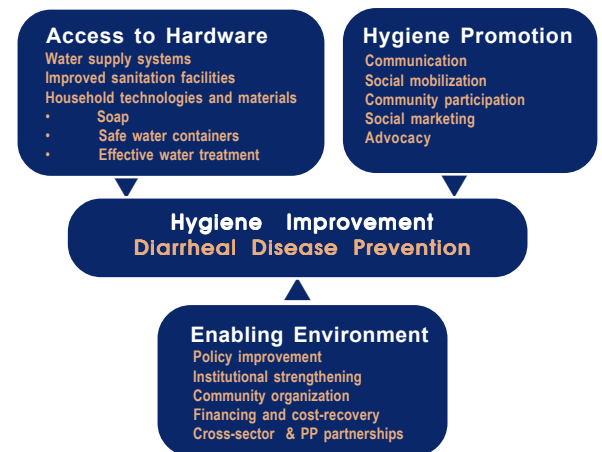




## Hygiene Improvement for Diarrhea Prevention

Child mortality from diarrhea has declined by over 50% from 4.6 million deaths in 1980<sup>1</sup>. 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. In 2000, 1.1 billion people lacked access to safe drinking water, and 2.4 billion people did not have access to basic sanitation (WHO/UNICEF 2000). 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.

Over the past two decades, USAID’s support to child survival programs has contributed to the mortality reduction through case management of diarrhea and use of oral rehydration, in combination with improved nutrition. Based on available scientific evidence, diarrhea prevention through hygiene improvement was added as an effective approach for reducing diarrhea morbidity. At the center of EHP’s program is the Hygiene Improvement Framework (HIF)—a comprehensive approach to diarrhea



prevention that addresses three elements: improving access to hardware (water, sanitation, and household technologies); hygiene promotion (promotion of hygiene behavior such as handwashing, safe excreta disposal, and safe household water management); and supporting an enabling environment to ensure the sustainability of hygiene improvements (policy improvement, partnerships, institutional strengthening).

### Lessons Learned

The lessons learned are related to 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. Lessons are often “lessons from” a specific activity and not all lessons may be universal in scope or application. The intended audience is USAID, international organizations, PVOs and NGOs working in environmental health programming. The lessons are organized under four

1/ WHO estimates for 2002 were 1.6 million deaths of children under-five for diarrhea but the number may be as high as 2.3 million according to a June 2003 Lancet article.



categories: programmatic context; designing and implementing hygiene promotion activities; creating an enabling environment, and monitoring and evaluation.

## 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.

- √ **Key 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.

- √ **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 has found that programs that include all three HIF components can achieve significant results.

The **Dominican Republic (DR)** program (2000-2004) successfully improved hygiene behaviors and reduced childhood diarrhea in nine communities in the Hato Mayor municipality. The program used a comprehensive hygiene improvement approach that included promoting healthy behaviors, access to hardware (construction of infrastructure following Hurricane Georges), and strengthening the enabling

environment (working with the national water authority to establish decentralized community management of water supply and sanitation systems). A decrease in diarrhea prevalence for children under-5 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 there was also an increase in sanitary disposal of children's excreta (in latrines) from 28% at baseline to 67% at final survey.

Similarly, the **Nicaragua Rural Water Supply, Sanitation and Environmental Health Reconstruction Program (1999-2002)** successfully incorporated hygiene promotion interventions into water supply and sanitation infrastructure rehabilitation activities. 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 coordination among implementing agencies by organizing workshops and knowledge sharing forums. The Nicaragua program reached an estimated 215,000 beneficiaries in 289 rural communities across northern Nicaragua. The program met its hardware targets—2,692 water supply systems, 7,226 household latrines, 295 bore holes, and water and sanitation services to 40 health clinics—and also made progress in “software” areas. 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 13%) in the percentage of households with children under-5 reporting diarrhea during the two weeks preceding the survey.

- √ **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, there has been renewed interest, especially among NGOs, in community-based child health, i.e., the community component of IMCI (C-IMCI). Within this new paradigm, EHP has been able to effectively integrate hygiene promotion into ongoing programs in collaboration with PVO, NGO and partner organizations.

SANRU III is a five-year, \$25 million, rural Primary Health Care (PHC) project in the **Democratic Republic of the (DR) Congo**. The C-IMCI strategy developed by SANRU III provided the framework to promote and extend PHC to rural communities. EHP worked with SANRU III to revitalize the network of zonal water and sanitation coordinators established under SANRU I/II in the 1980s, while increasing program emphasis on hygiene promotion. Linking hygiene promotion to C-IMCI was a major factor in hygiene promotion gaining acceptance in this integrated PHC project. Additionally by actively incorporating hygiene behaviors into C-IMCI, a wider audience was reached than when using facility-based channels.

Over a five-year period, EHP implemented a program in **Madagascar** linking population-health-environment (PHE) activities to demonstrate synergies resulting from integrated programming. Hygiene promotion, point-of-use water treatment, and small-scale water supply systems were integrated into ongoing NGO activities that were primarily focused on voluntary family planning or improved agriculture. Natural resource management activities provided a useful entry point for incorporating activities, mostly to populations who would not be easy to reach otherwise. The activities covered 120,000 people in 160 communities and were implemented by a consortium of NGOs and supporting organizations under Voahary Salama (VS), the NGO umbrella organization. Results from an impact evaluation conducted by the VS Association showed that contraceptive prevalence rates increased from 12% at baseline to 17% overall, and immunization rates for fully immunized children increased to nearly 60%. Additionally, access to improved water sources rose from

19% to 24% overall in intervention areas and more than doubled in some NGO supported villages. Similarly, access to improved sanitation facilities increased from 52% to 55% overall, and by almost 20% in one area. 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.

Partnering with PLAN International, the **EHP-Pan American Health Organization (PAHO) C-IMCI program in Nicaragua and Peru** integrated hygiene promotion activities into the IMCI context and expanded the IMCI focus from a facility to a community-based approach. The strategy was modeled after a successful hygiene promotion approach used in the Dominican Republic (DR), where EHP developed and field-tested a methodology to integrate hygiene promotion into existing C-IMCI modules for diarrheal disease prevention. This methodology assumes that the activities most likely to result in improved health outcomes are those that focus on participants' behaviors. The emphasis was on community and household practices and preventive behaviors such as handwashing, safe excreta disposal and safe water (point-of-use water treatment and safe storage at the household level). The approach emphasized strong formative research and behavioral trials to identify feasible improved practices (Trials of Improved Practices (TIPS)) and included extensive training-of-trainers sessions as well as community health worker training. EHP assisted in the training and materials development for NGO partners working in high diarrheal disease incidence districts. A final survey to measure behavior change in the communities is planned.

## Designing and Implementing Hygiene Promotion Activities

EHP has focused on the design and implementation of hygiene promotion interventions at scale. While much remains to be learned related to programming hygiene interventions at scale, EHP has learned lessons in designing and implementing hygiene improvement programs that offer promise.

- √ **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.

The Millennium Development Goals set ambitious targets aimed at reducing the proportion of people without access to water and basic sanitation by 50% by the year 2015. To achieve these targets, rapid scale-up of programs is essential. There are a range of factors that must be taken into account in going to scale—an important one is to develop the capacity of local institutions.

The strategy for developing local capacity to implement hygiene promotion activities varies according to the situation. In the **Dominican Republic** (DR), EHP worked with 16 local NGOs and the capacity building approach included several key elements: training a team of PVO trainers; implementing a systematic hygiene promotion methodology; developing community-specific educational materials; building institutional capacity for hygiene promotion through the national NGO network (e.g., through workshops, materials dissemination). In the **DR Congo**, unlike the DR, EHP worked with a single organization — SANRU—with a very large outreach. Being “practical and realistic” and “thinking big from the start” was important for scale-up of the DR Congo activity. Working with a local organization that has the infrastructure to scale-up to reach 8 million people made the task much easier.

- √ **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. 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 success and scale-up.

The **Benin** GESCOME (*Gestion Communautaire de Santé Environnementale*—Community Management of Environmental Health) project (1999-2001) showed that, with minimum external supervision, local communities could successfully establish and manage effective, decentralized, autonomous decision-making structures related to diarrheal disease prevention in selected medium-sized towns in Benin. The activity resulted in much-wanted infrastructure such as 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 and led to improved hygiene behavior, 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 community’s 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.

- √ **Lesson:** Working through existing community structures is a 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 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. In general, EHP sought to work through existing community structures.

The **DR Congo**/SANRU hygiene promotion activity reached an estimated target population of 375,000. A key success factor of the activity was tapping into existing community structures—the church and schools as well as community development

committees and mothers' clubs—to convey hygiene messages. Priests and teachers were trained as “institutional relays” and mothers were trained to work on “volunteer relays” to promote hygiene messages. While time did not allow for a complete post-intervention survey, results from a mini knowledge, practice and coverage (KPC) survey implemented by the School of Public Health showed the following in SANRU-intervention zones: households where only adults have access to stored water (safe water management) increased from 69.6% to 88.6%; 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 children's feces immediately in a latrine increased from 72.0% to 91.2%.

√ **Lesson:** The HIF can also be applied in a crisis or natural disaster situation. While the time-frame and pressures for project completion are compressed in these situations, the principles of project planning and implementation remain the same.

In the aftermath of Hurricane Mitch, USAID allocated nearly US\$10 million over a 28-month period for the reconstruction effort in **Nicaragua**. Grants were given through EHP to a group of PVOs. 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 and reached 215,000 beneficiaries. Effective programming elements for the Nicaragua program included: prior knowledge of key institutions, issues and policy to inform the strategy design; clear and focused objectives and time-lines; partnerships with PVO grantees and local organizations; proactive management; and constant monitoring of targets throughout the program.

In the **West Bank**, USAID through EHP provided substantial aid related to infrastructure and management of water supply and sanitation services. The HIF was applied in preliminary activity planning

including the implementation of environmental health assessments. Based on assessment findings, steps were initiated to enhance health gain to 170,000 people living in 50 villages in the West Bank— which included implementing a series of TIPs on handwashing, home management of diarrhea in children-under-5, and improved household level-water storage and disinfection practices. Due to the prevailing political situations, the project focuses on simple, community-based interventions that could potentially lead to a reduction of child diarrhea and intestinal parasites. Partnerships between relevant ministries and government agencies, and in particular the Ministry of Health, have also been formed and serve as the basis for supporting IMCI roll-out in the country.

Although working under difficult conditions required intensive and detailed planning and management procedures, these projects support the lesson that, even in areas of war and crisis and natural disaster, HIF components can be applied and project activities are similar to those implemented under non-disaster, non-crisis situations.

## 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 worked extensively on three specific enabling environment issues: national sanitation policies; improving sanitation in small towns; and developing institutional support mechanisms (ISMs) to provide backup support to community-managed rural water supply and sanitation systems after they are operational. Each enabling environment issue was studied extensively, methodologies were developed and applied in the field, and guidance documents produced. The key lessons are presented below.

√ **Lesson:** National sanitation policies are critical to creating an enabling environment to encourage increased access to sanitation services. Without a sound policy framework, scaling up sanitation is difficult.

In the past few years, policy makers have recognized that a key constraint to replicating and scaling up successful pilot programs has 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*.

- √ **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.

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; and a bias among engineers towards more conventional wastewater collection and treatment. To address these constraints, EHP designed a strategy and a practical methodology, and field-tested the methodology for sustainable small town sanitation services in Jamaica, Ecuador and Panama.

- √ **Lesson:** The sustainability of community-managed rural water supply and sanitation systems requires backup support after the systems are operating.

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 case studies of four successful models to provide post-construction support and developed a guidance document for establishing institutional support mechanisms

(ISMs) to support community-managed systems.

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

Under the **Central American Handwashing Initiative** (1996-99), USAID through EHP and the Basic Support for Institutionalizing Child Survival (BASICS) projects was the catalyst that created a Public-Private Partnership (PPP) among four soap companies, the ministries of health from Guatemala, El Salvador, and Costa Rica, and numerous NGOs and development organizations. The PPP handwashing campaign involved the media, social mobilization, and hygiene promotion programs implemented through PVOs and soap companies to reach communities and schoolchildren throughout Central America. 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; 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.

- √ **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 promoting hygiene improvement and skills transfer. 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. In Nicaragua and Peru, EHP partnered with **PAHO** in the C-IMCI program for diarrheal prevention. Under the **West Africa Water Initiative (WAWI)**, 14 partner institutions including USAID work together towards a common vision—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-ARD-EHP IQCs) 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 the **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 intervention programs do not. EHP worked with international organizations, PVOs and country programs to develop, test and disseminate standard indicators for HI.

- √ **Lesson:** Having standard indicators for each component of the HIF and guidelines helps a project to provide timely and effective M&E support to field programs.

There are no standard program indicators to monitor and evaluate important hygiene improvement elements, such as hygiene behaviors or community capacity as a

measure of sustainability. To address this issue, 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, India, Madagascar, Nicaragua, Peru, and West Bank**. The indicators were also used in the M&E plans for WAWI in **Ghana, Mali and Niger**. In addition, the standard knowledge, practices and coverage (KPC) survey instrument used by PVOs in the **CORE Group** was updated and hygiene improvement indicators were included in USAID’s Child Health Indicator Guide.

## The Hygiene Improvement Challenges

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. However, many HI challenges have yet to be addressed:

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 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 crucial for future HI programming.

More evidence about the effectiveness and sustainability of public-private partnerships is needed.

The evidence from Central America has shown that the private sector can be successfully engaged. More evidence is needed, however, on the long-term sustainability of these partnerships, their

effectiveness in achieving health impact, their ability to reach poor population groups, and their cost-effectiveness.

**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. Among these behaviors, sanitary disposal of feces has been the less studied area. An EHP-funded literature review on this subject by the International Institute for Nutrition (IIN) in Lima, Peru, found few studies describing the excretal disposal practices of young children at the household level and very few have investigated its relationship with diarrhea. Similarly, handwashing with soap or other agents is the most important intervention to be promoted to reduce fecal contamination, with proven efficacy in reducing diarrheal diseases. The literature review also found several barriers exist to limit handwashing such as wrong perceptions, including what is dirty and what is not. This review has identified the urgency, importance and need for more operations research in these areas to better inform program design and implementation.

## Conclusion

To further integrate the Hygiene Improvement Framework into field programs, it is important to relate the HI lessons learned to the three most important dimensions of any public health program: scale, sustainability and effectiveness or impact. 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. Much work remains to be done to reduce diarrheal disease mortality and morbidity through hygiene improvement. Future investments should aim at integrating hygiene improvement into a broader range of programs and implementing interventions at scale.

*For the complete lessons learned, please refer to the full report: [Advancing Hygiene Improvement for Diarrhea Prevention: Lessons Learned. Strategic Report 10.](#)*

## Key Documents

- Advancing Hygiene Improvement for Diarrhea Prevention: Lessons Learned. Strategic Report 10
- Assessing Hygiene Improvement: Guidelines for Household and Community Levels. Strategic Report 8
- Combining Hygiene Behavior Change with Water & Sanitation: A Pilot Project in Hato Mayor, Dominican Republic. April 2000–May 2002. Activity Report 125
- 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 4
- Guidelines for the Assessment of National Sanitation Policies. Strategic Report 2
- Improving Health Through Behavior Change: A Process Guide on Hygiene Promotion. Joint Publication 7
- Improving Sanitation in Small Towns in Latin America and the Caribbean: Practical Methodology for Designing a Sustainable Sanitation Plan. Strategic Report 3
- Institutional Support Mechanisms for Community-Managed Rural Water Supply & Sanitation Systems in Latin America. Strategic Report 6
- Nicaragua: Rural Water Supply, Sanitation, and Environmental Health Program. Activity Report 106
- The GESCOM Difference: Lessons Learned From Gestion Communautaire de Santé Environnementale (GESCOM); The Environmental Health Project II CESH Benin Activity. Strategic Report 5
- The Hygiene Improvement Framework—A Comprehensive Approach for Preventing Childhood Diarrhea. Joint Publication 8
- The Story of a Successful Public-Private Partnership in Central America: Handwashing for Diarrheal Disease Prevention. Joint Publication 1
- Urban Environmental Health Strategies: Three Community-based Environmental Sanitation and Hygiene Projects Conducted in the Democratic Republic of Congo. Activity Report 119
- USAID Village Water and Sanitation Program West Bank: Environmental Health Assessment—Phase I. Joint Publication 5
- USAID Village Water and Sanitation Program West Bank: Environmental Health Assessment — Phase II. Joint Publication 6
- West Africa Water Initiative (WAWI) Monitoring and Evaluation Plan, Program Framework and Indicators. Activity Report 124

## References

- Black Robert E, Morris Saul S, Bryce Jennifer. 2003. *Where and why are 10 million children dying every year?* Lancet 2003; 361:2236-34
- WHO/UNICEF *Joint Monitoring Programme for Water Supply and Sanitation*. Global Water Supply and Sanitation Assessment 2000 Report
- World Health Organization. 2003. *World Health Report 2003: Shaping the future*