



## Promoting Safer Wastewater Irrigation in West Africa

In Ghana and surrounding areas, polluted stream water is often used to irrigate vegetable crops. The problem is that the water often contains biological and chemical substances that are harmful to human health. Fortunately, there are ways to overcome this problem—even in parts of sub-Saharan Africa where conventional wastewater treatment has only limited coverage.<sup>1</sup>

The International Water Management Institute has initiated several projects to improve public health in Ghana, working with the Ministry of Food and Agriculture, two national universities, and a variety of other stakeholders, including growers. These projects focus on “non-treatment” or “post-treatment” interventions, such as promoting safer irrigation practices and the effective washing of vegetables.<sup>2</sup>

A main emphasis of the Ministry’s new agricultural extension policy is innovative ways to make technologies more accessible to farmers. To help with this process, the Consultative Group on International Agricultural Research’s Knowledge Sharing in Research project looked for ways to bring together researchers and extension staff, two groups that often do not reach out to each other. The project staff worked in three cities with large urban open spaces used for vegetable farming: Accra, Kumasi, and Tamale. Here, the only available water source for irrigation is local streams contaminated by sewage waste from surrounding households.<sup>3</sup>

Collaborating with vegetable farmers, traders, and street-food kitchen staff, the research partners developed and tested some 15 “good practices” to enhance food safety—examining their efficacy in controlling germs, their cost, and their “adoption potential.” If practices that enhance food safety cost more or require more labor than current practices, it can be hard to

persuade farmers to adopt them. Most consumers are not willing to pay more for safer crops that are more expensive to produce, as most are not aware of the health risks of unsafe practices.<sup>4</sup>

The researchers used perception studies and social marketing methods to analyze how best to present their recommendations and “sell” the need for change. Student researchers worked for several weeks in street-food restaurants to learn firsthand the daily routines and constraints related to hygiene and food safety. They documented risk-awareness factors and cultural habits and tried to identify the best entry points for interventions. At the same time, researchers and farmers explored together the options for safer water fetching and irrigation. They found that improved land tenure was a strong incentive for adopting new practices—indicating that policy, practice, and food safety are closely linked.<sup>5</sup>

The recommended practices were then summarized in videos designed for use by trainers and extension staff. Some of the videos were produced with farmers and food vendors, who helped with the scripts and the filming. As a result, they are more realistic and convey messages in ways that match local perceptions.<sup>6</sup>

After identifying a range of possible best practices, project staff organized “World Cafés”—focus groups where people feel comfortable enough to express their opinions in small groups—to get feedback on the findings before finalizing any recommendations. Once the café participants verified a set of best practices, these were translated into audiovisual materials and tested in perception studies. Perception studies are critical to ensure that messages are conveyed in culturally appropriate ways. (For example, the researchers’ symbol for

a magnifying glass, to “see” otherwise invisible pathogens, was too often identified as a frying pan and had to be changed.)<sup>7</sup>

The materials were pretested with farmers before being printed out. The responses were positive, with one participant observing: “When we go to collect water from the dugout, we used to walk into it. But now we know that disease-causing germs settle in the ponds. So we no longer walk into them, but fetch water from standing on a plank of wood.”

Given their relatively small numbers and close proximity, urban farmers in Ghana and elsewhere can easily be reached through training workshops and extension officers. But where farmers are more remote, or where the target group (such as street-food vendors) is too big for localized events, radio can be an effective channel of communication. The use of radios across Africa has grown tremendously over the last decade and has proved to be an effective way of reaching farmers in their own languages. For the Knowledge Sharing in Research project, the program “Radio Justice,” based in Tamale, was selected because it broadcasts in the Dagbani and Gonja languages and covers almost all of northern Ghana, where vegetable farmers are more difficult to reach.<sup>8</sup>

A food-safety radio program was broadcast in two sessions with two different panels, including agricultural extension officers, farmers, traders, university experts, and street-food vendors. Listeners could participate by calling in during the program. The show proved to be an effective strategy because it provided relevant information about the local agroecological and cultural context and it helped researchers understand how farmers and food vendors discuss their problems in the community. As one vegetable trader in Tamale put it: “When buying vegetables on farm, I used to wash them with the local stream water. But I stopped after listening to the [radio] program. I have also informed

some of my colleagues...and believe that...such radio programs could play a key role in public education for improved health.”<sup>9</sup>

To show the authorities how farmers and street-food vendors are taking health issues seriously, representatives from other stakeholder groups were invited to join a “road show” event. Participants were taken on a bus tour, starting from a farm where wastewater is used, through the market, and ending at street restaurants where the vegetables are most commonly sold. At each stop, participants learned firsthand about health threats and risk reduction methods. Although the road show required careful planning and facilitation, the method dissolved the traditional separation between active teachers and passive learners. By sharing their knowledge of good practices, participants become trainers, champions, and mediators.<sup>10</sup>

The road show also provided a common platform for communication among different groups. Farmers, vegetable sellers, and caterers or food vendors who rarely meet city authorities were able to discuss issues related to their livelihoods. As the Metropolitan Director of the Ministry of Food and Agriculture put it: “All stakeholders have now seen the practical situation on the ground and understand the part they have to play and that it is a joint responsibility and not solely for any one individual or group of people.”<sup>11</sup>

These examples show that for agricultural research to truly benefit countries where the links between research and extension are weak, the publication of scientific papers needs to be accompanied by innovative and effective options—such as world cafés, participatory radio programs, and road shows. These options can facilitate the adoption of appropriate practices, and, in this case, increase the productive use of water.

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Source: <http://www.worldwatch.org/sow11>