small Towns in Latin America and the Caribbean: Practical Methodology for Designing a Sustainable Sanitation Plan.*

Strategic Report 8. *Assessing Hygiene Improvement: Guidelines for Household and Community Levels.*

Strategic Report 9. *Participatory Monitoring & Evaluation for Hygiene Improvement Beyond the Toolbox: What else is required for effective PM&E? A Literature Review.*

Annex 3. EHP Hygiene Improvement Partnership Activities

Partner Organization	Activity
CRS	CRS Manual
Freedom from Hunger	Child health training materials
Hesperian Foundation	Hesperian Community Environmental Health Book
CORE	Multi-sectoral platform workshop CIMCI Working group and Nicaragua workshop M&E Working group and KPC survey instrument
CARE	POU primer
Macro/DHS	Urban Health Indicators
Public-Private Partnership	Handwashing with Soap Initiative in Central America, Peru and Nepal
UNICEF, WSSCC, World Bank	Hygiene Improvement Framework
WSSCC	Sanitation Programming Guide
GHC	Multiple sessions with HI as a theme
IRC/Netherlands	Thematic Overview Paper- (TOP)) on sanitation policy
WHO Joint Monitoring Program	M&E Indicators
WSSCC	Monitoring Task Force
USAID	nutrition operational plan technical reference materials for PVO CS grants programs
PAHO, UNICEF, WSSCC	UNICEF Sanitation Programming Guide
PAHO	C-IMCI program for diarrheal disease prevention in Nicaragua & Peru
PSI	Evaluation of the point-of-use water chlorination project in Zambia
PLAN International, CARE, SAVE, ADRA, Alistar, Action Against Hunger	Water, sanitation infrastructure rehabilitation and hygiene promotion in Nicaragua
West Africa Water Initiative	Water, sanitation, hygiene, integrated water resource management in Ghana, Mali and Niger