

**NATIONAL WATER RESEARCH INSTITUTE**

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**JAMES BARNARD, CREATOR OF BIOLOGICAL NUTRIENT REMOVAL,  
TO RECEIVE THE 2007 CLARKE PRIZE**

FOUNTAIN VALLEY, Calif. – The National Water Research Institute (NWRI) announced today that environmental engineer James L. Barnard, Ph.D., P.E., of Black & Veatch Corporation in Kansas City, Missouri, will be the fourteenth recipient of the NWRI Athalie Richardson Irvine Clarke Prize for excellence in water research.

The 2007 Clarke Prize will be presented to Barnard on Thursday, July 12, 2007, at the Fourteenth Annual Clarke Prize Lecture and Award Ceremony, to be held at the Hilton Waterfront Beach Resort in Huntington Beach, California. NWRI established the Clarke Prize in 1993 to recognize outstanding research scientists who have demonstrated excellence in water-science research and technology. The prize, which includes a gold medallion and \$50,000 award, is presented annually.

For over 40 years, Barnard has traveled the world researching and implementing better ways to conserve water resources and improve wastewater treatment. His groundbreaking application of bacteria to remove both nitrogen and phosphorous from water revolutionized wastewater treatment processes, allowing treatment plants to employ Barnard's biological nutrient removal (BNR) as a more economic and environmentally friendly alternative to traditional chemical treatment.

Prior to Barnard's discovery, wastewater treatment plants removed organic pollutants, suspended solids, and pathogens, and converted ammonia to nitrates, but were incapable of removing nutrients like nitrogen and phosphorus that cause eutrophication. The accumulation of nutrients in water bodies, or eutrophication, kills fish and causes algal blooms and poor water quality, as well as taste and odor problems.

By enabling nutrient removal with a natural biological process, BNR makes it possible to return treated wastewater to receiving waters (such as rivers and oceans) with minimal detrimental impact to environmental quality. At the same time, BNR makes water resources more available for other uses, like water recycling. BNR also eliminates the use of chemicals for nitrogen and phosphorus removal, which can be expensive, requires large amounts of energy, increases the salt content of wastewater, and creates extra sludge that must be disposed of.

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Deemed “the Father of BNR,” Barnard not only created the process, but also actively designs and supervises the construction and start-up of BNR systems in various parts of the world, constantly adapting his innovative technology to varying climates, existing infrastructure, and environmental pressures. He even created a low-cost BNR design for developing countries. It has been estimated that the hundreds of plants worldwide employing BNR rather than chemical treatment processes have saved hundreds of millions of dollars in costs. Another of Barnard’s most notable achievements includes his 10-year service on the Nitrogen Technical Advisory Panel for the New York City Department of Environmental Protection, where he helped guide a \$50 million BNR research and development program for the Upper East River and Jamaica Bay areas.

Because of his pivotal research contributions and practical applications of biotechnology to wastewater treatment processes, Barnard was selected as the 2007 Clarke Prize recipient. Established in honor of NWRI’s co-founder, the late Athalie Richardson Irvine Clarke, the Clarke Prize is awarded to outstanding research scientists who are currently active in the water and wastewater fields. It is one of only a dozen water prizes awarded worldwide and has been distinguished by the International Congress of Distinguished Awards as one of the most prestigious awards in the world.

Recent past recipients of the Clarke Prize include: microbiologist Joan B. Rose, Ph.D., of Michigan State University (2001); microbiologist Harry F. Ridgway, Ph.D., of AquaMem Consultants (2002); wastewater engineer George Tchobanoglous, Ph.D., P.E., of the University of California, Davis (2003); water-quality engineer Vernon L. Snoeyink, Ph.D., of the University of Illinois at Urbana-Champaign (2004); water-quality engineer Menachem Elimelech, Ph.D., of Yale University (2005); and water-quality engineer Philip C. Singer, Ph.D., P.E., of the University of North Carolina at Chapel Hill (2006).

More information about the Clarke Prize can be found at [www.nwri-usa.org/ClarkePrize](http://www.nwri-usa.org/ClarkePrize).

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*The National Water Research Institute (NWRI) was founded in 1991 by a group of Southern California water agencies in partnership with the Joan Irvine Smith and Athalie R. Clarke Foundation to promote the protection, maintenance, and restoration of water supplies and to protect the freshwater and marine environments through the development of cooperative research work. NWRI’s member agencies include Inland Empire Utilities Agency, Irvine Ranch Water District, Los Angeles Department of Water and Power, Orange County Sanitation District, Orange County Water District, and West Basin Municipal Water District.*

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