

Table of Contents

- 2 Diarrhoea, Cholera and Disinfection of Wells in Monrovia, Liberia
- 4 Relieving Drought in Zimbabwe
- 5 Clean Water to Benefit India's Children and Environment
- 6 Participation of Women From the Colombian Pacific Coast in a Sanitation Programme
- 10 Restructuring the Water Service in Port-Au-Prince's Shanty Towns
- 15 Water, Environment and Health: Children Against El Niño
- 20 Empowering Women: A Water and Sanitation Programme in Honduras
- 21 Hygiene Education Linkage Programme (HELP): The GTZ Experience in Namibia
- 26 New Publications
- 28 Programme Highlights and Events

Joint Statement of the United Nations Children's Fund and the UN Department of Economic and Social Affairs on the Occasion of World Water Day

New York – 22 March 1998

The World Day for Water, which we mark today, is an occasion not only for celebration, but for urgent reflection on the dangers ahead—especially for the well-being of children and families in the developing world. These dangers include the growing threat to our reliance on groundwater.

Groundwater—the theme of this year's World Day for Water—is a major source not only of safe water, but a key factor in local development and poverty alleviation.

We can rejoice in the successes of the United Nations Decade for Safe Water and Sanitation 1980-1990, a period that saw 1.2 billion more people gain access to safe water. It was a trend that has continued in the 1990s, with safe water made available so far to an additional 800 million people—raising the worldwide total from 2.5 billion to 3.3 billion.

But global access to adequate sanitation is declining. The number of people without it rose from 2.6 billion in 1990 to 2.9 billion in 1997—nearly half of humanity. In addition, the freshwater resource base is shrinking, as pollution from domestic and industrial sources squeezes available surface and groundwater reserves.

The implications for sustainable development of our water resources are ominous—particularly for groundwater in the Earth's ubiquitous, shallow aquifers, which serve as the ultimate source for many rural

and peri-urban poor, and the ultimate sink for their waste.

Contamination caused by inadequate sanitation can compromise both groundwater and surface supplies—and there are worrisome signs that this is already occurring on a growing scale throughout the world, in tandem with industrial pollution and agricultural runoff.

It is a life-and-death issue of the first order, for cholera and other illnesses associated with contaminated water, including diarrhoea, typhoid and Hepatitis A, needlessly kill thousands of people a day.

Diarrhoea alone kills 2.2 million young children a year in the developing world—and those who survive are left underweight, stunted mentally and physically, vulnerable to other deadly diseases, and too debilitated to go to school.

When children lack water that is fit for drinking and sanitation, virtually every aspect of their health and development is at risk. And as families lose access to reliable sources of water and adequate sanitation, an entire generation's worth of hard-won gains in child health and nutrition are lost—and human development opportunities forgone. The result can only undermine any chance for sustainable development.

Falling water tables, their depletion accelerated by unsustainable groundwater extraction for industry and agriculture, are an increasingly serious problem. Less than 10% of groundwater

continued on page 3

Diarrhoea, Cholera and Disinfection of Wells in Monrovia, Liberia

by Mr. Branislav Jekic, formerly WES Project Officer, UNICEF Monrovia, presently, Assistant Representative, UNICEF Dushanbe, Tajikistan

Summary

In the capital city of Monrovia, as in most parts of Liberia, wells are the major source of drinking water. This article discusses the correlation between rates of diarrhoea and cholera and the disinfection of unprotected open wells based on data collected from 1991 to 1996. It illustrates how low-cost approaches to the problems of severe diarrhoea and cholera, endemic in Monrovia and in Liberia at large, can be relatively efficient and effective, especially in a complicated emergency situation, such as the Liberian civil war.

Challenge

The Liberian civil war began in 1989 and ended in 1997 and had devastating effects on all sectors of the West African nation. Massive destruction and the enormous human cost in death, injury and displacement were among these effects. The population of Monrovia doubled in size, as approximately half a million people sought safe haven. Some 270,000 settled in 35 organized shelters. Others squatted in abandoned building or suburban areas around the capital city. Unsanitary conditions in these densely populated areas were exacerbated when the entire infrastructure of Monrovia, including its piped water supply, collapsed.

In early 1991 with UNICEF's assistance, the city's water treatment plant and water system were started and were fully functional until October 1992, when an outbreak of fighting in Monrovia resulted in almost complete destruction of the plant. Although movement was restricted to the south-eastern part of the city, UNICEF assisted

in the construction and development of productive wells and started a water trucking operation, providing safe drinking water to medical facilities and centres for the displaced. In 1993, after the cessation of hostilities, GTZ (German Technical Assistance) and UNICEF repaired the plant and pipe system on an emergency basis. It is still functional, providing up to 15% of the pre-war water supply to the quarter of the city's population residing at Bushrod Island, where well digging is not feasible.

The focus of UNICEF intervention was shifted to shelters, providing wells, hand pumps and concrete-lined shelter latrines (which were regularly desludged), supporting shelter sanitation teams, garbage collection, self-chlorination, oral rehydration therapy (ORT), and shelter centres, and intensifying health and hygiene education. The result of these interventions was that no epidemics of diarrhoea or cholera have occurred in the shelters since this intervention in 1994.

With improved security and the opening up of rural areas following the 1997 elections, UNICEF gradually has shifted towards its traditional programme of providing assistance to rural Liberia, where few or no interventions have occurred for almost seven years.

Background

Liberia is located in the tropical rainfall belt and characterized by heavy rain ranging from an average annual precipitation of 457 centimetres along the coast to 203 centimetres inland. It has two distinct seasons — a rainy season from May to October and a dry season from November to April, although rain falls

every month. Heavy rainfall, the subdued relief and thick vegetation enhance a good recharging of aquifers during the rainy season. In spite of the abundance of surface and groundwater, water resources remain underdeveloped. Provision for safe drinking water always has fallen short of demand. The heavy rainfall and intensive drainage indicate considerable potential, as well as vulnerability to pollution: in the dry season, due to airborne pollution, occasional influx of polluted rainwater and relatively low water levels, and in the rainy season, due to the washing of polluted matter from drainage areas into bodies of surface water.

Monrovia is situated along the Atlantic. In central Monrovia, the core of the old city was built on the outcrop of metamorphic basement rock known as Mamba Point, surrounded by swamps that drain into the Mesurrado River in the northwest. Farther across the Mesurrado River lies Bushrod Island, surrounded by St. Paul River and Stockton Creek, a natural channel connecting the Mesurrado and St. Paul Rivers. Monrovia extends to the southeast between the ocean and swamps and across the Mesurrado to the northeast.

Most of the hand-dug wells along the coast, including those in Monrovia, are constructed in the unconfined aquifers. A basic characteristic of these wells during the dry season is relatively slow recharge, as fundamental hydraulics suggests; intense water extraction lowers a water table around the well in a cone of depression and reduces the vertical section through which influx can take place. This is the main reason for the relatively lower yield in dry season and a decrease of a yield with draw-down. Most dug wells only partially penetrate aquifers.

The physical and chemical quality of the groundwater is generally good; iron, zinc, ammonia, chloride, nitrate, nitrite and sulphate samples fall within WHO, as well as most European and U.S. standard limits. Total salinity is low and only rarely conductivity exceeds 200 $\mu\text{S}/\text{cm}$. In some cases there could be a problem with phosphate and a slightly lower pH.

■ Diarrhoea, Cholera & Disinfection of Wells in Liberia, from page 2

The biological characteristics of the well-protected groundwater sources are generally good, unlike open wells that are not safe drinking water sources. Unprotected open wells and bacteriologically polluted surface water bodies used for drinking are the main sources of water-related diseases.

The UNICEF Well

Pillars of the concept of the "UNICEF WELL":

- Social mobilization, intensive health/hygiene education and animation, leading to acceptance of proper practices and behavioral change,
- Village Level Operation and Maintenance (VLOM) hand pump concept,

- Lined, protected and developed wells properly sited,
- Working with communities to enhance a sense of the responsibility and the ownership vested in the community, until tangible evidence is collected that they are ready and willing to assume full responsibility for maintenance.

"We don't have much, but we offer it to you with a full heart," said Joseph Tamba, an elder of Vahun, Lofa county, in northwest Liberia. That describes the attitude needed for a successful project; the monetary value of the contribution is less important than the spirit in which it is given.

UNICEF maintains a policy of digging and developing wells as fully as possible, maximizing depth to 3 metres below the dry season water level. This approach increases the yield and ensures sufficient quantities of water (storage) in wells, as inflow to a well does not increase proportionally with its diameter. Doubling of the diameter increases yield by only about 11%, but it quadruples the storage, providing water for at least three hours of continuous pumping during the dry season. Wells are lined with pre-cast concrete rings lowered into the excavated wells and then sunk into the aquifer by undermining, while additional rings are added from the top and surrounded by filter material, which consists of sand and crushed rock. The well is covered with a concrete apron

continued on page 8

Corrigendum

The article "The Phungalutho: A "Peri-Urban" Sanitation Solution for Kwazulu Natal, South Africa," published in issue # 10, was written by Ms. Jane Bevan, Consultant, UNICEF South Africa. We apologise for the typographical error.

■ Joint Statement on World Water Day, from page 1

goes for household use on a worldwide average; but millions of poor people often have to pay market prices for clean water, while the largest institutional users frequently get their water free or at subsidised costs.

When water tables fall and aquifers near the surface become contaminated, wells must be dug deeper. This means that the simple and inexpensive technology that made it possible to make clean water available to large numbers of impoverished communities since the 1960s is becoming inadequate.


Reports of contaminated or dwindling water supplies are now coming in from all regions of the world. The situation is particularly worrisome for small island States, where reserves are limited and saline water will contaminate freshwater aquifers as soon as water tables fall.

The answer to these problems is not deeper wells, but sound conservation policies. There is more than enough freshwater in the world to meet the needs of all people—but we must apply the same attention to the extraction and distribution of water as we would to the running of any other essential industry.

UNICEF and the United Nations System as a whole place strong empha-

sis on the involvement of village or neighbourhood councils in overseeing the distribution and conservation of water supplies, as well as in improving sanitation.

With water utilities becoming increasingly privatised—and more and more international capital being earmarked for financing water-supply systems—it is essential that people's access to safe water be protected, regardless of their income or ability to pay. The "common pool" character of groundwater makes this preservation of the public interest vital.

Last year, at the UN General Assembly's five-year review of the Earth Summit, Governments and multilateral agencies pledged to make the revival and protection of freshwater resources a top priority. On this World Day for Water, let us reaffirm the urgency of that commitment. The survival and health of today's children—and the legacy we leave them—depends on it. 

Carol Bellamy
Executive Director
United Nations
Children's Fund

Nitin Desai
Under-Secretary-
General for Economic
and Social Affairs

WATERfront


A newsletter for information exchange on Water, Environment, Sanitation, and Hygiene Education

UNICEF Water, Environment and Sanitation Section, Programme Div., N.Y.

Gourisankar Ghosh
Michel Saint-Lot
T.V. Luong
Gregory Keast
Karin Metell
Jingjing Qian
Luzma Montano
Gina Darcin
Surabhi Splain

Please send articles, illustrations and correspondence to:

WATERfront
WES Section, UNICEF
Three United Nations Plaza, TA 26A
New York, N.Y. 10017. U.S.A.
Telephone 1-212-824-6000
Fax No. 1-212-864-6480
e-mail: wesinfo@unicef.org

 Printed on recycled paper

Relieving Drought in Zimbabwe

by Mr. Bijaya Rajbhandari, Project Officer, WES, UNICEF Harare, Zimbabwe

During the 1991-92 drought, Zimbabwe experienced the lowest rainfall in living memory. Five hydrofracturing rigs came to the country and were distributed to the two Government departments with responsibility for providing water. After bountiful rainy seasons in 1992-93 and 1993-94, drought recurred in 1994-95. This caused a general lowering of the water tables, which in turn meant more rural water sources dried up or became less reliable. In response to the Government of Zimbabwe's appeal, UNICEF responded by raising funds for the hydrofracturing and flushing of boreholes to provide water in the areas worst hit by the drought. After the Government declared a state of emergency in 1994-95 in rural and communal lands, UNICEF prepared a proposal to hydrofracture 240 boreholes using both District Development Fund (DDF) and Department of Water Development (DWD) rigs. This was carried out as part of a larger rehabilitation project supported by other donors through UNICEF.

Method of Operation and Project Management

Initially, when the project started, in Masvingo Province, a Provincial Coordination Team (comprised of DDF, DWD and UNICEF) was formed to coordinate and implement the project simultaneously in two districts, using two independent teams. In each district, a team was formed consisting of one hydrofracturing unit with two air rigs for flushing. The hydrogeologists for the DDF-led team and the Drilling superintendents, in the case of DWD, shared overall responsibility for carrying out the rehabilitation activities.

Two teams were formed in Masvingo Province, one under DDF and one under DWD, similarly one team was formed in Matebeleland South under DDF and another team in

Matebeleland North under DWD. Each team was equipped with two flushing rigs and one hydrofracturing rig.

The process of project operation took place as follow:

Stage 1: Initially 15 boreholes were allocated to each district. The district water and sanitation sub-committee identified the area requiring borehole rehabilitation. Pump minders (DDF staff at ward level) were requested at the district level to identify existing boreholes within their wards that had reduced yields and could be hydrofractured. To facilitate this exercise, district workshops were held for pump minders, managed by the DDF and DWD, at which the hydrofracturing process was explained. On the basis of their local knowledge, pump minders were able to identify potential sites for hydrofracturing while at the district level existing drilling records were used to complement the pump minder's information. The information gathered from pump minders and district drilling and maintenance records were compiled to form the basis for the first phase of the site selection process.

Stage 2: The purpose of this stage was to confirm the information gathered in Stage 1 by visiting the potential sites identified by pump minders. Each site was visited by provincial hydrogeologists who carried out physical inspections to test the hand pumps and establish that the low yield was not caused solely by an inefficient hand pump and to determine whether the borehole could be hydrofractured. At this stage the community were consulted regarding the history of the borehole yield, for example how long the borehole could be pumped before going dry or whether the borehole yield had changed over the years, etc. Mem-

bers of the community also were asked what they used the water for and what type of yield they had been getting. On the basis of all this information, a decision was reached on whether to hydrofracture.

Stage 3: During this, the actual hydrofracturing stage, a two-hour yield test is carried out to establish the yield of the borehole prior to intervention. Next, a pumping test is carried out to confirm the effectiveness of hydrofracturing. Where hydrofracturing was successful, the hand pump was rehabilitated or replaced as needed. In cases where an old A-type hand pump had been installed, it was replaced by a new B type.

Progress made in the field was reported regularly through weekly meetings of the district and provincial coordination teams and monitored through monthly review meetings of the staffs of the provincial and head offices. Data collected from the field was sent to the district and province level offices for compilation.

Achievements

This project succeeded not only in meeting its goals in terms of the number of boreholes hydrofractured, but also in terms of capacity building of the technical teams. These achievements are categorised thusly:

1) Hydrofracturing Achievements:

The project was hampered by the onset of rain starting in January 1996. The equipment lying idle (with many parts being scavenged) had to be recovered by procuring spare parts from overseas to make the machines functional. However, this rainy season was used to establish management structures, train personnel and repair units to make them operational. In May 1996, the project was launched in Chivi District of Masvingo Province.

By December 1997, a total of 235 boreholes had been hydrofractured in 18 districts (see map on page 7). A delay was caused primarily because a new technique for hydrofracturing operations

continued on page 7

Clean Water to Benefit India's Children and Environment

by Mr. Rupert Talbot, Chief, WES UNICEF New Delhi, India

A major crisis is unfolding with respect to the availability of clean water in India. This crisis is slowly undermining successes achieved in securing the rights of children to enjoy a higher health standard, which requires adequate pure water and a clean environment, as enshrined in the Convention on the Rights of the Child and in Agenda 21 of the Rio Earth Summit. The crisis also endangers the economic and social prosperity of the nation.

Already, the clean water crisis is evident in many parts of India, varying in scale and intensity at different times of the year. Many eco-systems are deteriorating. The issue of access to clean water increasingly takes centre stage on the economic and political agenda, as more and more disputes between and within states, districts, regions and even at the community level are arising. The clean water crisis is not the result of natural factors, but instead has been caused by human actions. During the early 1980s, India developed indigenous capabilities to drill water wells in hard rock. The number of energised wells drilled for irrigation rapidly increased, encouraged by easy credit and subsidised diesel fuel and electricity. India's rapidly rising population and changing lifestyles also increases the need for clean water. Intense competition among users is driving the ground table deeper and deeper. Widespread pollution of surface and groundwater is reducing the quality of clean water resources. By and large, attempts to introduce and enforce legislation to avert the crisis have failed.

In 1995, UNICEF and the WFF (Worldwide Fund for Nature) commissioned five studies seeking to provide insights about trends in water availability and use at the local level. The studies gathered information through participatory rural appraisals, surveys, testing of water and soil quality and

hydrogeological observations. The studies examined the issue of clean water and the status of eco-systems and documented not only the measures Indians took to meet their basic water needs but also their actions to boost family income using available water resources. The studies illustrate what a mixed picture this crisis presents, providing both opportunities and challenges.

Water is the common denominator in meeting people's needs and preserving bio-diversity. The studies show close linkages between household water security, food security, and environmental restoration. Water use and water purification must be integrated effectively, as was done with traditional technologies. Renovation of forest tanks in drought prone regions will have significant impact on wildlife and forest cover. Similarly, renovation of temple tanks and effective water management with the regeneration of ground water aquifers and their protection from pollution will contribute to other aspects of environmental protection, such as a reduction in salt water ingress. The strain on the environment in the Himalayan foothills is linked directly to dwindling forest cover and soil degradation.

Some 45 million people are affected by problems of water quality caused by pollution, excessive fluoride, arsenic, iron or the ingress of salt water. Millions lack adequate water, particularly during the summer months. In rural areas, women and girls still have to walk long distances every single day to provide their household with water. With increasing opportunities for women to work and earn money, their time is worth more money than ever. Thus, it is clear that in most rural areas, households are paying far more for water (including the time spent procuring it) than the often nominal rates charged in urban areas. These considerations have yet to

be incorporated into decision-making criteria in water supply programmes.

India's National Water Policy (1987) states that water is a prime natural resource, a basic human need and a precious national asset. Over the other uses of water, it gives primacy to drinking water for humans and animals. The policy calls for control through regulation on the exploitation of groundwater and for integrated and coordinated development of surface and groundwater. The Central Government identified strategies for meeting drinking water needs and micro-watershed management and conducted pilot projects in different regions in the country. Even so, India is facing a clean water crisis.

The root causes of the crisis are:

- The system of "water rights" under Indian common law effectively grants ownership of groundwater to landowners, despite the fact that ground water is a shared resource from a common pool of aquifers.
- Uncontrolled use of borewell technology has permitted the extraction of groundwater, primarily for irrigation, at phenomenal rates, often exceeding recharge.
- Communities are not in control of their water resources. Water is used as a political tool, controlled and monopolised by the rich, who do not pay the price for this scarce resource. Poverty of opportunity, capability and actual income is compounded by "water poverty."
- Rampant pollution of clean water resources.
- Lack of attention to water conservation, water re-use, efficiency in domestic water supply in urban areas, and eco-system sustainability.

In the following recommendations, derived from case studies, the underlying strategy is to decentralise management and regulation of water resources, putting communities in charge, and providing them with the authority, responsibility and financial support to manage and protect their water environment:

continued on page 12

Participation of Women From Colombia's Pacific Coast in a Sanitation Programme

Ing. Carlos Arturo Madera P., Soc. Jesús Aníbal Valencia¹,
Ing. Francisco Burbano²

Sanitation Conditions

Despite investments and strenuous efforts during the Water and Sanitation Decade, a great many of the world's citizens still live without access to clean water and proper sanitation services. A 1995 U.N. report indicated that about 1 billion people in developing countries lack access to clean water and some 3 billion people do not have adequate sanitation. In Colombia, the average clean water and adequate sanitation rates in urban areas were respectively 76% and 64% and in rural areas: 44% and 19%. This means that 8.3 million Colombians live without access to clean water and 13.4 million lack adequate sanitation conditions. (DNP, Colombia, 1995).

Programs to improve sanitation in marginal urban and rural settlements in Latin America have concentrated on the disposal of urine and excrement, with great advances made in sanitation technology, depending on the availability of clean water. Accordingly, there has been a rise in the number of dry aerated latrines (VIP), pour-flush toilets, septic tanks and analogous devices. Community participation, particularly by women, has been focused primarily on defining needs, constructing facilities, and occasionally on other aspects of sanitation. Efforts have been least successful in situations where the community have not understood clearly the link between better

health and using sanitation technology.

Experiences with women from Colombia's Pacific region of Triana documented by the Institute for Investigation and Development of Drinking Water, Basic Sanitation and Conservation of Hydric Resources, or CINARA, Universidad del Valle, Cali, Colombia, with financial support from UNICEF and institutions from the appropriate public sector, such as the regional Secretary of Health¹, demonstrate that for these women, sanitation is more closely related to concepts of privacy, comfort and social prestige than to health, as has been argued by Cairncross and Feachem (1995).

Triana is a low-income rural community² where the majority of the population is of African ancestry. It is located between Cali and Buenaventura, the largest maritime harbor on the Pacific Basin and the transit point for 60% of Colombia's imports and exports.

Triana is home to 450 inhabitants in 80 households. The topography is hilly, with clay soil, a high phreatic level, and an average temperature of 28 degrees C.

Triana has an aqueduct with a water treatment system connected to individual homes offering round-the-clock service. Most male inhabitants work informally in construction and most women work in the restaurant business.

The Colombian Pacific Basin is a region made up of nearly 50,000 square kilometres, 80% of which is covered with humid rain forests. Average rainfall is measured between 5,000 and 10,000 mm per year. Population density is 12 inhabitants per square kilometre, with an infant mortality rate of 110 children per 1,000 live births.

Only 5% of people have access to

clean water and 3% have adequate sanitation, conditions that worsened the spread of cholera in 1991 and made it possible for Triana to take part in a technology transfer program to improve access to clean drinking water in eight regions of Colombia (TRANSCOL)³. A second phase of the program is aimed at improving sanitation conditions.

In Colombia's Pacific region, gender relations develop in a context of cultural, social and economic conditions leading to predominantly matriarchal households, in which women are the axis of the family system and its chief breadwinner. Due to an exogamous family system, men tend to be temporarily or permanently absent, circulating through several families for which they are economically responsible. (Motta, 1995). Women perform a threefold role: reproductive, productive and communitarian (Mosser, 1989). Since they tend to be the permanent parent, they are the ones who must face inadequate sanitary conditions with their children. Thus, women are the ones who guarantee the sustainability of water and sanitation solutions that meet their practical needs. These solutions also fulfill a strategic need by strengthening women's participation in planning and decision-making within their community. (Prowess, IRC, 1993).

How TRANSCOL Worked

To ensure that the program responded to real needs and corresponded to solutions developed or chosen by groups of women living in the community itself, the program sought to interpret the rhythm of women's lives in Triana, as well as their history, environment and culture, in order to better understand their attitudes, beliefs and behaviors and to appreciate how difficult it was to talk to them and other community groups about sanitation issues.

The plan was to promote women's participation in planning and design, construction, implementation, evaluation, and follow-up on a learning-by-doing basis. Such a process produced perceptions on sanitation that emerged from an understanding of people's behavior. The methodology was based on

1. Universidad del Valle, Instituto Cinara, Cali, Colombia. E-mail: cinara@cinara.univalle.edu.co

2. UNICEF-Regional Colombia y Venezuela. Santafé de Bogotá, Colombia. E-mail: fburbano@hqfaus01.unicef.org

using workshops—a participatory technique to make decisions. The women themselves identified problems and technological alternatives, as well as choosing the blueprints, construction materials, location of structures and other characteristics of the work.

These participatory techniques were modified to adapt to the low level of schooling, using visual communication (diagrams, drawings and paintings), integrating activities by using play techniques, observing facial expression and body language in interviews, with all as-

pects oriented toward strengthening the self-esteem of the participants. Instruments such as checklists, survey forms and semi-structured interview guides were designed to be used by the women themselves.

Results

Using a form to be filled out in each household, the women of Triana evaluated sanitation conditions. This survey showed that 15 of the 80 households—or 18.7%—had no system for disposing of urine and excrement, and 65 house-

holds—or 81.3%—had a system using water, but only 32—or 50%—were making use of this system.

In a creative workshop in which men and women were separated, women explained that they had no privacy in bathing or urination and defecation and that they were the most affected by inadequate sanitation. Furthermore, from a very early age, women are responsible for such activities as washing clothing in nearby streams, cleaning the house

continued on page 14

■ **Relieving Drought in Zimbabwe**, from page 4

on such a large scale had never been carried out before. The total number of boreholes hydrofractured in each province is as follow:

Masvingo:	105
Matabeleland North:	2
Matabeleland South:	71
Mashonaland East:	30
Midlands:	27
Total	235

Of the total 235 water points where attempts were made, 184 were successfully hydrofractured, (that is: with yield

improvement). This represents a success rate of about 78%. Given the fact that hydrofracturing had not been carried out in Zimbabwe in the past, and therefore there were no criteria on which to base success, a success rate of 78% is considered acceptable.

Although Matabeleland north was a priority area, the prevailing geological conditions did not suit the hydrofracturing process, which resulted in boreholes collapsing during operations.

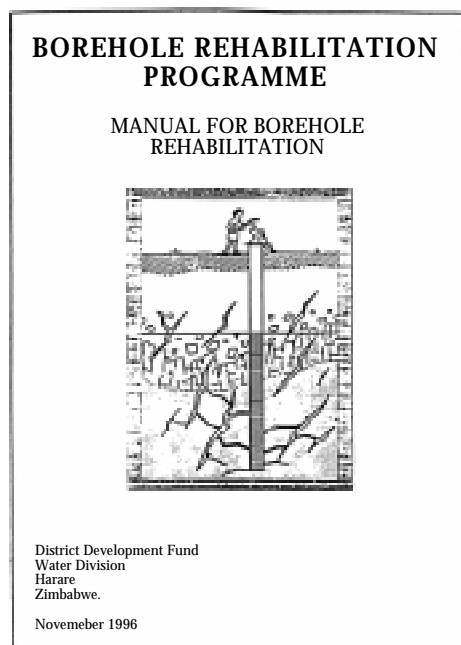
Capacity Building Achievements: At the outset, DDF and DWD personnel had little knowledge of hydrofracturing. They were carrying out the activity on a grand scale for the first time. From a cost effectiveness and management point of view, it is important that hydrofracturing be integrated with other rehabilitation activities, thus creating a process and structure for provincial teams. These teams have responsibility for monitoring the work of the various HFUs carrying out rehabilitation work.

Over the course of the project, DDF and DWD teams were trained in improving their technical capabilities and establishing management structures. A hydrofracturing manual (Manual for Borehole Rehabilitation: DDF, Zimbabwe, November 1996, clearly sets out the methodologies to be used in the planning and operation of the hydrofracturing process.

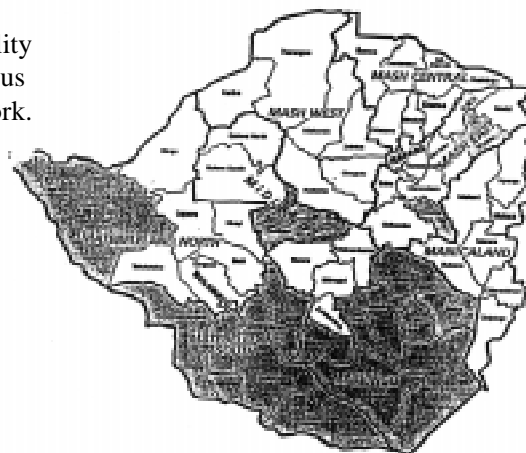
This has been distributed to all the operational level staff for future reference.

At the end of the project, a “District Technical Report” was prepared. This report documents the rehabilitation achievements, including borehole data from every district, evaluates the method of operation and discusses the additional benefits of rehabilitation activities.

Some innovative methods were developed during the course of the operation. The boreholes in Zaka District in Masvingo Province actually provided a lesson, for some of the boreholes were of a smaller diameter than the packer. This led to the development of a dummy wooden plunger to identify the size of the hole before the rigs were moved in for hydrofracturing, thus saving money. This improvement became a standard practice for all the boreholes in the identification process. 🌐



Manual for Borehole Rehabilitation, A hydrofracturing manual.



Districts supported by Irish AID for hydrofracturing.

■ **Diarrhoea, Cholera & Disinfection of Wells in Liberia**, from page 3

and equipped with a drainage channel, a soak pit and an “Afridev” hand pump. The simplicity of this technology facilitates cooperation with communities, as well as coordination, management and scheduling. It has proven appropriate within a country context.

Diarrhoeal diseases rank as the second major cause of mortality in children under 5 and the third major cause of morbidity, accounting for about 11–14% of health facility consultations.

Although labour-intensive, it is efficient and attractive to communities who typically provide free labour, affordable materials, room and board for the construction crews. Ideally, wells are dug during the dry season. Those dug in rainy season could be deepened using “telescopically” designed concrete rings with a lesser diameter in order to be sunk through the existing lining.

Diarrhoeal Diseases

Diarrhoeal diseases rank as the second major cause of mortality in children under 5 and the third major cause of morbidity, accounting for about 11–14% of health facility consultations. The prevalence of diarrhoea in children under-5 was estimated at 41%, with an urban rate of 45% versus 41% in rural areas, 46% in large towns and 11% in concession areas.” (The Situation Analysis of Children and Women in Liberia, UNICEF, Monrovia, Sept. 1995).

The Ministry of Health and Social Welfare (MOH&SW) established the epidemic threshold of 145 reported cases of diarrhoea per day for the country. The threshold was determined by the national diarrhoea prevalence rate, an estimate of children under-5 and the count of the surviving population. The Monrovia diarrhoea epidemic monitor-

ing threshold was established at 75 cases per day. Review of the 1993–1996 data on diarrhoea and cholera generated by functioning health facilities in the country revealed that epidemics did occur at that time.

Similar analysis of the 1992–1996 data for Monrovia revealed that epidemics occurred, although not as often and not on the same scale. MOH&SW declared diarrhoea and cholera epidemics in 1994 and 1996. Analysis confirmed the existence of *Vibrio Cholera* serotype

O1 and biotype E1 Tor. The widespread occurrences of diarrhoea and cholera among children under-5 and the fact that on any given day there are cases of severe diarrhoea or cholera are epidemiological indications that these diseases are endemic in the country.

Analysis of the number of patients referred to health facilities for diarrhoea/cholera treatment before the war (before 1990), revealed a significant increase in three distinctive periods of the year, in February/March, May/June and August/September. The graph for 1994 illus-

continued on next page

Basic Data:

- Population: Liberia : 2.3 million
Monrovia: prewar 0.5 million; presently 1 million
- Daily needs per capita = daily prewar consumption: 130–150 litres
- Piped water daily supply: 7 million litres
- Trucked water supply per day: 0.5 million litres
- Rainwater harvesting: 1 million litres
- Estimated daily supply from shallow wells: 15 million litres
- Number of lined wells equipped with hand pumps: 400
- Number of unlined, open wells: 7,000

Table 1: Monthly Distribution of Diarrhoea/Cholera Cases Reported in 1992–1996

	1992	1993	1994	1995	1996
Jan. (I)	3,030	4,243	5,909	3,940	2,575
Feb. (II)	2,425	2,580	6,818	3,788	2,725
March (III)	2,750	4,090	3,864	2,879	1,364
Apr. (IV)	2,738	4,546	5,152	3,258	98*
May (V)	4,016	5,682	7,576	4,773	1,818
June (VI)	4,022	4,034	10,546	5,149	2,119
July (VII)	2,348	4,697	7,424	4,693	4,688
Aug. (VIII)	2,803	4,848	8,182	4,832	3,712
Sep. (IX)	3,561	4,020	6,515	4,011	2,197
Oct. (X)	2,504	5,606	7,045	4,470	2,494
Nov. (XI)	5,758	5,157	6,663	5,142	3,018
Dec. (XII)	7,197	5,303	4,621	4,924	3,258
Total	43,152	54,806	80,315	51,859	30,066

Note: (*) Number of cases reported declined due to the closure of most clinics during the April 1996 crisis.

trates the same pattern. Data presented here (Table 1 and graphs), illustrate the situation during the civil war.

Action

The threshold of 145 cases of diarrhoea/cholera per day established by MOH sets a maximum annual number of 52,925 as the base line, provided that 4,350 cases per month is not exceeded.

An analysis of 1992 data, while the Monrovia water supply system significantly contributed to overall consumption, shows that the number of cases was below the MOH limit until the outbreak of fighting and subsequent destruction of the water treatment plant. Data for 1993 shows an increase in the total number of cases and the beneficial contribution of partial rehabilitation of the treatment plant. The data for 1994 shows that the number of cases almost doubled compared to 1992, as piped water trickled intermittently through a deteriorating and leaking distribution system.

With mass disinfection of wells begun in 1995, the total number of cases of diarrhoea/cholera fell below the maximum annual number, although the number was still 1 to 18% above MOH monthly limits for six months.

The full impact of the mass well disinfection is evidenced in 1996 with the annual number of cases dropping to fewer than 57% of the MOH established limit. The outbreak of diarrhoea/cholera that occurred in 1996 was the result of renewed fighting, which slowed and limited opportunities for well disinfection.

As a pro-active measure, a massive campaign takes place prior to actual disinfection. The disinfection is accompanied by a community-based or house-to-house campaign of dissemination of health and hygiene education messages, as well as a self-chlorination campaign scheduled a few weeks before an expected resurgence of cases of diarrhoea/cholera. Practical demonstrations on how to prepare: 1) safe drinking water using household bleach, 2) oral Rehydration Solution (ORS), and 3) sugar

With mass disinfection of wells begun in 1995, the total number of cases of diarrhoea/cholera fell below the maximum annual number, although the number was still 1 to 18% above MOH monthly limits for six months.

Salt Solution (SSS), regularly follow such campaigns.


Calcium hypochlorite (HTH) is used for well disinfection, while locally produced household bleach is used for the self-chlorination.

The campaign improves every year as the number of disinfected wells rises, and public awareness and acceptance increases. It is worth noting that the annual cost of the whole campaign is less than US\$3.00 per well, including house-to-house training, radio broadcasts, newspaper and town crier campaigns, as well as the cost of printing, disinfectants, etc.

Support for garbage collection in Monrovia and vicinity significantly contributed to vector control. The impact of such activities limited the scale of outbreaks of water and sanitation-borne diseases. It is important to reiterate that cholera is endemic, so at any given time during the year, there are cases of severe diarrhoea or cholera. As a result of preventive chlorination, the rates of mortality and morbidity were reduced significantly, decreasing the patient load at clinics and hospitals. This allowed for better primary health care for a greater proportion of the population, as well as a shift from direct implementation to cooperation with government and NGOs (especially local NGOs), and empowerment of community and area-based groups with responsibility to implement mutually agreed-upon activities. Pursuing this policy, the approach toward national capacity building has been reinforced by encouraging governmental

organizations to take control of activities in this sector, gradually involving them in the programming process and implementation. This move toward local capacity building is reaffirmed in agreements signed with the Ministry of Rural Development (MRD), the Ministry of Lands, Mines and Energy (MLM&E) and NGOs for well disinfection, self-chlorination and health/hygiene education. UNICEF has been consolidating efforts to collaborate with communities and extend partnership with grassroots NGOs, increasing their capacity through training and on-the-job activities.

The WES programme continues to be cost effective with respect to reviewing and adopting the appropriate technologies. For example, UNICEF made designs for wells and latrines and developed appropriate construction technology and casting. The cost of wells and latrines constructed for the residents and internally displaced population decreased once the designs developed by UNICEF and the casting technology were widely accepted. That led to the decision to turn over casting of concrete well rings and latrine slabs to local NGOs and the private sector. UNICEF assisted in the construction of "desludgable" shelter latrines in overpopulated shelters where residents have stayed for a period of three to seven years, encouraging NGOs to ensure regular cleanings of shelter and institutional group latrines. There has been a noticeable improvement of environmental sanitation in crowded shelters, kept clean through the regular desludging of the shelter latrines. No outbreaks of severe diarrhoeal diseases nor cholera epidemics have been reported in any of these shelters since 1994.

UNICEF promoted and introduced Village Level Operation and Maintenance (VLOM) hand pumps, gradually accepted by international NGOs and by the Liberian Government. With UNICEF's assistance, the Government drafted the first "Guidelines for Water Well and Latrine Construction in the Republic of Liberia." 

Restructuring the Water Service in Port-Au-Prince Shanty Towns

by Mr. Bernard Collignon, director of HYDRO CONSEIL, Paris, France

Programme Context

What is at stake is a rapidly increasing demand. Port-au-Prince is a city of 2 million inhabitants that has developed rapidly over the last 30 years. The population has increased tenfold, following a massive exodus from the countryside, but the distribution network for drinking water has failed to grow accordingly.

Sufficient Water Resources

The city has a total of 110,000 cubic metres of water per day, or 55 liters per inhabitant per day. This amount of water is sufficient, considerably higher, for example, than for a city such as Dakar, Senegal (with only 38 liters per inhabitant per day), which is considered to have a good water service. Therefore, the problem in Port-au-Prince is not one of water resources, but rather of organization and distribution of public service. Despite the abundant water supply, the water service in Port-au-Prince operates very inefficiently, with half the inhabitants receiving no water service at all.

Only 10 to 12% of families are connected to the public water supply in their homes and those who are connected receive water for only a few hours a week. Since 1994, standpipes have not been functioning regularly. CAMEP, the public service company, is heavily in debt.

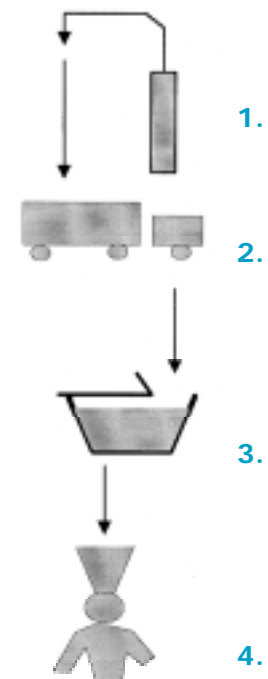
Proliferation of Private Operators

In response to these deficiencies, Port-au-Prince has seen a sharp increase in water distribution in the private sector. Half a dozen private tubewells utilize hundreds of trucks to provide water to thousands of private water tanks in the city. Most of this water is intended for resale to users. The water tanks have replaced standpipes, neglected by the public service.

Many private individuals resell water from their homes, and a number of them run clandestine operations. The total length of these alternative distribution networks has been estimated at 600 kilometres, or triple the length of the public distribution network. These private operators meet the water demands of the underprivileged fairly well, but at an exorbitant cost: \$3 – \$4 per cubic metre, compared to \$0.5 for water from the public network.

Levels of Service

1. *Private tubewells:* Water is sold wholesale (in trucks of 5 to 20 cubic metres), at a price of \$0.1 per cubic metre. Clients are truck owners who resell the water in Port-au-Prince, or company owners who get water more cheaply from the tubewells than from the public system.



Levels of service

2. *Trucks.* Water is resold at wholesale rates to owners of private water tanks at a price of \$0.8–\$1.5 per cubic metre. Clients are retailers who resell the water in their neighbourhood, or private individuals who are not receiving regular water service from the public system.
3. *Private water tanks.* Water is sold retail (in buckets of 15 to 25 litres) at a price of \$2–\$3 per cubic metre. Clients are water carriers who then resell it from door to door, or private individuals who use it for their own needs.
4. *Water carriers.* Water is sold retail for \$3–\$5 per cubic metre to private individuals who lack the means to finance a private hook-up, who do not have time to look for water outside the home, or too weak or old to fetch it themselves.

Basic Programme Data

Location: 14 shanty towns (210,000 inhabitants) in Port-au-Prince, capital of Haiti

Financing: European Union (ECHO and DG VIII) and CFD (\$3m)

Manager: CAMEP (public company)

Programme leader: GRET (French NGO)

Other partners involved: HYDRO CONSEIL, GATAPHY, SOLAM, SICA, SOE and 4 Haitian civil engineering companies.

Programme Objectives

In such a difficult context, the programme headed by GRET (with technical assistance from HYDRO CONSEIL), aims specifically to supply water to the shanty towns that is, those areas that do not yet have a public water service or distribution network. The aim

is to establish a distribution system through paying standpipes, to be managed by community associations. One of the difficulties encountered is that these neighborhoods lack an infrastructure; houses have been built illegally, without title deeds, and there is no urban planning (there are no roads suitable for vehicles).

Description of the Programme

The activities summarized here correspond to three successive programmes, financed by the European

Union (ECHO, DG VIII), and the CFD. These programmes have reached 14 neighbourhoods in Port-au-Prince with 216,000 inhabitants.

Technical Principles of Network Construction in Neighbourhoods Without Access to the Public Water Supply

The installation developed by HYDRO CONSEIL with its partners (GATAPHY, SICA, CAMEP) is based on the following principles:

- Water is provided to poor neighbourhoods by an urban network managed by a public operator (CAMEP), avoiding the need to use private transportation; the networks installed in the neighborhoods are linked to the main urban network, which is the only one that can provide water of good bacteriological quality.
- Link-ups to the CAMEP network are equipped with a meter, which is where involvement of CAMEP and the Committee ends.
- As the CAMEP network only has water pressure a few hours a day, reservoirs will be constructed corresponding to at least 24, and preferably 48 hours' consumption at the standpipes, so as to maintain the flow to the neighborhood network, even during service cuts in the main network, which will reduce the risk of contamination by the infiltration of water that has already been used.
- Water is distributed to users through standpipes, where it is sold at an average cost of \$1 per cubic metre, a considerable sum for the poorest families but affordable for most families in shanty towns, who previously had purchased water at two to four times this price.
- Particular attention has been paid to technical surveys of the networks, in order to avoid conflicts over land rights, and to reduce the risk of break-downs, which are difficult for the neighbourhood committees to deal with; these surveys have been awarded to local firms.
- Following a restricted invitation to bid, the studies and construction work on the networks, reservoirs, and standpipes were awarded to private local companies. The services of these companies were evaluated by an independent monitoring service in Haiti (SICA).

Neighbourhoods where the networks were installed in 1995/1996 (ECHO)

Neighbourhood	Population	Date started	No. of fountains	Distribution network installed	
				Length (m)	Reservoirs (m3)
Montjolly	8,000	1995	5	1,200	50
Cité l'Eternel Nord	20,000	1995	4	2,000	48
Cité l'Eternel Sud	20,000	1995	4	2,000	36
Baillargeau	12,000	1996	3	1,000	36
Desprez	4,000	1996	2	300	24
Solino	25,000	1996	2	600	40
Tichéri	6,000	1997	2	600	24
Drouillard	15,000	1997	4	2,000	48
Total	110,000		26	9,700	306

Neighbourhoods where the networks were installed or reinforced in 1997/1998 (ECF/EU)

Neighbourhood	Population	Date started	No. of fountains	Distribution network installed	
				Length (m)	Reservoirs (m3)
Bois neuf	10,000	1997	4	2,000	48
Decayette	15,000	1997	6	1,800	100
Villa Rosa	8,000	1997	7	2,000	99
Delmas 32	50,000	1997	11	4,500	500
Trou sable	15,000	1997	6	1,600	60
Solino	not given	1998	2	360	34
Cité Marc	8,000	1998	3	600	36
Total	106,000		39	12,860	877

continued on page 16

■ **Clean Water to benefit India's Children and Environment** from page 5

Community awareness and management of clean water resources should be enhanced.

Communities need to better understand the causes and effects of clean water problems. Communities should be vested with authority, responsibility and accountability to be the caretakers and managers of their clean water situation and empowered to take necessary actions. In practice, different interest groups and conflicting property interests mean that the definition of what constitutes a community is complex. The following actions are recommended for community management of the water environment:

- Through the Panchayat Raj (local self-government) institutions, define groups/community organisations for the management of their water environments.
- Give these groups/community organisations the responsibility, authority and accountability to manage their immediate water environments, within well defined legal bounds and adhering to ecological and environmental standards.
- Build capacity within these organisations to manage water resources and develop, design and implement alternative traditional water harvesting systems for domestic water supply.
- Build capacity within these organisations to collect and manage locally raised revenues.
- Support these organisations as they enter into contracts with each other and develop public-private partnerships to share ground water resources, giving primacy to drinking water.
- Promote ongoing monitoring, assessment and analysis of the clean water situation through community participation.

- Local institutions should have major responsibilities in implementing groundwater legislation, primarily through community self-regulation.

In the Indian context, legislation primarily should focus on identified areas of water scarcity and should include:

- Control/regulation of water extraction based on micro-level analysis of underlying reasons for water scarcity and defined standards.

Communities should be vested with authority, responsibility and accountability to be the caretakers and managers of their clean water situation and empowered to take necessary actions.

- Controlling the types of crops grown and economic incentives for dry-land cropping.
- Mandatory construction of recharging structures.
- Prohibition of water withdrawal below certain depths for irrigation and industry.
- Control and prevention of water pollution.
- Devolving authority and responsibility to communities for management of water in its conjunctive uses and making community organisations central to micro-level water resources management.

In water supply programmes, redefine basic service levels and re-orient technological options.

Government and external support agencies, in partnerships with community organisations, should support ground water recharge through tanks, rainwater harvesting, bunds, check dams and forestation, where this is affordable,

feasible and maintainable by communities. Traditional technologies, suitably adopted to make use of modern technology, should become an integral part of the water supply programmes.

Basic levels of services in rural domestic water supply should be defined in terms of adequate quantities of quality water available throughout the year at a reasonable distance from users. This criterion should be used to define household water security. Alternative affordable financing mechanisms, including credit, must be incorporated in future programme strategies, to meet this basic level of service criterion.

Water quality should be a central consideration in designing and implementing programmes.

Ensuring adequate quality water for basic needs and eco-system sustainability should be central to strategies for clean water management. In designing strategies and implementing programmes, a long-term view should be taken on the implications for water quality. Urgent measures are needed to reduce water pollution and enhance environmental sanitation.

Water should be treated as an economic resource.

As a scarce economic resource, water has economic value and should carry a price, as it already does in some instances. But water as an economic resource also implies the need for national protection and equity in its allocation. Where market forces may allocate water for agriculture and industry, government has a role in ensuring equity and protection of water for domestic purposes and eco-system sustainability. Financial incentives should encourage water conservation, water re-use, and greater efficiency in water use.

The cost of providing water should be recovered, in particular for urban areas and for industry. Improving the efficiency of the urban water supply through prevention of water loss, recycling and full cost recovery should be implemented prior to alternative high-

cost options for meeting urban demands. Taxation of ground water used for irrigation, with revenue retention at local level, should be examined.

Water markets have been suggested as one of the mechanisms for water resource management. Where government is promoting such markets, adequate regulation should be adopted and enforced. Where markets emerge in rural areas, legislation should support control through community self-regulation.

External support agencies should support fresh water resource management.

Rural and urban water supply projects implemented with external assistance should be designed to encompass the wider context of water resource management and protection of the environment. Donors should support pilot projects for local analysis, assessment and implementation of sustainable actions. External support agencies can adopt the case study approach as a catalyst to national efforts.

Environmental restoration should be promoted, along with household water security.

Case studies have shown that the 'right to water' for basic human needs, and a reduction of the workload of women and girls in getting food, fodder and firewood need not result in environmental degradation. The process for achieving both conservation and development should be pursued through a combination of approaches, including reviving traditional techniques and supporting communities. Water supply programmes should encompass the regeneration of clean water sources, which will sustain the water systems and at the same time preserve bio-diversity. The case studies suggest how links between nature and human needs can be integrated, both at the conceptual and operational level.

This article has concentrated on groundwater since most of the study villages almost exclusively depend on this for household and irrigation needs, but it

The cost of providing water should be recovered, in particular for urban areas and for industry. Improving the efficiency of the urban water supply through prevention of water loss, recycling and full cost recovery should be implemented prior to alternative high-cost options for meeting urban demands.


is recognised that issues related to surface water cannot be ignored. The resolution of conflicts over clean water requires action at all levels, including legislation and institutional support. No single action, whether community based, legislation, techno-fix, including traditional water harvesting systems, or reliance on market forces, will in itself alleviate the crisis in India. A holistic approach and composite set of actions are needed.

For UNICEF and WWF programmes, recommendations include:

- Piloting public-private partnership projects; technical, financial and capacity building support to community organisations to manage their water environment, creating community awareness of clean water situation and advising measures to protect the environment.
- Promotion of community-managed, micro-watershed management, including forestation in the catchment areas, regeneration of the resource base, traditional water harvesting systems, and change to more sustainable agricultural practices.
- In regions with water stress and where hand pump technology cannot ensure adequate quality domestic water throughout the year, advocacy and support for the construction of mini piped water supply schemes, with community management. Vari-

ous alternatives will need to be explored to finance such schemes, on the principle of cost recovery.

- Advocacy with the government at the national level for design and implementation of ground water legislation and regulations with the participation of local-level institutions.
- Analysis and advocacy on water as an economic resource.
- Continued assessment, analysis and actions of the clean water situation on a local level, including water quality. Undertaking further local-level studies to understand the situation and address issues of cost and financing of alternative, institutional reforms, social equity and learning.
- Through analysis, actions, assessment, dialogue and communications, mobilise political will for policy changes in favour of integrated water management and environmental protection.

The solution to the clean water crisis is to integrate conservation and development activities at the local level. Making communities aware and involving them fully is critical for success. The case studies strengthen the dictum that what is good for nature is good for people. The programmatic suggestions above provide scope for combining conservation of the environment with the basic needs of people. 

■ Colombia's Women in a Sanitation Program, from page 14

and cleaning the sanitary facilities. Using this information as a foundation and considering such criteria as taking an interest in improving sanitation condition, exercising leadership and guaranteeing manpower, 19 households were chosen to continue participating in the program.

The matriarchal society and status of women as the permanent parent in most homes meant that women were the ones to make decisions on the distribution of space or modification of their dwellings. In a workshop, each woman made a schematic drawing of her home, projecting into the future by providing it with a sanitation unit. Criteria taken into account included: privacy (understood as personal bathing or defecation while isolated from other people), comfort and convenience offered by using the sanitation unit whenever needed, and social status (understood as an improvement of condition compared to other families and also to the possibility of use by outsiders of the sanitation unit).

Contact with urban dwellers, obtained through relatives living in nearby cities, shaped concepts of sanitation facilities, combining elements of urban culture with characteristics of rural areas. In choosing technological alternatives, the women of Triana chose a sanitation unit made up of a washing area, a low-consumption (6 litres) toilet, and a shower for personal bathing. They chose to locate these facilities in a cabin or booth inside their dwellings or next to them. These units were complemented by a treatment system such as a septic tank and filter with the plant species papyrus for use in wetlands. From these designs, three models resulted. These were reduced to two choices after discussions with the children and men of the family.

To decide on construction materials, a workshop was organized on recovering the historical memory of how to construct local dwellings. Several alternatives were identified: wood, (discarded because of its low durability due to the local climate), and adobe (not viable because of the difficulty in obtaining dry soil). The best alternative was

found to be cooked brick and cement, to be covered with tile to match the changes undergone by the dwellings.

The women planned how they would design their dwellings in the future. They and their families decided where the sanitation unit would be located. As for construction, a committee was formed to receive and distribute materials donated by the TRANSCOL program and a local master builder, who offered advice on construction. The families contributed manpower and materials from the river (gravel and sand). The men, especially the elders, took part in constructing the sanitation units. Five families had the work done and in only two dwellings did the women's spouses do the work.

Design changes were introduced: in the washing place, the women increased the capacity for water storage, a place to put soap was added, and windows for illumination and ventilation were opened.

Nineteen sanitary units with treatment system were constructed at a cost of Colombian pesos CP\$25,350,000 (UNICEF's contribution: CP\$20,000,000 and the community's contribution in manpower and materials from the river: Colombian pesos: CP\$5,350,000). The cost per dwelling was CP\$1,334,211 (US\$1,250)⁴.

The methodological process used to involve the women and young people who accompanied them to workshops made it possible to consolidate the leadership of these population groups. One additional result is that the women's group is considering taking over the administration and planning of the local aqueduct, which has always been administered by men. This represents a change in the traditional leadership, with young people interested in participating in their own development.

The project was accompanied by a program in hygiene education carried out by school students, who made puppets with mothers belonging to the school parents association and wrote songs whose messages interpreted the local situation in hygiene and sanitation.

Conclusions

The methodological process showed that it was women who faced most of the sanitation problems, since men do not stay at home very much. The matriarchal society, linked to the women's labour market, guarantees that women are prime decision makers concerning changes to their dwellings. Therefore, active participation of women in the area of clean drinking water and improvement to sanitation conditions result in additional positive effects, since the leadership of women and an organization to carry out other beneficial activities in the community emerges.

The programme, conceived from a perspective in which changes in sanitation had to be determined in accordance with the world view of this particular community, showed that even in cases in which the users recognized the importance of improving sanitation conditions, for them the most important criteria for effecting change were not health-related. At the same time, the programme got community members not involved in the programme interested in getting facilities similar to those of the families involved. Thus, they organized themselves and are trying to get resources from other organizations to meet this goal.

Teamwork among institutions and across disciplines showed that the goal of the program was a sustainable project. In this sense, the families and institutions involved achieved a sense of ownership regarding the methodology of their work and the system they developed. The project might also be seen as showing that this working method contributes to optimizing investments. This participatory perspective is important because communities do not always express what they want and need, even in a relatively lengthy process of clarifying their needs and options.

References

- Cairncross, S., Feachem, R. *Environmental Health Engineering in the tropics*. 2nd Edition. Wiley. 1993, U.K.

continued on page 25

Water, Environment and Health: Children Against El Niño

by Juan Carlos Flores Zúñiga M.A.*

For six years now, the Water Defenders Children's Club in Costa Rica ~~xxxxxxx~~ awareness among thousands of people about the health and economic benefits of preserving water cleanliness and protecting its sources. Created under the auspices of a national campaign against cholera in 1992, the club counts nearly 50,000 child volunteers working to mitigate the effects of El Niño.

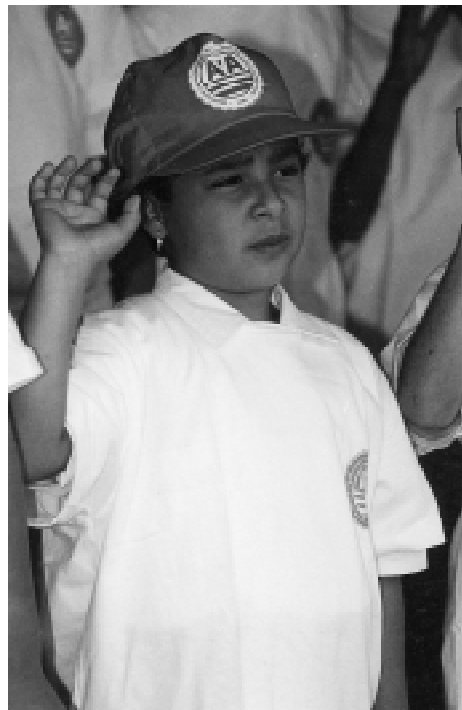
Background

Within Latin America, Costa Rica has been a role model in the realm of clean water supply. The creation of the Instituto Costarricense de Acueductos y Alcantarillados (AyA) in the 1960s led to the supplying of clean water to 63% of the population, while local committees and municipalities supplied two-thirds of the rest of the population with a supply of disinfected water. However, basic sanitation and preventive medicine were de-emphasized during the 1980s, especially in rural areas, because a new set of priorities, including high-technology medicine, compromised vital economic and human resources.

Since its onset, AyA as a public utilities institution lacked policies to stop water waste and guarantee cost-efficiency, jeopardizing the sustainability of its operations. Only 53% of the water processed by AyA is acceptable, and after three increases in the last eight years, its tariffs still fall below the cost of operation. Water leakage and illegal connections are the main problems facing AyA in the populated areas it serves. Deteriorating ducts and storage infrastructure, urban chaos and a boom-

ing population growth are not helping the situation.

Therefore, the threat of cholera in 1992 was a blessing in disguise, in that it



led to an overhaul of the public health system. It triggered the re-organization of AyA as the national institution in charge of a clean water supply. Its main goals were regaining initiative in different areas, such as systems that were in shape, mismanaged by local committees or municipalities, or in the sphere of public opinion and the media, critical of an institution that had operated for many years in disarray and with negligence.

AyA rallied for support on all fronts and practically led the national effort against the threat of cholera. Nationally, consumers backed tariff hikes, as well as state intervention on the many aqueducts vulnerable to cholera and other diseases transmitted by water.

One of the most important, although seldom mentioned factors was the success of a public strategy against the pan-

demic based on a communication plan designed and executed by AyA at the beginning of the crisis. It allowed the institution to plan ways and means of leading national efforts on health education and ecological awareness focused on water cleanliness and sensible consumption.

Such a framework, devised by the Division of Institutional Projects at AyA developed for the first time a national network of child volunteers who from their homes, schools, and communities supported and fostered national goals with practical habits and activities carried out from the grassroots to the upper classes.

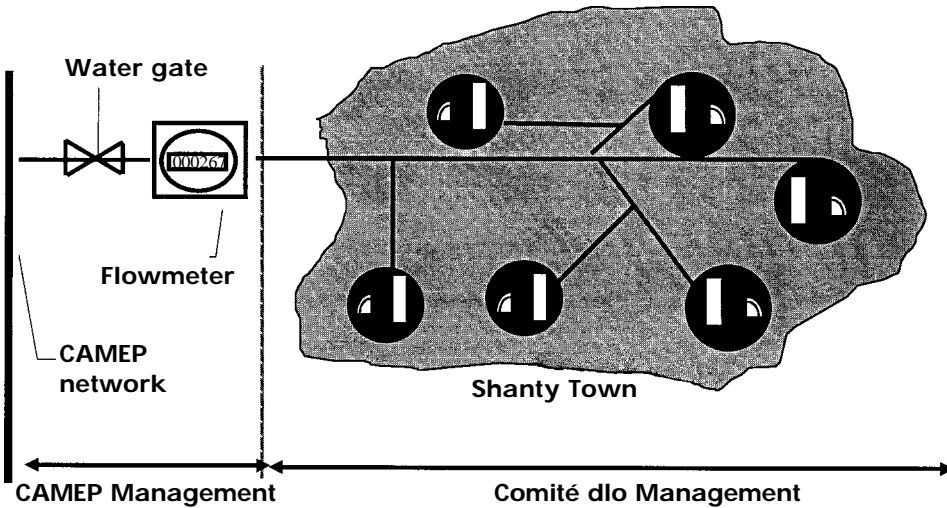
The Children's Crusade

The focus of the program was on children with basic knowledge of reading and writing and skill in spoken expression, basically schoolchildren in grades three to six. This segment of schoolchildren was chosen after several focus groups were convened and after consultation with educators and psychologists. They agreed in their estimate that this group would be most suitable for the program and able to assimilate quickly the objectives of the Club Infantil Defensores del Agua. These schoolchildren could also make a commitment to protection of the environment and healthy habits of water consumption. Previous studies had shown how much weight children's opinions exert at home in persuading parent addicted to tobacco to stop smoking. The same influence was exerted in breaking bad habits concerning water. After designing the proper materials and advocating for necessary educational resources, such as texts, videos, and memorabilia, and for inclusion of the subject of water in connection with ecology and health in curricula taught in elementary schools between 1992 and 1995, 500 clubs were established in the countryside and in poor urban schools.

An aggressive schedule of appearances by the mascot of the Club—a blue frog (Blue for the international color assigned to water quality, and a frog for

* Juan Carlos Flores, M.A., is a senior consultant in communications, Division coordinator at Acueductos y Alcantarillados, university professor, and author.

■ **Restructuring Water Service in Port-Au-Prince Shanty Towns**, from page 11



■ GRET plays the role of arbitrator and facilitator between the committees and CAMEP or among various community organizations in the neighbourhoods.

Results

Approximately 20 kilometres of the network have been constructed, providing water to approximately 60 standpipes. For 1998 it is estimated that 50 more water tanks and 500 homes will be hooked up to the system. 1,200 cubic metres of reservoirs have been constructed in 14 neighbourhoods.

These 14 networks make it possible to distribute 500 cubic metres per day, thus providing the main water supply to 50,000 inhabitants (at a rate of 8 litres per inhabitant per day), and an additional supply to 150,000 more inhabitants. In effect, these standpipes also tend to regulate the price of water in these neighbourhoods by providing the service at \$1 per cubic metre, compared to the rate of \$3–4 per cubic metres formerly offered by private retailers.

Committees in 14 neighbourhoods have been managing the water service for more than two years. They comprise leaders of community organizations, without exception (political parties, churches, youth groups, women’s associations, networks of local dignitaries). These committees have shown great ma-

continued on next page

Management of Water Distribution System by Users’ Associations

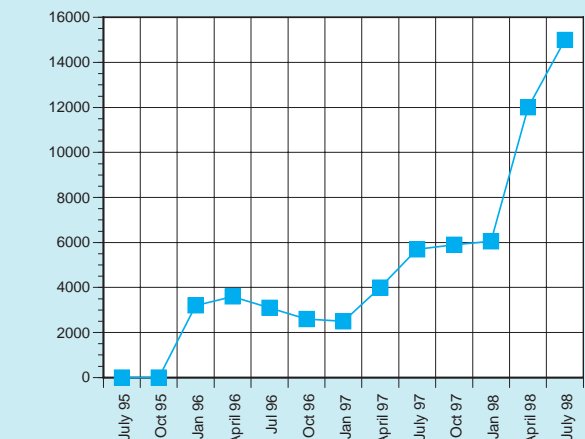
The intervention method developed by GRET with its partners (SOLAM, GATAPHY, SICA, HYDRO CONSEIL) is based on the following principles:

- Analysis of the demand for water in the various neighbourhoods is carried out in close collaboration with CAMEP, as are technical feasibility studies (flow and available pressure in the network) and social studies (neighbourhood consensus).
- Water is bought from CAMEP at a wholesale price of 5.3 gourdes per cubic metre (approximately \$0.3 per cubic metre). The water is distributed to users through standpipes where it is resold at an average price of 15 gourdes per cubic metre (approximately \$1 per cubic metre). Based on income from the sale of water at the standpipes, each water committee pays its bill to CAMEP. Since the project’s inception, no such bill has gone unpaid.
- The water is sold by vendors (male and female) hired and paid by the water management committee in each neighbourhood.
- These committees are made up of representatives from all the community organisations in the neighbourhood. They decide how work will be

carried out (e.g., choosing the number and placement of standpipes, facilitating construction work, etc.). They organize the development and maintenance of the network, under contract from CAMEP, which provides water at the neighbourhood point of access. However, the responsibility of CAMP ends with the installation of the general meter in each area and CAMEP does not provide services in the neighbourhood.

- The neighbourhood committees are formed after an intensive mobilisation and training process carried out mainly by GRET and SOLAM, a Haitian NGO specialized in social mobilisation work in shanty towns.
- The gross profit margin achieved by the committee from the sale of water (approximately \$0.7 per cubic metre) makes it possible to pay the water sellers, provide a small payment to members of the committee, and finance maintenance of the network. The remaining profits (15–20%) are invested in other public interest facilities in the area (drains, walkways, sidewalks);

Volume of Water sold by CAMEP to the first eight water committees (quarterly averages expressed in cubic metres)



turity in dealing with conflicts within the community and managing funds: the rate of payment of CAMEP bills is 100%. Using profits from the sale of water, committees have financed approximately 15 small community facilities (sports grounds, meeting rooms, walkways, drains, showers), which serves to strengthen their mandate among the population.

The volume of water distributed each day by the neighbourhood committees has risen considerably over the past two years, which shows that the network meets the real needs of the population. However, on the consumption curve shown on the previous page, a considerable reduction can be noted during the rainy season, which shows that the programme is reaching populations with very limited incomes. As soon as an inexpensive supply of water is available (water collected from rooftops, for example), this particularly disadvantaged group avoids paying for water from the standpipes.

Impact and Conclusions

Difficulties Encountered

Water pressures in the CAMEP network is weak, irregular and unpredictable, which constitutes the main obstacle to increasing the amount of water distributed in each neighborhood.

The legal status of the land is extremely ill-defined (no surveys have been carried out), which results in protracted discussions and different arbitration for the selection of each site. The

CAMEP employees are not well trained in dealing with clients, water meters and billing; and it is therefore difficult to get them to adopt an approach to public service which seeks to adapt itself closely to demand, as they are used to selling water services to the neighbourhoods and even to pirate link-ups.

Social mobilization in the most disadvantaged areas of Port-au-Prince is made very difficult by an explosive political and social environment. In 1994, few local NGOs had the necessary experience or capacity for such an endeavour, which led GRET to develop a local structure that gradually is becoming specialized in the area of social marketing in shanty towns.

Some Pleasant Surprises

The program has enjoyed immense support from CAMEP (in particular from its directors), although in principle, it would not appear to be part of the strategy CAMEP has pursued with regards to the programme's financial backers and their influence.

The joint commitment of all the community organizations, whose history of lively competition and conflict is well-known in Haiti, also should be noted. Obviously, the distribution of water is a sufficiently important and concrete necessity for these organizations to quell their rivalries to obtain a tangible result.

We were able to award the surveys, construction and monitoring of all the work carried out to surveyors and firms in Port-au-Prince, who had proven their competence in the extremely unusual conditions of the shanty towns, despite their limited experience in such a relatively new field.

Competition from the new standpipes has been accepted by owners of the water tanks, and there have been no cases of sabotage. This has been made possible by strong mobilisation of community associations who protect the networks.

The sale of water, even at a relatively moderate price (30–50% of the price previously charged by private retailers), provides a considerable profit margin (36% of revenues) to the neighbourhood committees, making

the programme self-financing. Once funds have been set aside for the renovation of existing installations (20% of revenues) there remains a relatively substantial amount which is reinvested in other public work installations, thus contributing to the development of the neighbourhoods and their integration in the urban fabric (drains, bridges, walkways, sports grounds, showers, community facilities). Around fifteen installations of this type have been built, based on exactly the kind of local financial investment that is required from the parties involved.

Possible extension of the programme

Much work remains since an estimated 500 to 1,000 standpipes are still needed to satisfy the demand in Port-au-Prince. Fortunately, many donors are interested in the programme, as it is one of the rare examples of a successful public service rehabilitation since the return of democracy in Haiti in 1994.

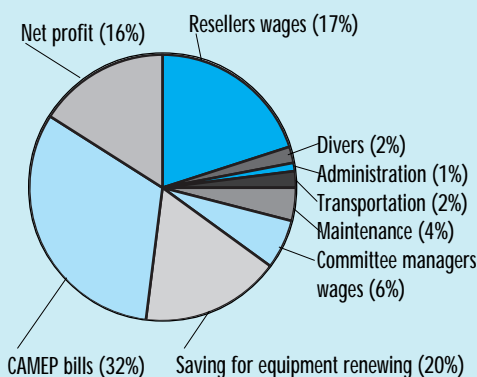
However, in order to expand the system, CAMEP will need to adopt this approach into its global strategy. To a public water distributor, the advantages of such a programme are: a wider clientele thus more revenue, an improvement of its public image through servicing a wider portion of the population, and a decrease in vandalism of the network.

The expansion of the system will also depend on the enthusiasm and the performance of the local managers and their ability to succeed at promoting full participation by stakeholders. In this regard, GRET and HYDRO CONSEIL have been playing a pivotal role in the implementation of new water distribution methods and usage. However, this role should soon be taken over by local communities for integration in their own strategies. 🌍

For more information:

Bernard Collignon, directeur de
HYDRO CONSEIL
53, rue du Moulin des Prés, 75013, Paris
Tél./fax : 33 1 45 65 11 16
e-mail H2Oconseil@aol.com
Other contacts: GRET Haïti, Sacha Brailowsky,
Patrick Vilaire and
Daniel Henrys
87, rue Cameau, Port-au-Prince, Haïti
Tél./fax: 509 22 62 15

How the money collected by the water Committees is used



■ **Water, Environment and Health: Children Against El Niño**, from page 15

living in harmony with water supplies)—then began. Public contest was held, the blue frog got his own television program for the season of 93-94. An advertising campaign to coincide with two national Fairs and a Music Festival in 1993 and 1994 publicized the Club Infantil Defensores del Agua around the country. Results were measured and evaluated consistently every trimester, and again after the cholera alert diminished. The main effects of this continuing educational program and this particular campaign were the following:

- 35 new educational programmes about preserving water sources started in 35 urban and rural communities.
- More than 20,000 boys and girls joined the Club, with more than half of them participating directly in Water Fairs, events and training programs.
- Each club carried out democratic principles in its respective school and rotated leadership after a one-year tenure.
- Children enrolled in the program generated enough awareness in their homes to reduce water waste and support policies on water management and consumption.

- According to club reports, parents felt children’s pressure not to throw garbage in rivers, reservoirs or streets.
- The private sector and the media joined AyA in national educational campaigns about water resources, including water preservation, conservation and prevention of diseases linked to unhealthy habits and unclean water.
- According to a poll, the approval rating of the AyA rose from 3 points to 8 points and up in less than two years. Meanwhile, public complaints about hikes in tariffs sank to a low of 1 per every thousand consumers.

Politics As Usual

With a new government in 1994, a different approach, adopted by the Water Defenders new administration, brought the Children’s Club and its educational and promotional goals to a halt which lasted almost two years. A change of heart came when AyA became part of the First Lady’s program for Costa Rica’s 16 poorest communities. First Lady Josette Altmann was introduced to the Club as early as 1993. In fact, its success inspired the Secretary of Environment and Energy—Ministerio de Ambiente y Energía (MINAE)—to start its own Water Defenders Children’s Club, adopting as its own, the concepts of water quality pres-

ervation and protection of water for leisure activities.

In 1996 the club finally got an endorsement from the Environmental Education Management at the Ministry of Education, which facilitated the inclusion of Water Defenders Children’s Club textbooks in school curricula and in 1,000 school libraries.

In the 16 poorest communities and elsewhere throughout the country, the Water Defenders Children’s Club started again, using nearly the same strategies and materials produced in the past and with some of the original team members. However, this time the program bore the insignia of the “Healthy Schools Program”—apparently to connect it with international funds delivered in the fight against poverty. But in fact, the concept of the Water Defenders Children’s Club was what sustained the “new program,” with a four-phase approach to elementary schools. 1) educators were informed about the new content and exposed to the Club agenda; 2) a group of potential leaders from each province were selected and trained. Up to 50,000 children were indoctrinated with Club tenets and goals and committed themselves and their schools to the program; 3) 1,980 children were selected from participating schools to be trained as “plumbers,” with a commitment to pass their training on once they returned to their schools; and 4) a system of follow-up, developed in 1997, included random visits to check on the progress of individual clubs in promoting conservation of lakes and rivers, as well as water consumption awareness.

Three forestry engineers from the National University of Heredia teamed up with Club leaders at AyA to teach and test tree reforestation in schools that enlisted themselves in this program. Six hundred schools did not comply and were excluded. By the end of the year, monitoring showed a ratio per school of up to 300 trees planted by Club members at the main water reservoirs serving each community. This means a total of more than half a million trees, which helps to explain why, according to satellite images, Costa Rica is drastically reducing



its deforestation by planting more trees than the forestry industry can chop down.

The Bad Effects of El Niño

The four tenets of the Water Defenders Children's Club are simple and effective:

- Protecting water reservoirs at the local level from deforestation and pollution.
- Fostering healthy water consumption and waste disposal habits.
- Reducing residential and school water leakage as well as the waste of clean water.
- Influencing adult consumers on the fragile relation between water, environment and health in shaping quality of life.

Club members in nearly 200 small communities have committed themselves to these tenets for the last six years, whether or not AyA backed their efforts. Despite lack of private sponsorship, the Water Defenders Children's Club members are fervently committed to their goals; so are the educators and AyA employees working on the program.

A new challenge facing the children is the harsh effects of El Niño and by September, La Niña. In fact, efforts by Club members to improve basic sanitation in schools, foster good consumption habits at home, and protect reservoirs in communities, are among the factors that kept El Niño from causing Costa Rica the disasters suffered by other Latin American countries and averted the cholera scares that occurred in neighboring Central American nations.

The latest challenges facing AyA workers and educators and members of

the club at the local level include the current drought (caused mostly but not exclusively by El Niño), as well as the operational and legal problems that have halted a necessary overhaul of storage water deposits and the establishment of a reliable sewage network financed by the Inter American Development Bank eight years ago.

The seed was planted and is beginning to bear fruit. This Costa Rican example shows how children can learn and improve themselves. Parents are getting a positive and educational influence from what their children are learning in school. Several agencies in the region are aware of the program, called by other names and promoted by various consultants. Health agencies such as PAHO/WHO, the regional organisation CAPRE and the German aid agency GTZ have been reporting on the Club's initiatives since 1993. 🌱

Children and the Environment—A UNICEF Working Paper Executive Summary

Deteriorating environmental conditions have their most profound impact on children. All children are exposed, from the prenatal phase, to a barrage of environmental threats to their survival, health and development. In the poorest regions of the world, one in five children die before their fifth birthday, largely due to environment-related, and thus preventable, diseases. Conversely, children are also dynamic and powerful protagonists for a more environmentally stable world.

The working paper contends that many of the legal obligations and moral aspirations encapsulated in the Convention on the Rights of the Child (CRC), not least the right to life itself and the right to the highest attainable standard of health, are, in their word and spirit, dependent on the provision of a sound physical environment. In other words, children have a right to grow in an environment that is conducive to their health and well being. As such, UNICEF's mission to contribute to child survival, protection and development, as enshrined in CRC, is dependent on a safe physical environment and the fulfillment of the wider goals of sustainable development as expressed in Agenda 21. The working paper goes on to assert that environmental issues are integral to practically every aspect of UNICEF's work, and are essential to an integrated programme approach. Thus, particularly with the shift to integrated, child rights-based programming, and a growing emphasis on cross-sectoral approaches such as community-based Integrated Management of Childhood Illness (IMCI) and Early Childhood Care for Growth and Development (ECCD), coupled with increasing international attention accorded to environment, UNICEF can ill afford not to

mainstream environment-related considerations to reinforce its work.

The working paper's objective is to demonstrate how synergies could be harnessed through the systematic adoption of environment as a programming element, so as to produce tangible benefits in the immediate environment of the child and in terms of wider strategic priorities. In order to demonstrate how relatively minor environmental interventions can yield benefits for an integrated programme, the paper, in section II, examines the interlinkages and synergies presented between environment-related issues and UNICEF's work in health, water and environmental sanitation, nutrition, and education. In each respect, it considers UNICEF's comparative advantages, case studies, and internal and external policy influences.

In section III, tentative recommendations are made that could contribute to a more comprehensive strategy to integrate environment-related factors in UNICEF's policies and programming. Recommendations include, intervention at the situation analysis phase of programming, the consideration of environmental impact assessment guidelines for UNICEF's assisted programmes and projects, training and building capacity of programme staff in terms of their expertise and skills in environmental issues, and developing an environmentally sensitive culture within UNICEF. The paper is intended to spark internal discussion and forge a consensus as to how environment issues are related to UNICEF's agenda, whether or to what degree they should be addressed and, if so, how they should be incorporated.

Empowering Women: A Water and Sanitation Programme in Honduras

by Ms. Yvette Eileen van Dok, consultant for UNICEF-Honduras

Introduction

This article is a contribution to UNICEF's plan for documenting "best practices" in mainstreaming gender issues in UNICEF country programmes. The information here is based on field visits to five communities involved in the programme, discussions with programme staff and study of the available programme documents.

Water and Sanitation Programme

Like many cities in Latin America and elsewhere, the population of Tegucigalpa has grown extremely fast since the early 1950s. Its population of 275,000 inhabitants in 1974 has tripled today, largely due to immigration from rural areas. About 57% of the inhabitants have been forced to settle on the steep slopes of the peri-urban area¹. The communities that have sprung up in these areas began without any public services. Women, chiefly responsible for the water supply of the family, obtained water from unsafe and unreliable sources such as rivers, from neighbors, or at a high price, from private, itinerant water sellers.

The Honduran government recognized the dire need for safe and dependable drinking water and, in 1987, the National Autonomous Water and Sewerage Authorities (SANAA) established a separate office within its purview to administer water projects for the peri-urban areas: the Executive Unit for Settlements in Development (UEBD).

The UEBD programme, supported financially and technically by the United Nations Children's Fund (UNICEF), aims to provide inhabitants of peri-urban areas in Tegucigalpa with adequate sani-

tary facilities and to establish proper hygiene practices. As a result, about 155,000 people of 98 different peri-urban communities have benefited from the water supply and sanitation programme².

Components of the programme are technical and financial assistance in the construction and maintenance of water supply and sanitation systems, promotion of organization development and hygiene education. Participation of the community plays a strategic role in the programme, making use of local experience in self-help. In the initial phase of the project at community level, a local water board is established by members of the community, elected by the general assembly. The water board formalizes the project in the community, organizes its participation for the construction of the water or sanitation system, represents the community in the financial arrangements concerning water fees and reimbursement of the rotating fund, and takes responsibility for operation and maintenance of the system.

The programme started without any specific strategy directed to the stimulation of women's involvement. Four years later, a study about women's participation in the programme³ showed a contradiction in women's contributions to the projects and their membership on the water boards. On one hand, women bear chief responsibility for the water supply of the household. As such, women exercise the most pressure in the identification of the project, women participate in all construction activities and women are chiefly responsible for payment of the water fee.

On the other hand, when it comes to the organization of water boards and

power in decision making, men take over the leading roles. In 1991, 40 women represented 30% of the 131 members on the 21 existing water boards. Most occupied traditional female posts with little power, such as secretary or mere member⁴. Since water boards are the main organisms for planning and decision making, exclusion of women means a lack of female representation in decision making and therefore limited capacity to negotiate their interests and stimulate gender equality in the development of the programme.

Therefore, in 1995, UNICEF launched strategies to stimulate an equal female and male participation in all aspects of the programme and established a clear distinction between women, men, girls and boys in the objectives and indicators for monitoring and evaluation of the hygiene education programme. As a result, important advances have been made with respect to the increase of women's involvement in organizations, not limited to the water boards. Also the training of plumbers, water sellers and members of family visitors' committees has enabled women and girls to take up leading roles in the development of their community.

Executing Agency

SANAA/UEBD, in collaboration with, and supported financially and technically by UNICEF, is responsible for the technical, social and financial support of communities in the execution of the water programme. This implies a close interaction between the staff of the UEBD and the community. As government officials and professionals in water and sanitation, the staff members represent a high degree of formal authority in the community. As such, their performance strongly influences the process of participation and equal involvement by men and women. It is, therefore, worthwhile to take a closer look at the composition of the teams of programme staff and the factors that facilitate them to work in a participatory and gender sensitive manner.

continued on page 24

Hygiene Education Linkage Programme (HELP): The GTZ* experience in Namibia

by Dr. Thomas Schild, Technical Advisor, GTZ SWAM (Sewage-Water-Awareness Management) and Hermann Plumm, Consultant, SWAM.

Background

The Hygiene Education Linkage Programme (HELP) is based in Oshakati, the second largest city in Namibia. It is located in the heart of former Owamboland, the most densely populated area of rural Namibia (population: 670,000). The concept for HELP was derived from the GTZ-supported Sewage-Water-Awareness-Management Project (SWAM) in northern Namibia in early 1995. The goal of HELP was to empower mandated institutions to fulfill their obligations in the area of sanitation and hygiene education (SHE). Right from the start, there was consensus among HELP partners that the programme should last for only two or three years and be a start, not a permanent institution.

Conditions

The government and people of post-independence Namibia and its supporters have put a lot of energy toward redressing the socioeconomic imbalances produced by the apartheid regime. South West African laws and regulations outlining the government's obliga-

* German Technical Assistance

tions to provide sanitation facilities at schools had been ignored almost entirely in the north, while the sparsely populated and more receptive south and central regions were much better endowed.

The alarming impact of this policy on the health of Namibians is well reflected in the figures taken from a 1992[†] survey on diarrhoea among children under 5 years old listed below.

The Namibian Public Health Act requires all public institutions, including schools, to provide a specific number of toilets or latrines. However, the most current figures for the Ondangwa West Region revealed that only 41% of schools provide at least one latrine, while only 44% supply water. These figures cloak an even more disturbing reality, since most of these schools scarcely offer more than two functional latrines (normally reserved for teachers only), and water supplied to students is stored mainly in uncovered tanks or comes from open wells, serving people and animals alike. Quite often, statistically recorded latrines in fact had been abandoned for various reasons (bad smells, fear of falling should the latrine collapse, or a bad reputation in general). The bush was still the widely

preferred toilet facility, and other prominent health and education elements, such as teaching body and hand washing or food handling and storage, were found to be totally underdeveloped. In fact, many people did not link sickness with failure to practice hand washing or handle and store food properly.

Northwest Namibia is characterised by relatively high population density, a soil composition that prevents the permeation of rainwater — resulting in formation of numerous seasonal lakes; and topsoil consisting of very fine sand (which does not aid sanitation purposes). Such a flat, semi-arid terrain requires the lining of pits and can hardly be used for brick making.

Namibian civil servants proved to be quite promising allies, however. Within the African context, Namibia governmental institutions are comparatively well equipped and generally do not lose dedicated, qualified staff to the private sector. Hence, an initial situation analysis suggested working with mandated public institutions and refraining from duplicating staff and activities on a programme level.

Objectives and Strategies

The goal of HELP was to efficiently and effectively plan and implement an exemplary programme of sanitation and hygiene education within the existing institutional set-up and staff allocations. As a planning forum of concerned institutions without its own staff or budget, HELP aimed to get its activities endorsed and implemented through the respective regional authority.

Consequently, the HELP concept is comparable to a pilot programme that will lead the way to a more hygienic environment. While restricted to a regional level and an exemplary selection of primary schools, it attempts to address a wide range of sanitation health and education issue: actual facilities, teacher training, didactic materials, parental participation, and community mobilisation.

Schools are a key element. They serve as centres of innovation, sustainably improving the hygiene of pu-

Region	Diarrhoea in the 24 weeks: all diarrhoea (%)	Diarrhoea in preceding 2 weeks. Diarrhoea with blood (%)	all diarrhoea in the preceding 24 hours (%)	Number of children
Northwest	17.1	4.4	5.5	1 563
Northeast	47.2	17.2	22.0	656
Central	9.9	0.9	3.1	423
South	12.4	1.4	4.3	920

[†] Ministry of Health and Social Services & Demographic and Health Surveys Marco Int. Inc., Namibia, Demographic and Health Survey 1000-100

■ **HELP: The GTZ Experience in Namibia**, from page 21

pils by combining the efforts of teachers, parents and and educational and health officers. Starting with the fairly manageable goal of promotion at the school level, the ultimate goal of HELP was the inclusion of surrounding communities by moving from students to parents and eventually mobilising communities with the cooperation of health and community development staffers.

The linkage section of HELP hints at the necessity of combining the setting up of actual sanitation facilities with health and education. Despite the fact that this linkage is essential, most activities discussed during the initial situation analysis seemed to exhibit a strong bias toward one aspect or the other. Apparently a correlation exists between the availability of funding and a preference for acquiring actual sanitation facilities.

Lessons learned from previous sanitation projects stressed the paramount role of ownership. Well constructed VIP school latrines remained entirely unused because school authorities seemed to feel that while they had given donors permission to build such facilities, nothing further had been agreed upon. Ownership and, consequently, responsibility for shared management and maintenance, should reside with the actual beneficiaries.

Since traditionally in Namibia, sanitation is widely believed to be an exclusively woman's affair, health and education involved gender at nearly every stage. Using as an example the positive results of projects in Lesotho involving female latrine builders and questioning the standard division of labor in the area of sanitation health and education, HELP deliberately chose a certain local building co-operative made up of both women and men to take charge of income generation and demonstrating and promoting women's capabilities in a new area.

Structure and Processes

HELP's core instrument is the Co-ordination Committee (CoCo), a plenary body comprised mainly of

education, health, and community development officers. Concerned experts meet additionally as smaller sub-committees, analysing and planning for issues like teacher in-service training didactic material, facility designs, or community participation.

Lessons learned from previous sanitation projects stressed the paramount role of ownership....Ownership and, consequently, responsibility for shared management and maintenance, should reside with the actual beneficiaries.

Special attention was paid to the limited capacities of concerned institutions. For new activities to be implemented, they not only had to be planned by the officers themselves, but to be truly accepted, they had to be feasible in every way and, last but not least, to be linked with professional or general incentives. Thus, the growing awareness among officers of the dire necessity of sanitation health and education and public recognition by senior officers of their staffers' involvement in HELP activities or their participation in a study tour to Zimbabwe created strong driving forces within HELP and determined, to a great extent, the level of dedication by individual members.

Since the officers in charge had fairly limited knowledge or and interest in sanitation health education, their level of understanding about the urgency of intervention in this area had to be increased. A huge amount of time was invested in meetings, site visits, informational and motivational exercises, searching for and inducting new CoCo members or scanning the market for teaching aids, appropriate latrine designs and local builders. In the end, this investment paid off in widespread sensi-

tivity on all levels to the importance of sanitation health and education.

Achievements and Failures

Moving slowly and carefully in order to avoid leaving some participants behind, HELP put some time into the initial step of strengthening institutions — an activity known in the jargon of modern development as “capacity building.” Tangible results in the form of actual VIP units and health education at a school level were expected in June 1997, approximately one year after the real plan was launched. Health education training for trainers and teachers, development of didactic material and its translation into vernacular languages, and the drawing up of plans for actual facilities have been achieved. Some 60 schools hope to benefit from interventions using the HELP concept.

However, the most significant achievement has been succeeding in sensitizing officials from assistant inspectors to regional directors, who are manifesting a sincere desire for “regional understanding” of sanitation and health education issues. This sensitivity facilitates and regulates the co-operation of the Ministries of Health and Education, flanked by the Department of Works, in the area of sanitation, health, and education. The jointly developed manual stipulates the implementation on a regional level, of certain paragraphs in the Public Health Act. What must sound rather unspectacular constitutes, in fact, a milestone achievement: getting officials to care for regulations that they themselves, had not determined and that deal not with grandiose or glamorous activities, but with long-neglected sanitation health and education.

This particular milestone paved the way for a gradual phasing out of external aid. In the future, regional authorities of both ministries will keep building on the quest for healthy citizens living in a clean environment. The conclusion of GTZ's major contribution will come in the form of training health officers to become competent inspectors and advisors, or in the form of funding to bridge the current budget gap.

continued on page 23

In addition to the continual sensitization campaign, two other factors contributed to the rapid progress made. One factor was the Zimbabwe study tour, during which Namibian officers personally encountered not only a high percentage of sanitation facilities, but more importantly, a functioning system of inter-ministerial co-operation and extensive parental involvement in school affairs.

The other impetus started in a CoCo meeting in which a health officer reported back to his Permanent Secretary on poor sanitation in schools in the north. For some reason, the PS took note of this widely known fact and wrote to his colleague in the Ministry of Education, reminding him of pertinent legal obligations. In turn, the PS for Education passed the word on to his regional directors. Without further hesitation, our regional director seized the opportunity, gave his imprimatur to HELP as a “regional understanding,” arranged swiftly for a meeting with his colleague from the health directorate and was transformed from a bystander to a top promoter.

Health officers suffered from various problems, such as a considerable sanitation fund without the capacity to spend it properly, but all sought the same remedy. From then on, it took only weeks to design and approve a manual for inter-ministerial co-operation.

However, the community component of HELP did not prove its value at that stage. Putting the focus squarely on schools seemed to marginalise the community component, not only conceptually, but also in terms of funding, resources, and involvement by officials. It remains to be seen if the communities in which “HELP schools” are located can be mobilised sustainably, once schools, parents and officials get involved.

Monitoring and evaluation so far has been restricted to results, omitting at least in a systematic way, the level of impact. Considering the huge investment required for a satisfactory monitoring of impact, HELP partners decided to operate according to the standard development hypothesis: “Our best inten-

Health officers suffered from various problems, such as a considerable sanitation fund without the capacity to spend it properly, but all sought the same remedy.

tions and activities will have a positive impact.” It is hoped that the Ministry of Health will do a survey on the level of impact of HELP sometime in the near future.

The water supply situation, especially in remote areas of Namibia, remains very unsatisfactory. The Ministry of Agriculture faces extremely unfavourable conditions and would require a huge amount of funding to make big steps forward. However, progress more likely could be made in small increments, for example through cleaner methods of storing water and the introduction of water filters. Education officers have collected data from every school, and a regional action list has been compiled, reflecting the urgency of intervention in the area of water supply and sanitation. Currently, it would be premature to speculate on whether the regional understanding achieved in the field of sanitation health and education will be extended to encompass water supply issues, as well.

Before conclusions can be drawn about HELP, the educational and health authorities in another region — the Kavango region located in Namibia’s northeast, have embarked on the same programme. The Kavango region is badly affected by water problems and hygiene-related diseases. GTZ, which sponsors this process through an educationally based project, could transfer to Kavango a lot of experience gained from Oshana’s HELP programme. The most crucial element in this experience would be ensuring that outsiders act strictly as facilitators, with regional authorities designing a Kavango “regional understanding” right from the start.

In Conclusion: Lessons Learned

- Map the area thoroughly;
- Attract, motivate and keep dedicated people;
- Promote dedication. It is worth more than expertise alone.
- Be open-minded and prepared to abandon one’s own ideas;
- New participants and proposals are always welcome; don’t make it a closed club.
- Define your success as partners’ success. Refrain from being the “generous donor.”
- Continually question and evaluate the pace of work and change;
- Technical superiority is not always the most important value.
- Seek support for sanitation health education from all sectors of society.
- A rapid action approach does not suit the time-consuming process of capacity building. 🌐

■ Programme Highlights and Events, from page 28

sanitation. The formal agreement was signed by Mr. Klaus Topfer, Executive Director of the United Nations Environment Programme on behalf of UNCHS (Habitat) and Ms. Carol Bellamy, Executive Director of UNICEF, at the opening of a seminar on the Challenge of Managing Water for Cities in Africa organized by the UNCHS (Habitat). The event coincided with the ongoing Six Session of the United Nations Commission on Sustainable Development, which focused on the issue of freshwater, among others.

The cooperation under the agreement will focus on providing programmatic support and advice to the field, building a knowledge base that will facilitate the development of national sector policies and strategies, and fostering regional networking. The partnership will also lead to a better coordination and collaboration of the two within various United Nations’ inter-agency mechanisms. 🌐

■ **A Water and Sanitation Programme in Honduras**, from page 20

Three teams form the executive staff of the SANAA/UEBD: 1) the technical staff, composed of six engineers, two women and four men, and seven male construction supervisors, is responsible for the design and technical supervision of the water supply projects. 2) three promoters, two women and one man, are responsible for the organization and monitoring of the community participation process, through the establishment of communal water boards. 3) a team of five educators, four women and one man, financed by UNICEF since 1996 as part of the programme staff, takes charge of the hygiene education programme directed toward the organization and training of voluntary family visitors, teachers and school children. This programme is considered a fundamental complement to the water and sanitation programme and an important instrument for the increase of women's involvement⁵.

Empowering Honduran Women

a) Personal and Cultural Conditions

With the implementation of the water supply projects, women are invited to take up roles that compete with traditional ones. In order to be able to participate, a woman must create space at household and at community levels. Married women are forced to negotiate with their husbands for permission to leave the house and create the opportunity to become involved in the project. For many women this is not easy.

Still, the important contributions that women have made to project implementation illustrate that many women have

been able to redefine the relationships with their husbands and different elements have strengthened women in their negotiations. For example, the women's own motivation for personal development is a strong argument. Many women, bored with their household duties, want to develop themselves and are willing to make sacrifices in order to profit from the training and technical support provided by the programme. Illiteracy is an obstacle, but is not absolute. There are illiterate women who take up leadership roles.

One has to take into account that the situation of each woman is different. In the peri-urban areas, 37% of the households are headed by women. These women heads of household need not negotiate with their husbands to go out. It is also important to mention that not all men feel that they have to control their wives.

b) Access to and Control of Resources

Access to and control of the women's own resources, such as free time, abilities, family support and income are basic conditions for negotiating participation in the project. If there is nothing to offer, negotiation is impossible. On the other side of the negotiation balance, we find the resources supplied by the programme. The principal resource is a domestic water supply system: sufficient water of good quality for a reasonable price, all with a little time invested and more time available for women and children that they previously had to use to fetch water (up to 3–4 hours a day).

Programme resources such as information and training have accompanied the community participation process. Gaining knowledge is crucial to boosting women's self-esteem, abilities, and credibility, all basic requirements for strengthening women's role in decision making, organization and the build-up of leadership. In the last two years, innovations have included stimulating women to participate in training about traditionally "male" issues such as plumbing, and getting men to participate in "female" issues such as hygiene education.

Currently, the training programme has covered:

- Information and training of the general assemblies of 98 communities about programme procedures, community participation and the involvement of women.
- Training of members of 98 water boards in organization and financial administration, operation and maintenance of the water system and gender issues.
- Training of approximately 160 voluntary family visitors (88% women and girls) in 18 communities on hygiene education, sanitation and gender issues.
- Training on basic and domestic plumbing of approximately 250 school children, youth and adults, with equal male and female participation.
- Training on the administration of public taps attended by women, girls, men and boys of three communities.

Technical assistance in construction and maintenance was given to the members of the water boards, the plumbers and all women, girls, men and boys involved in construction activities. Sometimes changes were made in the design of the water system according to women's requests.

c) Power in Decision Making and Organization Development

Power in decision making and participation in organization development

Some Data on Women

- Women form 37% of the heads of household in the peri-urban areas
- Women-headed households are the poorest
- Fertility rate of women in peri-urban areas: 5.25 children
- Women form 44% of the economical active population of Tegucigalpa and San Pedro Sula
- 45% of the workers in the informal sector are women

Maradiaga, H., 1990. Análisis de la Situación de la Infancia y la Mujer en Honduras, UNICEF. In: Whitaker, 1991.

is indispensable for women to negotiate their interests at community level.

Women's role in decision making has become evident on several occasions in the project process. Before the project starts, women are the ones who pressure their neighbors and the community government to apply for it. They are often the ones who establish relationships with the programme staff.

Another opportunity for women to participate in decision making, is the election of the water board by members of a general assembly, which must take place every two years. Although in most communities, women form the majority in the general assembly, this does not automatically mean that they elect female candidates for the water boards. For example, in the community "19 de septiembre," the general assembly voted three times for a male member of the water board, and all three men refused to take up the post. Finally, a female candidate was chosen. However, there are also examples of women candidates who were endorsed strongly by their female supporters⁶.

In order to alter the unequal representation of men and women in the water boards, the programme staff has adopted different tactics. One is discussing with members of the general assembly

the importance of women's membership in the water board. Another tactic is convincing the general assembly to adopt a regulation stating that 50% of the members of the water board must be women. It must also be considered in any democratic election of the water board, room must be left for negotiation. This means that election procedures have to be clear and accessible to all community members, men and women. The programme staff has played a facilitating role in formalizing these procedures.

However, the water board is not the only organization promoted by the programme. Since the start of the hygiene education programme in 1996, in 18 communities committees of voluntary health workers have been trained to take on the responsibility for dissemination through home visits of information about hygiene. Every committee is made up of between five to 10 family visitors, each in charge of visiting five to 15 families. Most members (88%) of these committees are women and girls, although it is interesting to note that men have also taken up this non-traditional male role.

In three communities, SANAA provides water shipped in by truck and stored in reservoirs connected to public taps. Committees have been formed, re-

sponsible for selling the water and collecting the money. A benefit of working for these committees is the training in administration offered by the programme. The community also provides these people with a small financial compensation for their work. It is interesting to note that many of the committee members are women.

Female Leadership Development

A first step for a woman who may never have played a role in community development can be to participate in training and work as a plumber or a water seller.

Another possibility is to become involved as a family visitor. Presently, 99 women and girls and 14 men and boys work actively as family visitors⁷. Several women, based on their experience as family visitors, have taken up functions in the water boards.

The highest level of female leadership in the water supply project is membership on the water boards. A study recently executed on 17 water boards reveals that women comprise 34% of their membership⁸. Although women are still in the minority, a significant shift in the assignment of functions has been made.

continued on page 27

■ Colombia's Women in a Sanitation Program, from page 14

CINARA-IRC (1996). Programa de Transferencia de Tecnología en Sistemas de Abastecimiento de Agua y Saneamiento en la República de Colombia, TRANSCOL FASE II, Informe Final. CINARA, Cali, Colombia.

CINARA-UNICEF (1997). Programa de Agua Potable, Saneamiento Básico y Educación en Higiene en los Corregimientos de Triana y Zaragoza, Municipio de Buenaventura. Informe Final. CINARA, Cali, Colombia.

Departamento Nacional de Planeación (1995). PLAN DE AGUA 1995-1998, Documento CONPES 2767- Ministerio de Desarrollo Económico-DNP: UPRU, Santafé de Bogotá, Colombia.

Mosser, Caroline O.N (1.989), Planificación de Género en el Tercer Mundo: Enfrentando las necesidades prácticas y estratégicas de género. En Una Nueva Lectura: Género en el Desarrollo.

Motta G. Nancy (1.995), Enfoque de Género en el Litoral Pacífico Colombiano; Nueva Estrategia para el Desarrollo, Facultad de Humanidades, Universidad del Valle.

Prowess, IRC (1.993), La Mujer, el Agua y el Saneamiento: Un enfoque sensible al género, Países Bajos.

Water Supply and Sanitation Collaborative Council (1994). Problema del Saneamiento. Reporte de la Mesa de

Discusión del primer encuentro. Thun, Suiza.

World Bank, UNDP, (1996). Water and Sanitation Program. Annual Report, July 1994-June 1995.

Notes

- 1 An office of the Colombian Ministry of Health with direct influence on the department of Valle del Cauca
- 2 US\$500 per family per year in 1997
- 3 Program carried out in cooperation with the governments of Colombia and the Netherlands, with the coordination of CINARA and IRC.
- 4 Estimation made using significant market rate on May 5, 1997 of US\$1 = CP\$1,068.53 Univalle-Cinara 1997

New Publications

Hygiene Evaluation Procedures

Hygiene Evaluation Procedures; Approaches and Methods for Assessing Water and Sanitation-Related Hygiene Practices.

This practical evaluation handbook was published jointly by DFID, INFDC, London School of Hygiene and Tropical Medicine and UNICEF. It provides guidelines for evaluating water and sanitation-related hygiene practices. Its chief focus is on practical concerns of field personnel working in water supply, sanitation and health/hygiene education projects who want to design and conduct their own evaluations of hygiene practices.

Designed to make qualitative research skills accessible to practitioners with little or no previous training in social sciences, the handbook describes methods of gathering, reviewing and interpreting qualitative information using a variety of sources and methods to produce reliable data. Using case studies from Africa and Asia involving field personnel working in water supply, sanitation and health/hygiene education projects, the handbook was developed as a practical answer to the limitations of using a single method or instrument for information gathering. Alternatives to questionnaires are explored, including a variety of methods and tools that may be selected and combined. Also included is a useful section on common mistakes and pitfalls.

Hygiene Evaluation Procedures; Approaches and Methods for Assessing Water and Sanitation-Related Hygiene Practices. Astier M. Almedom, Ursula Blumenthal and Leonore Manderson, May 1997. ISBN 09635522 87. Price: GBP7.95/US\$10, 130 pp.

Spanish and French versions are also available.

For more information, or to order please contact:

IT Publications
103-105 Southampton Row
London WC1B 4HH, UK
Tel: +44 (0) 171 436 9761
Fax: +44 (0) 171 436 2013
E-mail: itpubs@gn.apc.org

or for the United States:
Stylus Publishing Inc
22883 Quicksilver Drive
Herndon VA 20166
Tel: (703) 661 1504
Fax: (703) 661 1581
E-mail: Styluspub@aol.com


Ecological Sanitation

The challenges of providing sustainable sanitation services to the growing numbers of the world's urban dwellers are enormous. Burgeoning population growth results in land and water scarcity and worsening pollution of available water aquifers. The feasibility and sustainability of traditional waterborne sewerage systems in urban areas have been questioned, not only for the costs involved but also from an ecological point of view. Alternative systems for urban sanitation are explored in a new book called "Ecological Sanitation" published in August 1998 with the assistance of the Swedish International Development Cooperation Agency (Sida).

The book covers three areas. Firstly, it examines sanitation devices in relation to different sanitation systems. The advantages and shortcomings of various sanitation technologies are evaluated in different physical and cultural conditions. Ecological alternatives use either dehydration or decomposition (composting) to both sanitize and re-use human waste. Secondly, experiences with ecological sanitation from different parts of the world are put into a single framework relating the many scattered ecological sanitation

initiatives known so far. Thirdly, the book describes how to launch ecological sanitation systems and what to consider when developing and implementing them.

It is pointed out that the ecological sanitation concept is particularly relevant to cities where water, space and financial resources are scarce, but should not be regarded simply as a second-rate solution only for the poor. Ecological sanitation options are available for a whole range of socio-economic conditions. A number of these are described in the book.

UNICEF through its offices in Guatemala, El Salvador and China played an important role in developing the ecological sanitation concept and supporting some of the pilot projects presented in the book. 

Ecological Sanitation: Steven Esrey, Jean Gough, Dave Rapaport, Ron Sawyer, Mayling Simpson-Hebert, Jorge Vargas, Uno Winblad (ed). August 1998. Price: approx. US\$10 (plus postage).


To order, please contact Sida, Department for Natural Resources and the Environment, S-105 25 Stockholm, Sweden.

■ A Water and Sanitation Programme in Honduras, from page 25

Nowadays, 65% of the presidents are women, compared to only 9.5% in 1991⁹.

Achievements and Constraints

The impact of the water supply programme in the peri-urban areas of Tegucigalpa goes beyond the establishment of communal water supply systems and the reduction of disease. It can be considered as a step forward in the long process of women's empowerment and generation of gender equalities in community development. Women have used the opportunity to become involved in project activities, build up their knowledge and self-esteem, change traditional values and roles, create space to leave the house, all elements that strengthen their capacities to negotiate. As a result, female leadership in the water boards, the family visitors committees and the committees for the administration of public taps has increased significantly. Support

for the programme, based on its participatory approach and intensive training, social and technical assistance has played an important role. 

References

- BCEOM; 1989. Lote 3: Actualización del plan maestro de abastecimiento de agua potable de Tegucigalpa. Informe: Proyección de la demanda.
- Cerfontaine, B; 1995. Capacidad de negociación, desarrollo rural y la mujer rural en Honduras. MAKS VIII, 1993-1995. Department of Rural Sociology, Agricultural University, Wageningen, Holland.
- Espejo, N; Farach, V; Visscher, J.T; 1994. Aprendiendo de la Experiencia del programa de abastecimiento de agua para los barrios marginales de Tegucigalpa, Honduras. Informe Final. International Water and Sani-

tation Centre (IRC), la Haya, Países Bajos.

Interconsult; 1996. Facing new challenges and opportunities. Evaluation of UNICEF's Programme for water and sanitation in Central America. Final Report. Interconsult, Sweden AB.

Mencia del Cid, Ruth; 1997. Patronatos y juntas de agua: Su inserción en el desarrollo de las áreas periurbanas de Tegucigalpa. Estudio realizado para UNICEF, Tegucigalpa, Honduras.

Metell, K; Mooijman, A; 1998. Women, the key to succes of water supply to urban poor in Tegucigalpa. *Waterlines*: Vol.17, No. 1. July 1998.

González Valenzuela, R; 1998. Análisis reflexivo del proyecto piloto casa y escuela saludable. Departamento de Promoción Social. Componente Educación Sanitaria. SANAA-UEBD/UNICEF, Tegucigalpa, Honduras.

SECPLAN/UNICEF; 1995. Situation analysis of children, women and youth. Honduras.

UNICEF, 1997. Honduras. Water, environmental sanitation and hygiene education project 1997–1999. Final version november 1997. UNICEF, Honduras.

Whitaker, H; 1991. Participación, mujer y proyectos de abastecimiento de agua. Marco para una metodología. Programa UEBM-SANAA/UNICEF.

Family visitors

	Number of Women	Number of Men	Total
Youth (12–18)	18	3	21
Adults (19>)	81	11	92
Total	99	14	113

Composition of 17 water boards

Total members	86	(100%)
No. men	57	(66%)
No. women	29	(34%)

Women's representation

	No. women	(% of Total)
Presidents	11	(65%)
Treasurers	4	(24%)
Financial Controllers	3	(18%)
Secretaries	6	(35%)
Members	5	(28%)

Mencia del Cid, 1997: Study on 17 water Boards in 19 communities, selected at random from a total of 99 in 1997.

Notes

1. BCEOM, 1989
2. Metell, K; Mooijman, A., 1998
3. Whitaker, 1991
4. Ibid
5. UNICEF, 1997
6. Whitaker, 1991.
7. Data educators UEBD, April 1998.
8. Mencia del Cid, 1997: Study on 17 water Boards in 19 communities, selected at random from a total of 99 in 1997.
9. Whitaker, 1991

Programme Highlights and Events

UNICEF Guinea Programme Ecole Propre/Ecole Verte Honoured by UNEP

The UNICEF-supported programme “Ecole Propre/Ecole Verte”, an environmental education programme in Guinea Conakry was this year elected together with 22 other individuals and organizations from 19 countries to the prestigious ranks of UNEP’s Global 500 Roll of Honour, for outstanding contributions to the protection of the environment. The programme has in five short years, taken root in 92 schools throughout Guinea with more than 20,000 participating students. The success story was officially recognized on 5 June 1998 at a special award ceremony in Moscow as part of this year’s World Environment Day celebrations.

Mr. Klaus Topfer, head of UNEP said, “These environmental defenders have demonstrated that it is at the community and local level where action to protect the environment acquires its full meaning. In honouring them, UNEP hopes that their examples will inspire and guide many other men, women and young people to join the global coalition dedicated to protecting the environment”

World Water Day 1998

The sixth annual World Water Day was celebrated on 22 March 1998 in more than 80 countries. UNICEF and the United Nations Division of Economic and Social Affairs (UNDESA), were the lead UN bodies for organizing its observance.

“Groundwater — the Invisible Resource” was the 1998 theme and advocacy efforts were concentrated around the three principal gaps in groundwater management—as identified by the UN system—which have enormous implications for sustainable development:

- The accelerated degradation of groundwater systems, through pollution of aquifers.
- The lack of both professional and public awareness about the sustainable use and economic importance of groundwater resources generally.
- The economic implications of not resolving groundwater demand and supply management.

UNICEF advocacy efforts at the global level and country level focussed on publicizing these gaps.

UNICEF Workshop on Environmental Sanitation and Hygiene

Between June 10 and 13, UNICEF hosted an international Workshop on Environmental Sanitation and Hygiene in New York. The main objectives of the workshop were to review field experiences and distill from them lessons learned to be adopted and replicated to address the growing need for safe sanitation for all. The four main themes of the workshop were: sanitation promotion, school sanitation, urban sanitation and integrated approaches. Over 70 people participated full time in the workshop, including UNICEF field staff and nearly 30 participants representing partner agencies, governments and NGOs.

Keynote speakers at the workshop included Carol Bellamy (UNICEF Executive Director), Richard Jolly (Chairman, Collaborative Council of Water Supply and Sanitation and Adviser to Administrator, UNDP), and Dr. Crispus Kiyonga (Minister of Health, Government of Uganda). Their interventions emphasized: the need to identify strong arguments that will make decision makers act to reduce the “sanitation gap”; the need to support environmental sanitation and hygiene programmes at the

grass roots and local government levels; and the need to concentrate on low-cost approaches that can go to scale. Workshop participants identified 20 key action points to be addressed by external support agencies and national governments on a priority basis.

Memorandum of Understanding: UNICEF and WWF on Freshwater

On April 17, UNICEF signed a Memorandum of Understanding with the World Wide Fund For Nature (WWF) to work together to seek solutions to the emerging global freshwater crisis. The formal agreement followed the launch of a joint WWF-UNICEF report entitled Fresh Water for India’s Children and Nature, the result of a two-year study of local level watersheds in five eco-regions in India. The joint undertaking comes as the world’s governments, working under the auspices of the Commission on Sustainable Development (CSD), are negotiating an action plan on freshwater resources. The activity is a follow-up to the 1992 Earth Summit in Rio de Janeiro.

Under the agreement, WWF and UNICEF will undertake joint projects at the local, national and regional levels to promote sustainable community management of water resources and to establish the fundamental importance of overall ecosystem conservation. Emphasis will be placed on communicating the experiences and lessons learned in developed and developing countries regarding the management of fresh water resources.

Memorandum of Understanding: UNICEF and Habitat on Water and Sanitation

On April 30, the heads of the United Nations Center for Human Settlement (Habitat) and the United Nations Children’s Fund (UNICEF) signed a Memorandum of Understanding aimed at strengthening cooperation between the two organizations in the areas of safe water supply and environmental

continued on page 23