MSU research reaches Supreme Court of India

May 1 2008

Montana State University research about pollution in the Ganges River has reached the Supreme Court of India, producing some optimism among MSU scientists who study the 1,500-mile river.

"It's nice to know that our work is being recognized by a government institute in India and being presented at the highest level," said Steve Hamner, research associate in microbiology. "Lots of things get done judicially in India."

The Ganges River is considered a goddess, but Tim Ford, head of MSU's microbiology department, said it has become a soup of pollution.

"It's a beautiful river. It's just really mucked up," he commented.

The river contains untreated sewage, cremated remains, chemicals and disease-causing microbes, the researchers said. Cows wade in the river. People wash their laundry in it and drink from it. Ford said the Ganges has become the kind of place where genetic material could transfer between pathogens and create new pathogens.

"Wastewater treatment is critical to protecting human health from waterborne diseases," Ford said. "The Ganges River is a major source of disease burden in that region."

Hamner said MSU and a government lab in India each sampled the Ganges and found enterohaemorrhagic E. coli (EHEC) bacteria. The

bacteria known as 0157:H7 bacteria. It was first detected in the United States in 1982 after someone ate a tainted hamburger. The Centers for Disease Control and Prevention estimates that 0157:H7 now infects more than 73,000 people and kills about 60 people a year in the United States. The CDC said most of those illnesses have been associated with eating undercooked, contaminated ground beef, drinking unpasteurized milk, swimming in or drinking contaminated water and eating contaminated vegetables. The bacteria can cause dysentery and kidney failure. It occasionally kills.

Hamner learned this spring that a research institute in Lucknow, India reported its lab results to the Indian Supreme Court. In doing so, it referenced MSU's findings and echoed MSU's concerns. The Lucknow Institute tested a portion of the Ganges about 200 miles upstream from Hamner's sampling.

He doesn't expect to see a pure Ganges in his lifetime, but the Supreme Court involvement is encouraging, Hamner said, adding that he didn't think the Supreme Court of India would have been as open if the report had come from MSU alone.

"This is the best of things. It's wonderful," Hamner said.

Ford said, "Getting regulators and legislators to understand the importance of not discharging untreated human waste into the Ganges River is critical to moving forward."

Ford, a long-time researcher of environmental health, is planning to return to India in 2009 as chair of an American Academy of Microbiology Colloquium on Water and Health.

Hamner's involvement with the Ganges began about five years ago when he decided he wanted to introduce himself to scientists at the Sankat

Mochan Foundation. The foundation is directed by Dr. Veer Bhadra Mishra, a retired engineering professor and head of a Hindu temple. Veer has been recognized by Time magazine as a hero of the planet. He's on the United Nations' honor roll for environmental activists.

In early 2003, Hamner traveled to the city of Varanasi in north central India to meet with members of the Sankat Mochan Foundation. Hamner returned to India in 2004 and conducted a health survey and sampled the Ganges in Varanasi. Hamner sent the river water samples to MSU where Susan Broadaway tested them in the microbiology lab and detected 0157:H7 almost immediately.

In 2006, Ford and Hamner presented their findings in Kolkata, India at a meeting organized by the CDC on water and sanitation issues.

Source: Montana State University