

New technologies could lead to more drinkable, cleaner water

March 17 2015, by Steve Martin

An estimated 1.8 billion people worldwide drink water that is contaminated by human and animal waste, according to the WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation.

In 1993, the United Nations General Assembly declared March 22 would be observed annually as "World Day for Water." This year's topic is water and sustainable development. Other water-related topics have included women and water, water for health, coping with water scarcity, and sanitation.

Purdue University researchers are developing technologies that could address water safety and drinkability. These technologies include:

- [An inexpensive and reliable technique to fabricate plastic optical fiber sensors to monitor water delivery systems for ammonia.](#) Plastic optical fibers are more flexible and mechanically stronger than glass optical fibers, which traditionally are used to monitor ammonia. The fabrication technique was developed by George Nnanna, director of the Purdue University Calumet Water Institute and head of the Department of Mechanical Engineering at Purdue University Calumet.
- [A method to clean membranes and improve their performance in water filtration systems.](#) The method uses an enzyme to degrade the buildup of deposits on membranes and could replace the use of expensive chemical cleaners that damage membranes. It was

developed by Dong Chen, associate professor of civil engineering at Indiana University-Purdue University Fort Wayne.

- [A system that continuously disinfects water using solar UV radiation](#). Solar UV radiation damages waterborne pathogens' nucleic acids and proteins so the pathogens cannot replicate or cause infections. The system controls [water](#) flow without requiring electrical energy. It was developed by Ernest "Chip" R. Blatchley III, professor of civil engineering and environmental and ecological engineering, and Bruce Applegate, associate professor of food science and biological sciences.

Provided by Purdue University

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