

Compiled by WWD Associate Editor Kate Cline

Dr. James Mihelcic



Sustainable Resources

Integrating new technologies is key for successful water systems

Sustainability is becoming a major concern for water systems, especially as a growing number of factors stress natural resources. Here Dr. James Mihelcic of the University of South Florida discusses the future of sustainability and nutrient recovery technology with WWD Associate Editor Kate Cline.

Kate Cline: What are the biggest factors affecting water sustainability today?

Dr. James Mihelcic: Population, urbanization, climate and consumption are stressors we encounter at both the local and global level that greatly affect the sustainability of our water resources and water infrastructure. We also need to think of how to provide services to the 884 million people in the world who do not have access to safe drinking water and the 2.5 billion people in the world not served by any type of sanitation technology.

Cline: What do water suppliers need to do in the coming years to increase sustainability? What are the challenges?

Mihelcic: Different challenges include the geographical and economic context that the water system is located in, and also the size of the water systems. One of the challenges we face is how technology should be deployed. That is, is it best to deploy technology in a centralized or decentralized manner? We also need to think carefully how technological solutions are linked to policy and behavioral changes, as we need more integrated approaches that are not solely based on technology. We should also think how this integrative method is impacted by the size and geographical location of the water system.

We need to have a more integrated system of how we design and manage our water, wastewater and storm water infrastructure. These sometimes separate systems need to be integrated in the minds of water managers and, importantly, local residents. This is because both groups need to see natural and engineered water features as part of a broader urban hydrological system.

Water suppliers large and small must also think of the energy and materials that are embodied in the water over the lifetime of a particular water infrastructure. What I mean is that we can no longer solve our

water problems by throwing a lot of energy and materials at them. We also need to emphasize the resources that can be recovered from wastewater rather than the constituents that must be treated or removed.

Cline: What sustainable technologies will we see in the future for recovery of nutrients in wastewater?

Mihelcic: At the moment we probably do a good job of recovering solids from wastewater. These are the biosolids applied to agricultural fields or processed into soil amendments for golf courses or homeowners. They are enriched with nitrogen, phosphorus and organic matter.

However, the solids are where the energy is. We know already how to produce methane from these biosolids. You can use methane for heating or running an electrical generator. We could perhaps generate electricity and hydrogen via microbial fuel cells from this material.

Also, we already know how to recover energy from burning them. The choices lie in how we recover the material and how sustainable the recovery methods are.

[People excrete] about 75% of nitrogen in urine; the percentage of phosphorus is a bit lower, perhaps 50% to 60%. These nutrients can be recovered by collecting urine (done in many parts of the world) and then applying it to crops. You can have a compost latrine and recover the solids there—I even have one in the U.S. There are urinals and toilets designed to recover urine, but there are some piping issues and behavioral issues. Sweden, for example, has implemented this on a building scale.

On a larger scale, there is talk of recovering the nitrogen and phosphorus as struvite (ammonium magnesium phosphate). You can also recover nitrogen and phosphorus in biosolids or perhaps grow algae from wastewater. Algae is also being looked at as a source of energy in terms of extracting biofuels from it. **WWD**

Dr. James Mihelcic is director of the Master's International Program in Civil and Environmental Engineering at the University of South Florida. Mihelcic can be reached at jm41@usf.edu.

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Study Finds Chromium-6 in U.S. Tap Water

A study released by the Environmental Working Group found hexavalent chromium, a possible carcinogen, in tap water in 31



U.S. cities. The study tested 35 U.S. cities and found 25 with chromium-6 levels higher than California's proposed 0.06-ppb limit. No cities had total chromium levels higher than the U.S. EPA's 100-ppb limit.

In response, the EPA assured that it has been working on reevaluating its chromium standards, and EPA Administrator Lisa P. Jackson met with U.S. senators to discuss the agency's ongoing efforts to assess the risks posed by chromium-6.

Congress Approves Lead Legislation



Congress has passed the Reduction of Lead in Drinking Water Act. The legislation reduces the nationwide lead standard for pipes and pipe and plumbing fittings to 0.25%. Pipe manufacturers and importers were given 36 months to comply with the law.

Congress Passes Storm Water Fee Law

Congress approved a new law that requires the federal government to



pay local storm water fees for its facilities. The legislation overturns an April 2010 announcement by the General Services Administration that federal facilities in Washington, D.C., were exempt from such fees. Fifteen states plus the district are expected to benefit from the law.

World & Arab Water Weeks Join Forces



The Stockholm Intl. Water Institute and the Arab Countries Water Utilities Assn. signed an agreement of cooperation to create a link between World Water Week in Stockholm and Arab Water Week in Amman, Jordan. The groups hope to foster an exchange of knowledge and expertise between the two events, and help bring global attention to water-related issues in the Arab World.

Veolia Renews Operating Contract

The International Boundary & Water Commission renewed its



agreement with Veolia Water North America for the 25-million-gal-per-day wastewater treatment plant at the San Ysidro, Calif., U.S.-Mexico border crossing. Under the \$35.5-million five-year agreement, Veolia will continue to manage, operate and maintain the current plant, and start up and operate a secondary treatment expansion unit. Veolia is the only contractor of record at the San Ysidro facility.

Plant Earns NSF Certification for Reactivated Carbon

Calgon Carbon Corp.'s Columbus, Ohio, plant became the second facility nationwide to earn NSF/ANSI Standard 61: Drinking Water System Components—Health Effects certification for custom reactivated carbon for potable water applications. The plant is now certified to reactivate spent activated carbon that has been used to treat municipal potable water.



Calgon's Blue Lake, Calif., plant also is certified for this process, which allows for recycling the carbon for reuse by customer facilities.

U.S. Joins Action Against Boston Sewer & Water Commission

The U.S., on behalf of the U.S. EPA, filed a Motion to Intervene



in U.S. District Court in a case against the Boston Water and Sewer Commission for violation of the Clean Water Act. The complaint alleges violations involving the discharge of raw sewage and other pollutants to rivers and streams tributary to Boston Harbor, and failure to meet requirements of its MS4 Phase I Permit. The U.S. seeks a civil penalty and increased resources to help the commission resolve the problems.

Networking News

The Water Environment Foundation named Jeff Eger its new executive director. Long Island American Water President William M. Varley was reappointed as the chairman of the New York Chapter of the National Association of Water Cos.

Parsons promoted Robert C. Grim to senior vice president, operations, for its Water & Infrastructure group. **WWD**

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