

Roundtable Series Brings Community Together to Manage Runoff

What is urban runoff? How do we manage it? Who will manage it? Can we manage it? What will it cost? Who will pay for it, and how?

These are some of the questions being discussed at the Urban Runoff Roundtable series, meetings designed to bring interested parties together to better control and manage urban runoff in Southern California.

NWRI has organized two Roundtables already, one held in December 2004 and one in August 2004. Two more Roundtables are planned for 2005.

Urban runoff is water from rain, irrigation, or other sources that flows over the land surface in an urban setting, carrying chemicals, microorganisms, and excessive sediments directly into water supplies and causing pollution.

According to the U.S. Environmental Protection Agency (EPA) website, "runoff from urban areas is the leading source of impairments to surveyed estuaries and the third largest source of water quality impairments to surveyed lakes... trends indicate that by 2010, more than half of the nation will live in coastal towns and cities. Runoff from these rapidly growing urban areas will continue to degrade coastal waters."

The EPA suggests that "urban development and household activities must be guided by plans that limit runoff and reduce pollutant loadings. To this end, communities can address urban water-quality problems on both a local and watershed level and garner the institutional support to help address urban runoff problems."

The Urban Runoff Roundtable series is the first effort being made in Southern California to bring locals together to do just that.



Roundtable speakers included (from left) Jeff Beehler, William Blomquist, Garry Brown, Vicky Wilson, and Mark Smythe.

Many of the Roundtable participants have come from Orange County, which received nation-wide attention in 1999 for severe beach closures related to bacterial contamination. Since then, Orange County has been proactive on water quality and reclamation issues pertaining to urban runoff.

William Blomquist, a Political Science Professor at Indiana University-Purdue University at Indianapolis, applauded Orange's County's numerous — though often, unrelated — projects to combat urban runoff. "You are doing so much, yet you don't even realize. The fact that you are here [at the Roundtable] puts you light years ahead of the rest of the country."

Dr. Blomquist was one of five speakers at the December 1, 2004 Roundtable, which focused on exploring ways to take a regional approach in managing runoff.

A regional approach is necessary because, according to speaker Mark Smythe of the California Regional Water Quality Control Board, Santa Ana, "When you coordinate your efforts, you can pool your resources to do something a single entity cannot do."

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Meet Our Research Advisory Board: Kenneth K. Tanji, Sc.D.

Kenneth K. Tanji, Sc.D., has always been surrounded by water — as a child growing up in Hawaii, as an agricultural salinity expert, and even as an amateur fly-fisherman.

His water-destined life began on the Hawaiian Islands. He was born in Honolulu, where his father operated a pumping plant for the City's drinking water, and grew up on a vegetable farm in Keokea on the slopes of Haleakala, a 10,000-foot volcanic mountain on Maui.

Life on the farm was difficult, to say the least. The bus to school took 45 minutes to drive down to sea level and an hour and a half to climb back up to 3,000 feet, where his family farm was located. And time was precious to this "farm kid."

"As the oldest child, I had numerous chores like feeding the animals before school," he said, "and this happened 365 days a year. My Dad got me up at 4:30 a.m. every day saying, 'Wake up, wake up, your eyes are rotting.'"

To escape the long hours of work on the farm, he enrolled at the University of Hawaii, Honolulu, where he met Flora, a city girl from Waialua, Oahu, and now his wife of 52 years. With her by his side, he earned a B.A. in Chemistry, served in the U.S. Army during the Korean War, and moved to Davis, California, where he has cultivated a nearly 50-year career in agricultural salinity.

Currently Professor Emeritus in the Department of Land, Air and Water Resources, Dr. Tanji arrived at the University of California, Davis, in July 1956. Over the next 20 years, he earned a B.S. and M.S. in Soil Science, and worked his way up the ranks, from lab technician to lecturer to professor to Chair of the department. A University of California official once told him that he is probably the only lab technician to rise to the highest level of professorship with only a Master's degree.

Recognizing the dedication behind this unique accomplishment, the University of California asked him to direct the Kearney Foundation of Soil Science, Agricultural Experiment Station, and University of California Salinity Drainage Task Force. Kyoto University in Japan also sought Dr. Tanji's service as a Fellow for the Japan Society for Promotion of Science, as a Visiting Foreign Professor, and as a student — in 1996, he achieved his "last remaining goal" by earning a Doctorate of Agricultural Science at this university.

Even though Dr. Tanji officially retired in 1998, his schedule and "farm kid" discipline haven't changed.

"It was not until I went to high school

that I found out that most people had one-and-a-half days off per week (during those days, people worked half a day on Saturdays) and all the holidays, too. I thought it would be great having weekends and holidays off after a university education, but I find myself working nights and weekends at UC Davis!"

He still comes to his office every day to collaborate on journal articles with his colleagues, to serve as one of the editors of a new journal on paddy and water environments, and to work on his current projects, including an NWRI-funded salinity management guide for irrigating landscapes with recycled water.

When he is not in his office, he might be tending his garden or fly fishing with his son: "I have been learning how to fly fish for trout for decades, but have not had much time to practice," he said.

More likely, he is traveling around the world, providing expertise to organizations such as the International Commission on Irrigation and Drainage in Tokyo, Japan, and Seoul, Korea; United Nation's Food and Agriculture Organization in Rome, Italy; Secretariat of World Water Forum III in Kyoto, Japan; International Center for Agricultural Research in Dry Areas in Aleppo, Syria; Egyptian Ministry of Water Resources and Irrigation; and National Research Council in the United States.

In 1997, he was invited to share this international expertise with NWRI, as a member of the Research Advisory Board (RAB).

"Initially, I felt like a fish out of the water," he said. "I think there were only three of us on the RAB with primary backgrounds in irrigated agriculture. Needless to say, I've learned a lot over the years, and hope to continue to contribute to the profession and the public."



Kenneth K. Tanji

NWRI Seeking Associate Director

NWRI is searching for an Associate Director to work with the Executive Director in further developing NWRI's goals and strategic direction.

NWRI is a private-public partnership (non-profit) in Fountain Valley, California, whose mission is to create new sources of water through research and technology and to protect the freshwater and marine environment. It does not conduct research itself, but supports and seeks funding partners for high-quality water-related research projects, as well as plans and organizes collaborative national and international events, such as workshops, conferences, and symposiums, on water-related topics and technologies.

Please direct all inquiries to NWRI Executive Director Ronald Linsky at (714) 378-3278 or rlinsky@NWRI-USA.org.

Workshop Focuses on Developing WHO Guidance for Desalination

This fall, NWRI facilitated a Technical Workshop to prepare a one-of-its-kind guidance document on desalination for providing safe water worldwide.

The Technical Workshop was part of a 3-year project headed by the World Health Organization's (WHO) Eastern Mediterranean Regional Office (EMRO). WHO, a United Nations specialized agency for health, is developing guidelines focusing on the health and environmental aspects of desalination. The U.S. Department of Interior, Bureau of Reclamation is also a sponsor of this project.

Desalination — or, the removal of salts from water — is a rapidly growing worldwide source of drinking water. More than 6-billion gallons of desalinated water are now produced every day. The technology has been practiced in the Middle East for about half a century, where water resources are extremely limited, and it is expanding into countries like Australia, the U.S., and even Europe. In the U.S., a very large seawater desalination plant was built in 2003 to supplement drinking water in Tampa, Florida, and California is seriously considering expanding desalination applications.

According to Dr. Joseph Cotruvo, the project's Technical Advisor and organizer, desalination is one of only a few choices that we have to satisfy the critical need to develop new sources of water.

"When access to fresh water is limited, where else can you get water?" Dr. Cotruvo asked. "There are only three options: desalinate brackish water or seawater, recycle wastewater, or conserve freshwater. Recycling is usually cheaper than desalination, and it provides other benefits, but there have been political and psychological barriers to directly using recycled water for potable purposes. As for conserving, well, that's a good thing, but there's a lot more saltwater in the world than freshwater; the point of desalting is to make more freshwater where it is needed. And since the cost to produce desalinated water has been going down recently — in fact, it's beginning to approach the cost of producing treated freshwater in some areas — it's becoming a viable option for providing high-quality safe drinking water in water-short regions all over the world."

The project's Technical Committee met in Irvine, California, for 3 days in October 2004 to determine what topics should be included and developed within the Guidance Document.

A well-known advocate of creating new sources of water, NWRI was contracted to help organize the meeting because, according to Dr. Cotruvo, "NWRI is



recognized for its commitment to solving current and future water problems, and also for its experience in bringing people together to focus on significant water-quality and public health issues."

The result of the October meeting was a 40-page meeting report, which will be published and made available on the WHO website sometime this winter. The meeting report addressed issues within the areas of technology, health, microbiology, monitoring, and environmental impact assessments that are critical to include in the Guidance Document.

A Desalination Guidance Document is necessary, said Dr. Cotruvo, because, "At present, there is no worldwide consensus on what exactly are the parameters for desalination facilities, especially considering health and environmental impacts. For instance, what happens to the coastal ecology around the desalination plant due to water intakes and discharges, and how can it be sustained? What does it do to the salinity of groundwater if concentrates are disposed of on land? What should be the quality and composition of the finished drinking water? This guidance is not meant to tell people how to build desalination plants. It's meant to give them the questions they need to consider and resolve before they build the plants."

"These will be consensus Guidance," he added. "They will create a common thought process that countries, communities, regulators, engineers, and health and environmental officials can use when they make case-by-case decisions."

The next Technical Committee Meeting is scheduled to be held in the Middle East in summer 2005. The Guidance Document itself, tentatively titled *WHO Guidance on Desalination for Safe Water Supply: Health and Environmental Aspects Applicable to Desalination*, is expected to be published by WHO in 2006.

The WHO Desalination Guidance Document Technical Committee was made up of over 30 acknowledged international experts from Singapore, Kuwait, Lebanon, Japan, France, Abu Dhabi, Egypt, Dubai, Italy, Germany, Saudi Arabia, Bahrain, Jordan, Canada, Australia, Great Britain, and the U.S. The Committee was overseen by Dr. Houssain Abouzaid of the WHO EMRO in Cairo, Egypt.

PacRim Collaborative Membrane Research Partnership Begins Writing Proposal

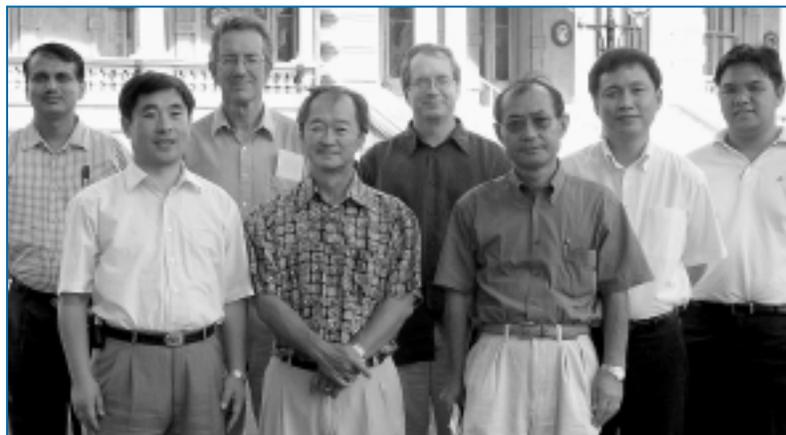
NWRI brought together delegations from the Pacific Rim nations of Australia, China, Japan, Singapore, and the United States to collaborate on research projects focused on Nanotechnology Enhanced Water Membrane Systems (NEWMS), with the goal of improving and enhancing membrane treatment technologies.

In the water industry, a membrane is a thin film of porous material that filters (or “separates”) contaminants from water.

Membranes are used in desalting seawater, treating contaminated drinking-water supplies, and reusing wastewater — all of which are being looked at by the water industry as means to combat water shortages.

The five delegations — representing nations active in membrane research — first met in March 2004 at the Pacific Rim “Quantum Leap” Membrane Research Symposium, which was hosted by the City of Honolulu, Hawaii. The City operates the Honolulu Membrane Bioreactor Pilot Study Site, located at the Honouliuli Wastewater Treatment Plant and sponsored by the Honolulu Board of Water Supply. It is one of only a few membrane bioreactors, considered a novel technology, in the United States.

At the Symposium, each country’s delegation prepared a set of papers (later published in August 2004 as *Proceedings*) that described the state-of-the-art in 2004 and the research needs of membrane technology over the next 5 to 10 years. They also



Representatives of the Pacific Rim Collaborative Membrane Research Partnership met in Honolulu, Hawaii, in September 2004. Back row (from left): Kiran Arun Kekre (Singapore), Dr. Tony Fane (Australia), Kevin Price (United States), Harry Seah (Singapore), and Tze Weng (Singapore). Front row (from left): Dr. Jun Ma (China), David Furukawa (United States), and Dr. Masaru Kurihara (Japan).

agreed to form a collaborative research partnership whose purpose is to push membrane technology forward by producing better, cheaper membranes and by expanding the ways membranes can be used.

Under the Pacific Rim Collaborative Membrane Research Partnership, the heads of each delegation met for a second time in Honolulu, Hawaii, in September 2004 to identify key research areas that would foster collaboration among the five nations. This meeting was once again hosted by the City of Honolulu.

At present, the Pacific Rim Partnership is writing an integrated research proposal made up of five components focusing on NEWMS, with each nation responsible for one component of the proposal. Research is expected to begin in early 2005.

Dr. Perry McCarty Joins NWRI Research Advisory Board

NWRI is pleased to announce that Dr. Perry McCarty, the Silas H. Palmer Professor of Civil Engineering, Emeritus at Stanford University, has joined the NWRI Research Advisory Board, which oversees NWRI’s research program.

A graduate of the Massachusetts Institute of Technology, Dr. McCarty is universally recognized for his research directed towards the understanding of contaminant behavior in groundwater aquifers and sediments. He has also made significant contributions to environmental engineering and science through research in water treatment and reclamation, groundwater recharge, and water chemistry and microbiology. He is co-author of the textbooks, *Chemistry for Environmental Engineering* and *Science and Environmental Biotechnology* —

Principles and Application.

Dr. McCarty has received numerous honors, including election to the National Academy of Engineering and as Fellow in the American Academy of Arts and Sciences, American Academy of Microbiology, and American Association for the Advancement of Science. He also received the John and Alice Tyler Prize for Environmental Achievement in 1992 and the Athalie Richardson Irvine Clarke Prize for Outstanding Achievement in Water Science and Technology in 1997.



Dr. Perry McCarty

Wisconsin Student Receives Fellowship for Adsorptive Filtration Research

Boris Lau is definitely an international student. He was raised in Hong Kong, finished high school in Toronto, attended college in Montreal, lives in Madison, Wisconsin, and presents his research in cities such as Minneapolis, Seattle, New York, Philadelphia, and Zurich, Switzerland.

But even as he traverses the globe, Boris remains steadfast in his dedication to water science.

As a second-year doctoral student in the Environmental Engineering Program at the University of Wisconsin-Madison, Boris has already submitted two papers for publication, served on three committees for the American Water Works Association, and held various assistantships at the University of Wisconsin, the Wisconsin Department of Natural Resources, McGill University, and the Hong Kong Environmental Protection Department.

An assistantship at the Department of Microbiology at the University of Hong Kong intensified his interest in environmental and public health research. In the summer of 1998 – the year that Hong Kong had several outbreaks of *E. coli* – Boris was part of the team that provided clinical testing using molecular biology techniques. The experience made him realize the importance of faster diagnosis in disease control and medical treatment, and strengthened his goal of “bridging the gap between environmental engineering and infectious disease epidemiology” – a goal that he has been working hard to achieve.

“Boris has been a highly productive M.S. and Ph.D. student,” said his graduate advisor, Dr. Gregory Harrington, Associate Professor in the Department of Civil and Environmental Engineering at the University of Wisconsin-Madison. “In his one and a half years as a Ph.D. student, Boris has produced more material than most of my Ph.D. students produce within 3 years.”

And he isn't stopping anytime soon.

At present, Boris is managing two research projects. The first is a surface water project that recently received funding from the American Water Works Association Research Foundation. It will evaluate protozoa removal using an innovative combination of analytical technologies and novel pilot plant testing protocols.

The second is a groundwater project to develop and apply nanoparticles as coating materials for better removal of arsenic and viruses from groundwater.

According to Boris's research, granular filter media coated with aluminum oxide nanoparticles can enhance filtration performance by changing the media's surface properties. This research will provide insight into how adsorptive filtration technology can be used to reduce chemical and microbial risk.

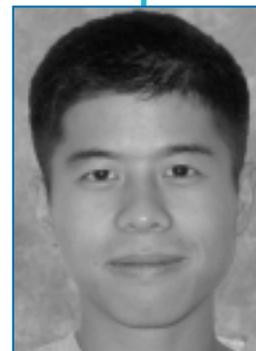
Because of the potential of his adsorptive filtration research, Boris was awarded an NWRI Fellowship.

The Fellowship requires annual meetings with NWRI's Research Advisory Board, which, Boris said, “will be an excellent opportunity for me to learn and interact with outstanding researchers in my field. I believe that it is important to learn what others are doing so that I am not re-inventing the wheel.”

After he graduates, Boris would like to pursue postdoctoral research on the use of particle characterization tools in monitoring treatment processes, and to learn more about membrane research.

As for his long-term plans, he doesn't know where his research will take him, but he does know that water science is in his future.

“At the end of a seminar given by Professor Jim Morgan in Madison on March 26, 2002,” he said, “I went up to ask for his autograph on my copy of his *Aquatic Chemistry* textbook. This is what he wrote: ‘Dear Boris, My best wishes for a successful “aquatic” career!’ I like to keep this as one of my goals for the future.”



Boris Lau

Fellowship Applications Due March 1st

Since 1991, NWRI has invested half a million dollars in fellowship awards to graduate students pursuing studies in the field of water science. These fellowships are meant to encourage the advancement of science and research by training young minds to solve problems in water and wastewater applications.

NWRI offers fellowships up to \$15,000 to Masters and Ph.D. students in U.S. universities conducting research pertaining to NWRI's mission, which is *to create new sources of water through research and technology and to protect the freshwater and marine environments.*

The application deadline for fellowships is March 1, and fellowships are awarded July 1 of every year. Please visit www.NWRI-USA.org for more information.

Events and Announcements

Seminar

Reverse Osmosis, Nanofiltration, and Membrane Filtration Technology for Potable Water Applications

February 14-17, 2005

Canadian Hotel, L'Aquila, Italy

Sponsored by the European Desalination Society and the University of L'Aquila, this 4-day seminar will provide practical information about performance and operating conditions of reverse osmosis and nanofiltration technologies for brackish and seawater desalting.

Topics include:

- ◆ Basics of reverse osmosis technology.
- ◆ System configuration and performance projections.
- ◆ Membrane system design and operation.
- ◆ Microfiltration and ultrafiltration technology.

The seminar is directed toward professionals who are familiar with membrane technology, with the objective of providing practical information on commercial products, the design process, operation conditions of membrane systems, and the economics of the membrane desalting and water treatment applications.

Reverse osmosis expert Mark Wilf, Ph.D., of Hydranautics Corporation, San Diego, California, will deliver the course.

For further information may be found at www.edsoc.com or by emailing eds@desline.info. Or, you may contact Miriam Balaban of the European Desalination Society at balaban@desline.com at phone number +39 348 8848 406 or fax number +39 0862 3475 213.

Publication

Pesticides in Domestic Wells

By CHITTARANJAN RAY, PH.D.

Published by

THE AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS
in collaboration with

THE WATER RESOURCES RESEARCH CENTER,
UNIVERSITY OF HAWAII AT MAŌNA

An indispensable reference for anyone involved in rural domestic water supply, *Pesticides in Domestic Wells* presents an in-depth discussion of topics such as:

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- ◆ Factors contributing to pesticide occurrence in domestic wells.
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- ◆ Legislative issues and updates.
- ◆ Future directions of legislation and research.

Order *Pesticides in Domestic Wells* for \$68 (\$49 for ASAE members) online at www.asae.org.

Symposium

The 9th International Symposium on Biogeochemistry of Wetlands

March 20-23, 2005

Louisiana State University,

Baton Rouge, Louisiana

This international symposium will provide a framework for scientists to discuss new topics related to the biogeochemistry of nutrients and other contaminants in freshwater and coastal wetlands.

The focus will be on new approaches and techniques that link community structure at the micro- and macro-scales to better understand the mechanisms that control the fate of chemicals at the global scale.

Topics include:

- ◆ Wetland community types and functions and values.
- ◆ Coupled biogeochemical cycles in wetlands.
- ◆ Molecular tools to evaluate biogeochemical processes.
- ◆ Linkages between biogeochemical processes and biotic communities.
- ◆ Role of wetlands in improving water quality.
- ◆ Long-term nutrient and organic matter accretion in wetlands.

Abstracts are welcome! The submission deadline is Wednesday, January 12, 2005.

Further symposium information may be found at www.conference.ifas.ufl.edu/wetlands/index.html, or by contacting the University of Florida at (352) 392-5930 or TTNininger@ifas.ufl.edu.

Symposium

The 8th International Riversymposium 2005

September 6-9, 2005

Brisbane Convention & Exhibition Centre,

Brisbane, Australia

The state of rivers will continue to be of paramount importance in a future of climate change, increasing populations, and uncertain water supplies. *Riversymposium 2005* will focus on some of the pressing issues important to water and food security, such as (but not limited to):

- ◆ Transboundary catchment conflicts and resolutions.
- ◆ Water scarcity.
- ◆ Urban/rural tensions over sharing water resources.

Abstracts are welcome! Please submit by Friday, March 11, 2005. More information is available on the website, www.riverfestival.com.au/symposium.

In addition, the winner(s) of the 2005 Thies Riverprize for excellence in river management will be awarded during the symposium. Judging criteria is available, and nominations must be received by Friday, April 15, 2005.

For additional details, please contact glenn@riverfestival.com.au.

Special Thanks to Aspiring Writer Kristin Wehner

NWRI would like to thank Kristin M. Wehner for all of her hard work and creative prose as our summer intern editorial assistant for the last 4 years.

At NWRI, Kristin was responsible for writing articles in the summer editions of the newsletter, *Briefings*, and helping to edit various publications. “I love working for NWRI, and Gina Melin is an incredible editor who lets me work independently,” she said.

Throughout her life, Kristin has been exposed to the issues surrounding water, mostly because her father, Mike Wehner, has worked for the Orange County Water District in Fountain Valley, California, for as long as she can remember. From him, she learned tips about water conservation during the drought and became familiar with water updates and concerns when she clipped water-related articles from the newspaper for her father. However, she said that, “Working for NWRI has made me realize how much more there is to learn about water.”

This June, Kristin graduated from the University of California, Los Angeles, with a major in American Literature and Culture. She has not decided what she wants to do for a career quite yet, but she has

considered writing freelance articles or editing for a publishing house — basically, anything related to writing. She is also considering going to graduate school to earn her Masters degree so that she may teach American Literature at the college level.

In Kristin’s spare time, she enjoys reading and going to the movies or seeing plays, including her favorite play, *Urine Town*, which is about a small town’s reaction to a water shortage and includes humorous scenes such as the townspeople lining up to use the toilet. She also enjoys traveling, especially to Europe, and recalls venturing through the historical sewers of Paris, France, 4 years ago. “I went into the sewers because I had been thinking about water that summer at NWRI, and realized how interested I was in water science.”

NWRI has very much enjoyed working with Kristin these past few years. Her talent with prose has made articles about water science enjoyable and accessible to our readership. She said that she’s “happy that NWRI is so generous to let me come back each summer,” but the truth is, it was a pleasure to have her here.



Kristin Wehner

Now Available: Report of the Santa Ana River Water Quality and Health Study

Using Santa Ana River water to recharge the groundwater basin in Orange County, California, does not threaten water quality or public health. That’s the number one conclusion determined in the recently published *Report of the Scientific Advisory Panel: Orange County Water District’s Santa Ana River Water Quality and Health Study*.

The 48-page report examined the use of Santa Ana River water, which has a high percentage of wastewater (approximately 180,000 acre feet per year), to recharge the Orange County groundwater basin, focusing on both public safety and compliance with California state regulations. During summer months, much of the Santa Ana River flow is tertiary treated wastewater from upstream treatment facilities in neighboring San Bernardino and Riverside Counties.

Representing 10 year’s worth of research on groundwater recharge, the report was written by a 13-member Scientific Advisory Panel whose expertise ranged from hydrogeology and microbiology to organics and water chemistry, as well as toxicology.



NWRI organized the Scientific Advisory Panel to provide independent review and guidance to the “Santa Ana River Water Quality and Health Study,” which was initiated by the Orange County Water District in Fountain Valley, California, in 1994. The Panel met regularly from 1996 until 2003, and published the report in August 2004.

The report is now available for \$10 as either a CD or printed document. It may be ordered at www.NWRI-USA.org.

Scientific Advisory Panel Members: (top row, from left) George Tchobanoglous, Joseph Cotruvo, Daniel Okun, Robert Cooper, Harvey Collins, Kenneth Cantor, and James Crook; (bottom row, from left) Russell Christman, Joan Rose, Jack Skinner, David Todd, Richard Bull, and F. Bernard Daniel.

Roundtable Series Tackles Urban Runoff

Continued from Page 1

Some of the uses of a regional approach include 1) conducting inter-agency studies to broaden the state-of-knowledge and available expertise and 2) expanding stakeholder support (which may result in more research funding).

The issue of regionalization drew 45 attendees to the December Roundtable, which represented 20 cities from the Counties of Orange, Los Angeles, and Riverside. Among those who attended were representatives from five utilities, two universities, nine consulting firms, seven special interest and non-profits, and seven government agencies. The latter two included groups like the League of Women Voters, Orange County Business Council, Surfrider Foundation, and California Environmental Protection Agency.

As reflected by the broad interest in the Roundtable, it's becoming quite clear that urban runoff issues don't just affect the water utility that needs a clean source of water. Contamination from urban runoff not only impairs water bodies (threatening both public health and the environment), but can also shut down the economy — as Orange County knows — when water is inaccessible for recreation and tourism. It is also not just a single community problem. The urban runoff that spills into rivers and streams in an inland city, for instance, will eventually wind its way down to the coast, forcing the beach cities to pay to clean it up.

"Urban runoff problems do not follow watershed lines," said Mr. Smythe. "They do not follow political lines. . . . Regional approaches have proven to have value. The key is in determining where that value is best applied."

Speaker Jeff Beehler of the Santa Ana Watershed Project Authority reinforced that idea by stating that "we cannot have an 'us versus them' attitude." In other words, a regional approach must embrace all interests, whether upper or lower watershed, coastal or inland cities.

Creating a regional solution to the urban runoff problem "is not just about protecting the ocean," he said. "The ultimate goal is to protect the beneficial uses throughout the watershed."

One of the best ways to carry out the goals of a regional approach to solve urban runoff issues is to create a strong coalition among interested stakeholders. Garry Brown of the Orange County



Roundtable attendees (from left) Bisher Imam of the Center for Hydrometeorology and Remote Sensing, Hun-Kyan Bae of the University of California, Irvine, and Larry Honeybourne of the County of Orange, Health Care Agency, listen to a presentation on taking a regional approach to managing runoff.

Coastkeeper said that "the first step is in getting government and the business community involved." From there, "you agree to disagree, and then you move forward."

"One thing that's essential in getting a coalition to work," he added, "is that all members must trust one another. There can be no hidden agendas, and all positions must be backed-up with scientific data. Each partner must understand the other's organization."

Dr. Blomquist continued along that vein by offering approaches on designing a regional partnership like a coalition. He emphasized having flexibility and setting better priorities, as well as identifying exactly what the goal is.

"What are you trying to do?" He asked the audience. "Do you want to reverse the runoff

problem? Stop it in its tracks? Or just slow the rate in which it gets worse? Each of these responses has completely different solutions."

The Roundtable was wrapped up by Vicky Wilson, Deputy CEO of Infrastructure & Environmental Services for the County of Orange, who listed off challenges towards the regional approach. Some of these challenges included identifying stakeholders, wrestling with consensus building, and planning governance structure early on. She noted, however, that the biggest challenge is finding funding. "We need to identify new funding sources to successfully address these issues," she said.

Funding is such a key concern that NWRI is planning to make that the topic of the next Urban Runoff Roundtable, to be held in March 2005 at the Irvine Marriott in Irvine, California.

**Creating a regional solution
to the urban runoff problem "is not just
about protecting the ocean. The ultimate
goal is to protect the beneficial uses
throughout the watershed."**

— Jeff Beehler

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