Water, Sanitation and Health: Role of NGOs

by Dr Almas Ali

THE Alma-Ata Declaration of 1978, which identified Primary Health Care (PHC) as the key to attainment of Health For All (HFA) by the year 2000 AD, included the provision of safe drinking water and adequate sanitation as one of its eight essential components.

The availability of safe and adequate drinking water and sanitary measures has a direct bearing on people's health. Therefore, the provision of safe drinking water and proper disposal of wastes is a pre-environmental control measure against the transmission of most water-borne disease. This relationship is in evidence in many research studies which show that over 75 per cent of all diseases in Bangladesh are related to unsafe water supply and inadequate sanitation. Moreover, water-borne and water-related diseases are responsible for high infant/child mortality and poor quality of life. The causal relationship between unsafe, inadequate water and disease is illustrated in the prevalence of the following diseases.

— Gastroenteritis and diarrhoeal diseases are largely preventable if safe water and adequate sanitation are made available.

— Typhoid and paratyphoid fever, which are quite common in our country, likewise, can be traced to contaminated public water supply and unsafe food.

— Sometimes even cholera (El tor), also results from contaminated water and poor sanitation.

— Infectious hepatitis can be traced also to contamination of drinking water and food.

— Amoebiasis, which is rampant throughout Bangladesh can also be eliminated by ensuring clean water supply and proper excreta disposal.

— Intestinal parasites come through faecal pollution of the soil.

— Malaria, Filariasis and some other vector borne diseases share a common condition — water as the medium in which their vectors breed.

Unlike any curative medical interventions such as antibiotic treatment, surgery and emergency care, which do not depend on long-term behavioral change to bring back or to improve health, water-related interventions, however, require for sustained behavioral change over time on the part of all members of the community in order to have a positive impact on health.

Opportunities for contamination of water arise at many points : at the water sources, during transport and storage, and in use. While technologically improvement/interventions in water supply and quality can be made, these perhaps will not be effective by themselves. Some of the behavioral obstacles to clean, and safe water as well as programme issues that affect the success of efforts to overcome these obstacles are discussed below:

Poor sanitation facilities often invites in health hazards. — *Star photo*

Water and the source:

Communities obtain water from below the ground (wells/pumps) on the surface (rivers, ponds, springs) and above the ground (rain).

The source of water determines the opportunities for its contamination. For example water from ponds, streams, and rivers may contain parasites or may become contaminated with bacteria when water in the immediate area of upstream from the community is used for washing the clothes, watering livestock or disposal of human waste. Although water from below the ground is the safest, it can be contaminated if a latrine placed less than 30 meters away from that source. Disposal of human waste is a key issue in protecting water at its source. Human waste disposal behaviours often depend on deep-rooted cultural values as well as cost, convenience and comfort.

Water transport and storage:

Even when the source is protected, water still may be contaminated when dirty containers or dipping utensils are used during transport and storage. In addition, water stored in an uncovered receptacle maybe contaminated easily by insects, dirt or other debris. Utensils used to remove water may stir sediments from the bottom. Use of a container with a spigot place above the sediment levels will help prevent this problem.

Water treatment and use:

Water use determines the necessary standard of cleanliness. Water used for bathing and washing (external use) requires the least degree of cleanliness, water used for drinking and food preparation (internal use) must be free of parasites and viruses and largely free of harmful bacteria. Water for external use need not be completely free from disease causing organisms. Water for internal use should be as clean as is economical and feasible over time. The simple behavioral interventions that make water safe for bathing and washing may not be adequate for drinking or food preparation. Water that has been allowed to stand for an extended period of time has reduced levels of bacteria and may be safe (to some extent) to drink, it may, however, still contain harmful organisms, making further interventions such as filtering, boiling or chemical treatment necessary.

Categories of water and sanitation related diseases — behavioral issues:

i) Water-borne diseases:
Spread by contaminated water or dirty hands. (Example: Typhoid, cholera, dysentery, hepatitis A, gastroenteritis). Behavioral issues: Unhygienic food preparation, unsanitary methods of washing and drying dishes and utensils.

ii) Water-washed diseases:
Aggravated by insufficient water for washing. (Examples: scabies, lice, trachoma, conjunctivitis). Behavioral issues: Unhygienic practices in bathing and washing cloth.

iii) water-based insect/vector transmitted diseases:
Carried or transmitted by insects or animals living or breeding near water. (Examples: malaria, filariasis, dengue, guineaworm, yellow fever).

Behavioral issues : Time spent, at, in or near unprotected traditional water sources, presence of insects in homes and compounds. Methods of collecting, storing, and using water.

iv) Sanitation-related diseases:
Spread via unsafe human or animal waste disposal (Examples: hookworm, tetanus). Behavioral issues : Unsanitary disposal of human waste. Presence of animals and their waste in living areas. Unprotected feet.

Role of NGOs: The NGOs can play a very vital role in relation to the problems of water and sanitation in Bangladesh. The role of NGOs in these endeavours should not only be to merely provide water and sanitary facilities to the community, but also must make the people aware of the greater implications of such problems and motivate them to use and maintain these facilities. The specific role of the NGOs in this regard should therefore be the following:

- Pass on the concept of safe water and sanitation to motivators and the community;
- Advocate use of safe water ad sanitation as a way of life and means to improve health, economy and better quality of life;
- Make water and sanitation an integrated part of any development activity;
- Train local people to maintain/repair these facilities;
- Organize training/orientation course at various levels directly relevant to the programmes of water and sanitation;
- Produce health education materials in local/regional languages for promoting awareness among people about water and sanitation.

— Public Health Dialogue

Medicine Men Prosper After 500 Years in Mexico

by John Ross from Mexico City

FELIPE Mendoza draped the de-fanged rattlesnake around his neck and offered vials of snake oil he claimed would cure cancers to the dozens of prospective customers gathered around him near the ruins of the *Temple Mayor*, or great temple.

Other intriguing items hawked by the *merelico*, or medicine man: dried skunk capsules, to purify the blood, and deers eye seed to strengthen weak eyes, a twist on the ancient Aztec remedy of taking a fox's eye and fixing it to the forearm to sharpen vision. Indeed Mendoza sells an array of Aztec nostrums, among them *toloache*, a potent hypnotic that relieves pain.

One of the most persistent legacies of the Aztec civilization that dominated central Mexico before the European intrusion is an indigenous medicine combining a complex belief system with precise knowledge of medicinal plants and curative procedures such as vapour baths, purges, poultices and bloodletting.

The Aztecs assigned dominion over disease to specific deities who had the power to dispense and cure: Tlaloc, the god of rain, held sway over leprosy and other skin diseases; those with eye diseases consulted the priests of Xipe Totec, the god of renewal. Xochipili, the flower deity, cured venereal disease, and Xatilton, the black god, governed childhood illnesses.

The *ticitl*, or physician, was consulted about health problems and accidents as well as cosmic phenomena and interpersonal relations, often ingesting hallucinogenic drugs to make the diagnosis.

Equally as important within the pre-conquest health delivery system was the *papiani*, or pharmacist who supplied essences and ointments fashioned from the huge spectrum of medicinal plants sold in the great herb market of Tlatelolco, an island the Aztec capital of Tenochtitlan. The surrounding city states of Coyoacan, Texoco and Atzcapatzalco also maintained vast gardens to grow medicinal plants and others were imported from the outlying provinces under Aztec rule.

There was a darker side to Aztec medicine. Those healers who took as their patron Tezcatlipoca, the god of night, were said to be able to transform themselves into animals. These native sorcerers were known as *hechiceros*, from the Nahua root meaning to disguise. After the conquest, the hechiceros were denounced as witches to the Inquisition. Many were executed.

It is high irony that our only surviving understanding of the sophistication of Aztec medicine comes from the conquerors themselves: the diaries of Fray Bernadino de Shahagun, who interviewed native healers soon after the Spanish supplanted the Aztec hierarchy and the *Barberini Codex*, produced in 1522 at the College of Santa Cruz in Tlatelolco.

The Codex, which the Vatican recently returned to the Mexican government, depicts 204 native plants used to treat 99 illnesses, ranging from baldness - whose antidote included dogs urine — to common colds. Many of the cures were transplanted to Europe and others are still commonly used on the streets of Mexico City and in the remote Indian sierras in the country. The high regard in which Aztec medicine was held by the invaders is underscored by its instruction in place of European doctoring at the Dominican College of Santa Cruz. But as advanced as were the indigenous healing arts and the peoples knowledge of native plants, the ancient medicine had no cure for the plagues of smallpox and measles brought by the invaders that decimated the population, killing up to eight million Mexicans during the first century of European occupation.

Despite the savaging of native practitioners and texts, the old healings have survived 500 years of imposition although traditional medicine today bears little resemblance to pre-conquest forms. Those *curanderos*, or (healers) who survived the inquisition did so by substituting Christian saints for the Mexican deities, creating a blend of catholic ritual, indigenous science and hechicero charms that still flourishes.

Near the heart of the capital, the Sonora market still offers such pre-conquest prescriptions as magnolia blossoms to diminish heart disease, black radishes for digestive disorders and aloe vera and the juice of the nopal cactus to combat kidney disease. To entice lovers, black chickens and hummingbirds are used in a ritual sacrifice.

But traditional medicine is not just the province of dubious hex makers and street-corner sellers of snake oil. In the southern and densely Indian states of Chiapas and Oaxaca, it is estimated that native practitioners are the primary health resource for 80 per cent of the rural population. For government health providers, the village curandero and the local midwife from the frontline for the sick and the injured before they are brought into federal clinics.

Joaquin Martinez Nicolasa, a Mixe doctor from Santa Maria Mixistlan in the mountains of Oaxaca, sees close to a thousand patients a year, having learned Mixe healing from an aunt, he now works in tandem with young rural health interns performing their mandatory year of government service at outlying clinics.

He told a meeting of native practitioners: Traditional and academic medicine can work together like the right and the left hand — if one doesn't succeed, we try the other.

The resilience of native medicine in Mexico is shown by the organisation of indigenous doctors into professional associations. In Chiapas, curanderos and traditional midwives in highland Tzotzil villages have formed the *Organizacion de Medicos Indigenas de Ctiapas* (OMIECH) to lobby both the state and federal health ministries for official recognition.

The National Indigenous Institute (INI) sponsors an annual congress of native doctors bringing together several hundred practitioners from various ethnic cultures to discuss techniques and formulate common policies.

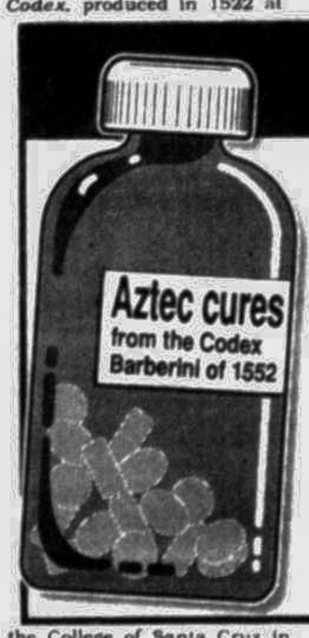
The INI is concerned that traditional medicine will be lost as Mexican society modernises. The average age of the native doctor is 40 and younger people attracted to the healing professions now attend academic medical schools where the arts of their elders are not highly regarded.

Although traditional medicine survived the conquest despite the excesses of the Inquisition, neither the Mexican constitution of 1857 nor the 1917 revolutionary version included provisions legitimising the old practices.

Today, the General Health Code permits only doctors with a degree from an accredited medical school to provide a physicians care. And the penal code continues to specify penalties for native healers accused of fraud.

If pre-hispanic medicine is to survive in Mexico, the laws will need to be altered and training centres set up.

— Gemini News.



How native Mexicans treated their sick

Common cold
Grind in hot water: cassia occidentalis, white pineflower, precious stones, salt and bloodstone. Eat onions in honey, avoid the sun, do not work or bathe

Falling hair
Use soap plant ground and cooked in the urine of a dog or a stag with tree frogs and caterpillars

Warts
Apply wartwort leaves crushed in water in which a human corpse has been bathed

Gradual Progress in the Fight Against AIDS

THE National Agency for Research on AIDS (ANRS), set up in 1988, is the kingpin in action to fight this disease which has been declared a "national priority" area since the epidemic started to spread. (In France, there are nearly 22,000 AIDS victims and about 200,000 HIV positive patients. In Paris, one death in three in men aged 25-44 is due to AIDS).

The ANRS has been set three missions : to mobilize researchers, to evaluate research programmes and to coordinate scientific decisions and the means available.

Three hundred teams are involved in research programmes (compared with 200 in 1987). Their work concerns all areas, from the development of vaccines and drugs, to epidemiological supervision, and includes setting up a post-hospital network for clinical tests.

From one laboratory to another, knowledge progresses day by day, both in tests and in diagnosis, as well as in understanding the way the virus acts and its numerous clinical symptoms.

As far as vaccines are concerned, for the time being hope lies in the area of animal experiments. As a result of research carried out jointly by the Pasteur Institute and the Merieux Institute, Professor Marc Girard, a member of the former, has developed a method of intravenous vaccination which protects chimpanzees.

Unfortunately, it is not yet possible to have man benefit from this immunisation. According to the director of the ANRS, Professor Jean-Pierre Levy, who coordinates the various tests in this domain, there is little likelihood of achieving this in the near future. "We are working hard at it. We are certainly making progress and, no doubt, one day, we shall succeed... But when?..."

As far as treatment is concerned, at present, increasingly effective drugs are used to fight diseases which take advantage of AIDS as they find a favourable ground for their development in patients whose immune defence systems have been weakened, or had collapsed (tuberculosis, retinitis, toxoplasmosis, etc).

Gene therapy

Twenty therapeutical tests, including three on a European scale, are now being carried out Bernard Debre at Cochin Hospital, and Wolf Fridman, from the Curie Institute.

Their method consists in taking anti-cancer cells, produced by the human organism, having them proliferate in the laboratory and then reinjecting them, by the million, into the person threatened by the malignant cells. In this way, they manage to obtain "complete remission" in 10 per cent of their patients and they note considerable improvement in a further 25 per cent of patients.

Using this American research as a starting point and copying his anti-cancer technique, French specialists also plan to use huge amounts of white blood corpuscles, which have been "activated" and proliferated in a laboratory, to overcome the AIDS virus.

This method could be used while waiting for sufficient progress to be made in the promising application of "gene therapy". Several teams of French researchers are working on it, with the hope of being able to alter the genetic inheritance of the cells, so as to make them resistant to the virus.

According to Professor Willy Rozembaum from he Rothschild Hospital in Paris, who detected the first case of AIDS in France, in 1981, it is genetic intervention which will put an end to the HIV, but, while waiting for this great leap forward in the fight undertaken, a succession of small steps will make it possible to gain a little more ground over the enemy, every day.

"We can hope (for lack of a vaccine or genetic manipulation which would settle the problem for good) that the disease will be "controlled" in the ten coming years", Professor Rozembaum declares.

That is to say, that AIDS will have become a disease from which one can escape, on condition one follows permanent treatment and continuous medical supervision, as, for instance, with diabetes. People will have to "learn to live with AIDS," while waiting for it to be vanquished for good, as has been done for other viruses which were just as fearsome in their day and age.

— *L'Actualite en France*

France, the country in which Professor Luc Montagnier discovered the AIDS virus in 1983, devotes about 500 million francs of public spending to research in this area. It is the second biggest amount in the world, after the United States.

The National Agency for Research on AIDS set up in 1988 in France is the kingpin in action to fight this disease.

A Rise in Fatal Fevers

CROWDED cities, ignorance and government neglect are changing the patterns of infection of a potentially fatal mosquito-borne disease in South-east Asia, health experts say.

In the past, dengue hemorrhaegic fever — also known as H-fever — used to affect mostly infants and small children in poor communities where the mosquito population is most dense.

But with the region's cities becoming more and crowded each year, the deadly illness has cut across income and age groups.

Here in Manila, health officials are alarmed at the rising number of dengue fever cases even among older children and adults and in posh neighbourhoods.

It has also become a year-round disease. Dengue cases in the Philippines used to peak during and just after the rainy season, which stretches from June to November. January to March are supposedly 'dengue-free' months but even now, cases are still being reported.

Transmitted by the *'Aedes aegypti'* mosquito that breeds in stagnant water, dengue's symptoms include the sudden onset of fever, muscle and joint pain, red spots, nose and gum bleeding, and vomiting of coffee-colored matter.

Once victims find blood in the stools or in the vomitus, and suffer what is called 'Dengue Shock Syndrome', the illness has turned fatal.

Dengue fever is considered one of the fastest spreading diseases in the tropics. More than two billion people, or two out of every five persons in the world, are at risk of infection, and millions of cases occur each year.

Health experts say the proliferation in South-east Asia of cases of dengue fever is a result of poor environmental sanitation and urban blight.

In 1987 alone, 600,000 cases were reported in South-east Asia, from only 2,060 in 1967 — a 300-fold increase in just 20 years, according to the World Health Organisation (WHO).

Indonesia's Kompas daily reported recently that since Jan. 1, dengue has killed 11 people and infected 48 others in West Timor. Last year, the disease struck 108 people and killed 10 of them in the same province.

A government hospital in Manila, meanwhile, reports that last year, it admitted 1,774 cases of dengue compared to only 1,488 in 1991. The 300 cases admitted there from October to December 1992 are also double the number of cases for the last quarter of 1991.

According to the hospital's records, 17 of its patients died of dengue last year. Its officials are now bracing for the onset of the rainy season, when they expect more severe outbreaks.

Health experts say the best preventive measure against dengue fever is the elimination of all possible breeding places of the aedes aegypti mosquito. But fogging or spraying will not work, because these only kill adult mosquitoes, not the larvae.

"This will only give people an illusory sense of security," says Dr Enrique Tayag, one of the few dengue experts in the Philippines. Besides, he adds, insecticides are expensive, potentially toxic to human and plant life and can damage the earth's ozone layer.

High dengue death rates are also often due to uninformed doctors.

Tayag admits that the disease is "not familiar to many doctors". Some symptoms of dengue mimic that of other disease such as measles, rubella, influenza and typhoid.

Monitoring of dengue cases is also haphazardly done. Indeed, even the WHO's latest figures date back to 1987 because of the lack of sufficient data from health institutions in the region.

The WHO and a Thai university are currently collaborating on the development of an anti-dengue vaccine. Still, health officials say long-term, sustained and community-wide efforts at environmental sanitation and health education can also control dengue outbreaks.

The US territory of Puerto Rico, for instance, has been able to prevent the spread of dengue fever since 1984, largely because of a community-based programme to control the dengue mosquito.

Puerto Rican dengue expert Duane Gubler says it aims to make people realise "most transmissions occur in and around the home by a mosquito that is there because of their bad habits, that the disease can be prevented but that the ultimate responsibility for prevention and control must be theirs, not the government's".

But Tayag doubts that the same can be done in the Philippines. "We rely on government for almost everything," he says. "We want government to clean our own backyards."

The doctor says environmental sanitation is the community's ultimate check on dengue fever. He adds : "The people must sustain the effort. It cannot be a perpetual dolcout from the government". — IPS

The patterns of infection of dengue fever are changing across South-east Asia. **Malou Mangahas** reports.