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No one, including our editors and our readers, is foolish enough to believe that we have found a magic formula for a world paper. "We haven't reached our goal yet by any means," one of our Associate Editors said recently, "But it is such a difficult goal that we must be patient." In a "Letter to the Editor" published in our second issue, a reader from Australia agreed: "*WorldPaper* is a major and welcome step forward," he wrote. "Nothing is easier than to knock it and its self-evident imperfections and present limitations. But it is there, where a few years ago the very idea of such an enterprise would have been utopian."

To make this contribution to world journalism last, progress is still needed on four major fronts.

First are investors: we want *WorldPaper* to be owned by individual investors from as many regions of the world as possible. This will ensure that our stockholders and board of directors represent a variety of global constituencies and strengthen the paper's independence.

Second, we want to find many more newspapers around the world that recognize the need to broaden their global news coverage. We intend to increase our readership in the continents where we already appear, and are now extending into Europe and the Middle East. *WorldPaper* provides the complete page negatives to host newspapers, which print the supplement at their own expense and insert and distribute it. There is no exchange of currency.

Our revenue comes from the sale of advertising — our third need. Both multinational corporations and international organizations are finding our pages to be especially useful for reaching a global audience. The *WorldPaper* staff generates corporate advertising and global classified ads. A host paper can replace several designated editorial pages with locally generated ads and keep that revenue to help defray its own production costs.

Finally, we believe that ultimately, our readers will write *WorldPaper*. We seek out and encourage reports, photographs, experiences, etc., from non-professional writers. Short articles are particularly welcome as is any information our readers feel to be particularly newsworthy and deserving of greater global attention. We encourage criticism and suggestions for future articles from anyone concerned about global issues.

For years people throughout the world have recognized that we can no longer afford to have issues of global significance defined and debated in news media dominated by single nations or regions. Both North and South, journalists are trying to develop new structures to make the currents in the global news flow represent genuinely the diversity and richness of world opinion. In this spirit, *WorldPaper* was conceived. □

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Winding along the road from the relative coolness of Guatemala city to the hot, humid Pacific lowlands, Dr Fernando Viteri, Chief of the Human Biology and Nutrition Division in the Institute of Nutrition for Central America and Panama (INCAP), explains a basic fact of rural life in Guatemala: "Just as children may have their own dog, their own cat, they may also have their own shigella, their own salmonella."

Studies have shown, in fact, that 96 percent of rural people in Guatemala harbour one or more species of parasitic worms or protozoa, or both. Even a high percentage of apparently healthy children have been found to be infected with shigella or salmonella organisms (see *Reports* Vol. 8 no. 1).

This continuous contamination of the gastrointestinal tract is a major health problem in Guatemala, as it is in many other developing countries. And a major agent in this contamination is the home environment itself.

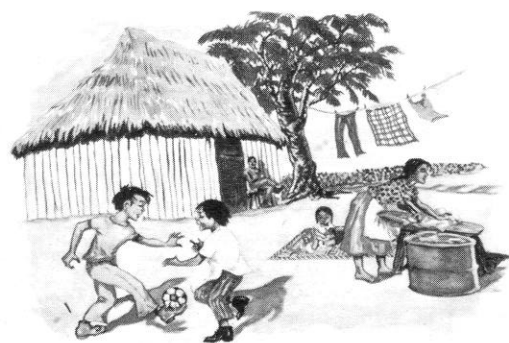
Living conditions in rural areas are precarious in more than economic terms: water supplies and sanitary facilities are inadequate, and sanitation practices are poor or nonexistent. These favour the perpetuation of a highly contaminated environment, reflected in the persistence of intestinal parasitism and chronic intestinal infections. Dr Viteri puts it more simply: "In a highly contaminated home, people have contaminated guts."

Starting from the hypothesis that the home was an extensively contaminated environment, and that mothers played a key role as "spreading agents" of contamination, INCAP researchers, with IDRC support, began a project in 1977 to evaluate and pinpoint within-the-home contamination, the magnitude of the problem, and to design a sanitary education program to combat it.

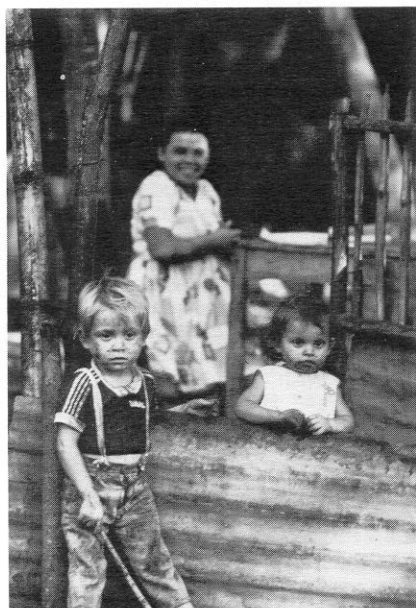
Two villages about an hour's drive from Guatemala City were chosen for the study. Las Chapernas and Florida Aceituno are typical of communities in the Pacific lowlands. Both were founded about 20 years ago on the sites of

Making health a household word

Michelle Hibler



Photos: Jaime Rojas



Children in Guatemala. A high percentage of apparently healthy children have continuous gastrointestinal infections. Health education may break the vicious cycle.

former large *fincas* (ranches) owned by the government. Through land reforms, small plots have been distributed to farmers and communities established. There are no water supply services or electricity in the villages. Sanitary and garbage disposal services are practically nonexistent. Most of the houses are made of corn stalks or cane, with thatched or corrugated tin roofs and dirt floors. Animals — dogs, chickens, and pigs — roam freely in the yards and the houses.

The first phase of the study aimed at developing and standardizing methods to measure the contamination of the environment, particularly of the home environment, and to measure changes that occurred in the ecology of the gastrointestinal tract of the population. Through extensive surveys it was found, for example, that 92 percent of family members do not wash their hands after defecating, and the same percentage of mothers do not wash after changing the baby's soiled diapers. Older children who assist mothers in caring for their siblings also lack proper hygienic practices. The use of latrines — even by people who have them — is not common.

Most villagers obtain their water from wells that are usually left uncovered, inviting pollution. The tin cans used for drawing water are frequently left lying on the ground. Inside the home, water is stored in open containers, often on the floor in reach of the animals. Tests showed a high degree of water contamination, although the villagers believe the water to be clean because they cannot see the bacteria.

To determine the presence of bacteria and parasites in the intestines of the villagers and to measure the degree of food malabsorption, simple noninvasive tests were developed for use in the field. All that is basically required is to measure the amount of hydrogen in the breath. Healthy individuals rapidly absorb carbohydrates. Only a small part of these substances is not absorbed and reaches the colon where bacterial metabolism takes place, producing hydro-

gen. The gas permeates the intestinal walls and reaches the lungs where it is exhaled. Elevated concentrations of hydrogen in the breath thus mean either under-absorption of carbohydrates, or increased bacterial overgrowth in the small intestines.

But because this test cannot distinguish between food malabsorption and bacterial overgrowth, another test standardized at INCAP is used to determine the cause of hydrogen production. A sugar, D-xylose, which is normally absorbed but not metabolized, is administered. In persons with gastrointestinal disturbances, a portion of the sugar is unabsorbed and is metabolized by bacteria, producing hydrogen. Thus, a rapid and elevated concentration of hydrogen in the breath after eating the sugar indicates the presence of bacteria.

Although these tests are not developed to the stage where they are fully accurate predictions of the contamination level of the home environment and of the alteration in the gastrointestinal ecology, preliminary results are promising. Techniques were also developed to easily measure the bacterial contamination of hands, food, and water.

In order to evaluate the problems associated with diarrhea, it was important to understand the local beliefs about the disease. Most rural Guatemalans do not in fact consider diarrhea to be a disease, but rather a symptom of a wide range of disorders. "They are still in the pre-Pasteurian age", says Dr Viteri. "They don't recognize the existence of bacteria."

The causes given for diarrhea range from eating too fast or too much, to falling and displacing an unspecified organ, to the "evil eye". "Worm disturbances" are also commonly cited. Worms are believed to be normal and necessary hosts in the body. Occasionally, however, they leave the special bag in which they live and roam about the body causing fever, vomiting, stomach upsets, diarrhea, etc. Treatments are intended to return the worms to their bag, or to eliminate the offending

wanderers. On no account can any treatment claim to rid the body of worms completely because the villagers believe death would follow.

From this and other information gathered it was possible to design a sanitary education program aimed at breaking the cycle of contamination, using concepts that are in accord with the traditional belief system.

In the second phase of the project, now underway, the education program is being implemented in an experimental community, Florida Aceituno. The community's reception to the study was unanimous and enthusiastic.

To ensure the program's acceptance and continuation, the support and participation of the villagers had to be assured. Community leaders have therefore been involved from the beginning to act as agents of change and health educators. Traditional healers and midwives are also called on to participate, and women from the village have been selected to act as rural health volunteers, responsible for visiting families twice weekly to record cases of diarrhea and report them to the INCAP fieldworker.

The production and evaluation of the educational materials began early this past summer. The main materials to be used are cassette forums and motivational games. These are being developed and pretested in another community before their introduction to Florida Aceituno. Five main topics will be dealt with: water handling, child care, pregnancy and lactation, food handling, and the home environment.

The materials are also being developed with the community's collaboration. During the first phase of the project, for example, a set of posters and brochures had been designed to help in determining the villagers' concepts of cleanliness and to illustrate the right and wrong way of doing things. The first posters were rejected by the villagers who failed to recognize themselves in the illustrations. "They say 'That's not us because the woman's braids are too long,' or 'Our children don't wear that type of shoes' ", explains Dr Viteri.

A new series, drawn by Mr de Leon, a sanitary engineer working with the INCAP project, has gained wide acceptance. So much so in fact that in some houses pictures from the brochure on the use of water have been pasted on the walls for the children to follow. The main character in the brochure on building latrines is so true to life that a real counterpart, of the same name and strong physical resemblance, was found in the village. He also built himself a latrine.

The materials are examples of the type of message the program wants to bring. Thus they come in pairs: whereas one shows a woman's dirty hands making tortillas, the other illustrates clean hands with well-trimmed finger-

nails and much cleaner tortillas. Others depict clean and dirty yards, children and infants, wells and water storage.

The materials and the program are centred on the mother because of her central role in the home and as an agent in the cycle of contamination. Women's groups are being organized to give them an opportunity to discuss their problems and needs freely, and to provide them with a supportive environment for their action. But because of the dominant place of men in Guatemala's rural society, their assistance and support has also been enlisted. Through community organizations they are being called on to build latrines, install curbstones around wells, build well covers, etc. In fact, these groups have a direct role in program planning, and the INCAP team, which includes two health educators, assists, advises, and facilitates activities in response to the community's needs.

The effectiveness of the health education program will be assessed throughout the year of experimentation using the tests developed during the first phase of the project. A team made up of an auxiliary nurse and three surveyors are conducting weekly surveys of diarrhea episodes and their causes, and are measuring the bacterial contamination of water, hands, and stored food. Changes in behaviour are also being recorded.

The team members have been rigorously trained in community work. According to Dr Viteri, they are crucial to the program "because if they don't do the job right, they can ruin the whole project. We're walking on eggshells," he says. "This type of study demands a lot from a community. Every week someone comes around and asks the same questions. It might be fun for the first weeks, but not after 52 weeks."

He also makes it clear that "we never fool people." The community has been told that it is a study, that the information is confidential, and that they may not get anything out of it. "We don't offer anything that we cannot bring to fruition", he says.

During the course of this year it is hoped that a correlation will be shown between the education program and home contamination, attested to by the hydrogen count. And although the program may well bring real benefits to the villagers, it may also illustrate the validity of the tests that have been developed. If so, simple, effective methods that can be applied to many people will have been perfected, contributing substantially to the evaluation of health-oriented actions everywhere.

"I am confident — very confident — that this study will bring very interesting results", says Dr Viteri. "Even if the results are negative, the study will bring new technologies, new ideas, new hypotheses for further work." □

BRIEFS

THE ARTISANS' MOVEMENT TAKES HOLD

Artisan crafts, such as basket making and weaving, are often little more than a meagre supplement to the borderline incomes of rural people in developing countries. Nevertheless, in some countries handicrafts have the potential to become much more than a cottage industry.

In Bolivia, some 600 000 people are involved in artisan industry, making a contribution of about 30 percent to the gross domestic product. An even greater potential is yet to be realized, because until recently, the artisans have lacked the organizational support and resources necessary to control their enterprise. Usually farmers first and artisans second, these people are at the mercy of entrepreneurs who buy cheaply and sell dearly. In addition, many rural artisans lack the technical experience needed to produce the quality of product required for export or commercial trading.

An experimental program begun by the Bolivian government on the high plains or altiplano area 90 kilometres from the capital of La Paz, about 4250 metres above sea level on the shores of Lake Titicaca, may be changing that. In 1973, with support from the Inter-American Development Bank, the *Instituto Boliviano de Pequeña Industria y Artesanía* (Bolivian Institute for Small Industry and Handicrafts) established a network of nine production co-operatives in the area, where peasant families have for generations woven colourful, warm woolen products — ponchos, sweaters, gloves, tapestries, and rugs. The cold, thin air of the region makes such products a necessity: the weavers' skill at expressing altiplano culture in traditional designs makes them beautiful.

The cooperative program began generating business in its first year, and increased every year after. Overall, export of artisan products from Bolivia increased