

Healthy Collaboration Cleans up Kathmandu



The river marks the boundary between project and nonproject areas — actions to clean up the riverbank are clearly visible. (Network for Ecosystem Sustainability and Health Photo: D. Waltner-Toews)

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To many outsiders, Nepal remains a romantic land of rural villages nestled in the pristine, Himalayan mountains that separate India from China.

In reality, however, it is highly urbanized, with much of the country's population concentrated in Kathmandu. A doubling of the population since the 1950s has created startling contrasts: a modern, commercial metropolis standing alongside the city's medieval core, with neighborhoods of squatters and poor labourers beside those of wealthy residents.

"The growth in population, housing, roads, and small-scale industries in Kathmandu over the past three decades has created very serious health hazards," says D.D. Joshi, director of Nepal's National Zoonoses and Food Hygiene Research Centre (NZFHRC). "There is serious water pollution in all five rivers in the Kathmandu Valley and air pollution from gas vehicles and industrial sources. This has meant that people suffer from many airborne and waterborne diseases."

For several years, Joshi has contributed to a collaborative project that seeks to deal with one crucial aspect of the ecological and public health malaise facing the city: "zoonotic" diseases that spread — via food, water, and garbage — from animals to humans.

Joining forces

With funding from Canada's International Development Research Centre (IDRC), the NZFHRC has joined forces with the Nepalese community agency Social Action for Grassroots Unity and Networking (SAGUN). While Joshi's organization has been responsible for the biomedical research detailing the extent of infestation and designing strategies to counter it, SAGUN has mobilized support for on-the-ground action. Together, they have initiated programs such as a mother-and-child nutrition project, training for health personnel, and skills upgrading for butchers, restaurateurs, street-sweepers, and other key players in the battle against zoonotic diseases.

Meanwhile, University of Guelph researchers — led by David Waltner-Toews — have brought to the project an innovative set of mediation tools. Dubbed AMESH, or the Adaptive Methodology for Ecosystem Sustainability and Health, these are designed to harmonize competing interests and divergent visions of an environmental crisis in socially complex settings. With a society divided along religious lines (Buddhists and Hindus) and further stratified according to ethnic origin and an occupation-based caste system, the social landscape in Kathmandu is about as complex as it gets.

The focus for the collaborator's work has been Kathmandu's Wards 19 and 20, two adjoining districts directly abutting the Bishnumati River and a short walk from the city's centuries-old tourist district. The riverbank area on the outskirts of Wards 19 and 20 is populated exclusively by lower caste people who suffer from high rates of morbidity and lower life expectancy. [See related sidebar: [The project's social environment](#)]

“Occupations reserved for the so-called ‘untouchable low caste’ are butchering, garbage collection, street vending, cleaning, cremation, and begging,” says SAGUN's Mukta S. Lama. “These are socially despised and stigmatized jobs.”

Waterborne illnesses

Until very recently, the slaughtering of water buffaloes took place in the open air, with intestinal contents and waste meat routinely dumped into the river where people bathe and draw their drinking water. Residents defecated by the riverbank, stray dogs roamed freely, and vultures fed on carcasses. Garbage pick-up was largely ineffective.

Waterborne illnesses and intestinal parasites were rampant. In an NZFHRC survey in Wards 19 and 20, 40% of stool samples tested positive for parasites. Other statistics showed that, in a sample of 831 people, 14% tested positive for echinococcosis (a parasite that penetrates the intestinal wall and migrates through the bloodstream to organs such as the liver and lungs). Moreover, 26% of slaughtered water buffaloes were found to have hydatid (tapeworm) cysts.

Zoonotic diseases spread through the community not just through direct contact with meat and wastes produced by slaughtering operations, but also through the water system. Although the municipal drinking water should be boiled for safe consumption, most small restaurateurs consider this too expensive. Meanwhile most patrons mistakenly believe they can gain immunity from contaminated water by drinking it.

Such conditions — exacerbated by rising poverty — have contributed to an apparent public health crisis in Kathmandu.

Real ecological improvements

However, there have been encouraging signs of progress. Joshi reports that the ongoing work in Wards 19 and 20 has prompted Nepal's government to formulate and approve a new Animal Slaughtering and Meat Inspection Act.

Slaughtering now takes place in enclosed concrete areas, and butchers have begun to compost intestinal contents and other animal waste and are selling this as fertilizer for market gardens. A new road along the Bishnumati River has resulted in better-organized garbage collection and disposal. Public toilets have been constructed in Wards 19 and 20. Perhaps most inspiring, adds Joshi, in a spot in Ward 20 where once there was garbage, today “there is one beautiful green flower garden.”

Joshi believes that blending science with a recognition of the social dynamics in the communities was crucial to achieving these goals. Indeed, the scale of environmental problems in Kathmandu made wide-ranging support essential. The ward chairman and councillors put aside political differences to work on initiatives, while local “clubs” of mostly young people took on specific tasks like organizing recycling drives and garbage pick-up.

This strong social aspect of the work developed over time — after researchers had realized that science alone wasn’t adequate to meet Kathmandu’s ecological challenges. Waltner-Toews recalls that, on joining the project in 1991, he applied a conventional analysis to the problem of hydatid disease, caused by a parasite in the intestines of dogs that can be transmitted to people and livestock.

The search for solutions

“We did basic epidemiologic studies, looking at people’s behaviour patterns, whether they owned dogs, the percentage of animals that were sick,” he recalls. “But when we got to the end of the first project our conclusion was ‘those techniques are really good for describing problems, but it’s much harder to come up with solutions’.”

So when the project's second phase was launched in 1996, it was agreed that citizens had to be involved. SAGUN took on the task of educating residents about health issues. The organization concentrated on the poor, who survive on less than a dollar a day and generally live in unsafe, congested, windowless houses.

Meetings of 20 to 30 families were organized, with facilitators asking appropriate questions so that the group could analyze its situation. Community members then drew up action plans to address problems and SAGUN helped put them into practice.

Meanwhile, the complexities of caste divisions had to be factored in. This is where Waltner-Toews’ AMESH methodology came in. Developed toward the project’s end as the multilayered nature of Kathmandu society became more apparent, the system was designed as a means of breaking down adversarial relationships by allowing participants to see their actions as interrelated parts of a larger system. [See related sidebar: [The AMESH approach](#)]

Networked learning

Although the project has now ended, SAGUN continues to work on improving the nutritional and health status of people in Wards 19 and 20, with the support of the Swiss nongovernmental organization Terre des hommes. This work has been extended to four other city wards. NZFHRC is also moving forward with a rabies-control program, and continues to strengthen the capacity of the ward clinics to diagnose and treat food- and waterborne diseases.

Meanwhile Waltner-Toews reports that AMESH methodology is now being applied in other countries. A network has been created so that communities can share knowledge among themselves without having to consult with academic researchers and research programs.

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Sidebar

The project's social environment

The focus for the project's work has been Kathmandu's Wards 19 and 20, two adjoining political districts directly abutting the Bishnumati River and a short walk from the city's centuries-old tourist district. Palaces and temples are at the centre of these old, mixed-income neighbourhoods, surrounded by houses of priests and people of pure caste, with a secondary ring of artisan caste houses. Finally, settlements for the "unclean" jat castes (subdivided into "touchables" and "untouchables") are consigned to the periphery.

Dividing the population by caste is a highly elaborate exercise (among the Newar ethnic group, for instance, there are 36 different castes). Although discrimination on the basis of caste is outlawed, Nepalese society remains effectively divided along these traditional lines. The riverbank area on the outskirts of Wards 19 and 20, for instance, is populated exclusively by lower caste people.

Sidebar

The AMESH approach

The AMESH approach attempts to break down adversarial relationships by allowing participants to see their actions as interrelated parts of a larger system. It does this primarily by creating complex diagrams depicting the roles of groups within a social ecosystem. Arrows, boxes, and colour-coded text are used to show where and how the interests and viewpoints of different sectors of the community collide, intersect, or overlap.

For example AMESH was applied to analyze why the ward garbage pick-up systems in Kathmandu were not working. For the merchants in the area, the problem was that the street-sweepers — women of a low caste, whose work often exposed them and their children to the threat of disease — did not work hard enough and did not work on weekends. For the street-sweepers, the problem was that merchants — whom the sweepers sometimes accused of being abusive — would hear their garbage cart bells and throw their trash out onto the street only after the trucks had passed.

The value of these diagrams, says Waltner-Toews, is that participants can get some distance on their own role in a particular situation. They see their perspective as only one component of a larger social system that has a practical impact on everybody's lives.

Waltner-Toews believes that outsiders are well suited to the role of creating these diagrams, since they come into the situation with fresh eyes. They can use their detachment to help participants "get a better understanding of what is going on, and also to help them create processes that will transform the situation."

AMESH's role in Khatmandu was to stand back, listen, and then give feedback. "It was like looking in the mirror," he explains. "We'd go away and create these diagrams and then say to the research group and the community 'this is what we hear you saying. Do you recognize yourself in this?'"