



Climate Change Impacts on Water:
An International Adaptation Forum



PROGRAM

WELCOME

A MESSAGE TO FORUM PARTICIPANTS

The organizers and sponsors of *Climate Change Impacts On Water: An International Adaptation Forum* welcome you to Washington, D.C., for a meeting that holds great potential for identifying and promoting successful responses to the evident and growing climate-related challenges to water security and sustainability.

In their mission to provide the basic health requirement of clean, safe and adequate water supplies, water utilities must deal with increased demand caused by population growth, changes in the economy, development of new technologies, variations in watershed characteristics and water management decisions. Climate change introduces a significant additional element of uncertainty about future water resource management. To address the impacts of climate change, many water utilities throughout the world have already developed strategies and implemented adaptation measures, including water conservation, use of markets to allocate water and the application of appropriate management practices.

Managing climate challenges will require the attention and commitment of not only water utilities, but also local, national and international governments. All must work together to develop policies that support adaptation at the local level and advance research that addresses the needs of water systems. Critical information and tools gathered from research must be disseminated to water utility managers and other decision makers so that the long-term viability of water supply and society can be sustained while ecosystem function is maintained.

Climate Change Impacts On Water: An International Adaptation Forum has been convened to encourage water utility managers in the U.S. to network with and learn from their international colleagues while raising the profile of climate change related water adaptation challenges to American policymakers. By the closing session, a declaration of adaptation principles will be developed for utilities to consider in moving forward to address climate change within their water systems. The value of these principles will be greatly enhanced when all forum attendees join in the discussions and share their perspectives, experiences and ideas. We encourage your fullest participation and expect that you will find the forum a source of inspiration and innovative solutions.

James McDaniel
President, Association of Metropolitan Water Agencies
Senior Assistant General Manager, Los Angeles Department of Water and Power

David Rager
Chair, Water Research Foundation Board of Trustees
Director, Greater Cincinnati Water Works

WEDNESDAY, JANUARY 27

3:00 p.m.–6:30 p.m.

Outside of Chinese Room

Registration

6:00 p.m.–7:00 p.m.

Chinese Room

Reception

THURSDAY, JANUARY 28

7:00 a.m. – 3:00 p.m.

Outside of Ballroom

Registration

8:00 a.m. – 12:00 p.m.

Ballroom

Welcome: Purpose of the Forum, Overview of Adaptation Principles Document

James McDaniel, President, Association of Metropolitan Water Agencies and Senior Assistant General Manager, Los Angeles Department of Water And Power

David Rager, Chair, Water Research Foundation Board of Trustees and Director, Greater Cincinnati Water Works

Opening Speakers

1. Jacqueline McGlade, Executive Director, European Environment Agency
2. Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency*
3. Shere Abbott, Associate Director for Energy and Environment, White House Office of Science and Technology Policy

Water Resources and A Changing Climate

Pavel Kabat, Science Director and Council Chair, Dutch National Climate Research Program and Professor, Wageningen University

Adapting to the Consequences of Climate Change in the Basins: Tools for Action. A Report from the General Assembly of the International Network of Basin Organizations

Jean-François Donzier, General Manager of the International Office for Water, Paris; Permanent Technical Secretary of the International Network of Basin Organizations

10:15 a.m. – 10:45 a.m.

Coffee Break

**Invited*

Case Studies/Panel Discussions Adaptation in Hot and Dry Climates

Presiding: Rob Greenwood, Principal, Ross & Associates

1. Australia – Rob Skinner, Managing Director, Melbourne Water
2. Spain – Francisco Cubillo, Deputy Director of Research, Development & Innovation, Canal de Isabel II
3. USA – David Modeer, General Manager, Central Arizona Water Conservation District

12:00 p.m. – 1:30 p.m.

State Room

Luncheon

Presiding: Pat Mulroy, General Manager, Las Vegas Valley Water District and Southern Nevada Water Authority

Keynote: Jane Lubchenco, Administrator, National Oceanic and Atmospheric Administration (NOAA)

1:30 p.m. – 5:30 p.m.

Ballroom

Adaptation in Mountainous/Snowpack Dominated Areas

Presiding: Rob Hunter, Commissioner, Atlanta Department of Watershed Management

1. Switzerland – Professor Martin Beniston, University of Geneva
2. Canada – Rob Pritchard, General Manager, Utilities & Environmental Protection, City of Calgary
3. USA – Chips Barry, Manager, Denver Water Department

Adaptation in Rain-Dominant and Coastal Areas

Presiding: Dan McCarthy, President and CEO, Black and Veatch

1. Singapore – Khoo Teng Chye, CEO, PUB Singapore
2. The Netherlands – Paula Verhoeven, Climate Office Director, City of Rotterdam
3. USA – Doug Yoder, Deputy Director, Miami-Dade Water and Sewer Department

3:50 p.m. -4:10 p.m.

Coffee Break at Breakout Sessions

Breakout Groups, Facilitated Sessions

1. Hot and Dry Climates – East Room

2. Mountainous/Snowpack Dominated Areas – Colonial Room

3. Rain-Dominant and Coastal Areas – State Room

Drawing on the case studies and participants' own experiences, the facilitator in each group will lead a discussion on two questions:

- What are the key similarities and differences in how utilities are addressing adaptation in this climate zone and what do these similarities/differences imply about the core elements of an adaptation strategy for this type of climate?
- Given the core elements of an adaptation strategy for this type of climate, are there any gaps in the principles document or areas where specific refinements are needed?

6:00 p.m. – 7:00 p.m.

Ballroom

Reception

FRIDAY, JANUARY 29

7:00 a.m. – 10:30 a.m.

Outside of Ballroom

Registration

8:00 a.m. – 12:00 p.m.

Ballroom

Case Studies – Moving Forward Under Uncertainty

Incorporating Uncertainty and Risk Associated with Climate Change into Utility Planning

Presiding: Brian Ramaley, Director, Newport News Waterworks

1. Australia – Judi Hansen, General Manager, Sustainability, Sydney Water
2. USA – Paul Fleming, Manager, Climate and Sustainability Group, Seattle Public Utilities

Integrated Water Supply Planning and Management

Presiding: Robert W. Bailey, President, Water Business Group, CH2M Hill

1. USA – Jeff Kightlinger, General Manager and Chief Executive Officer, Metropolitan Water District of Southern California
2. UK – Mark Williams, Environmental Regulation and Climate Change Manager, Scottish Water

Report Out from Breakout Sessions: Discussion of Commonalities of Adaptation Methods and Link to the Adaptation Principles Document

10:15 a.m. – 10:30 a.m.

Coffee Break

The Politics of Climate Change Adaptation For Water Utilities

Presiding: Pamela Marchand, Chief Engineer & General Manager, Providence Water

1. UK – Trevor Bishop, Director of Water Resources Policy, UK Environment Agency
2. Australia – Sue Murphy, CEO, Water Corporation of Australia

Impact of Climate Change on Transboundary Resources – Strategies to Find Regional and Cross-Border Solutions

1. Kingdom of Jordan – Fayez Bataineh, Advisor to the Minister of Water and Irrigation, and Project Manager, Red-Dead Sea Project
2. USA – Pat Mulroy, General Manager, Las Vegas Valley Water District and Southern Nevada Water Authority

12:00 p.m. – 1:40 p.m.

Colonial Room

Luncheon

Presiding: Jerry Johnson, General Manager, Washington Suburban Sanitary Commission

Keynote: Anne Castle, Assistant Secretary for Water and Science,
U.S. Department of the Interior

1:40 p.m. – 5:00 p.m.

East and State Rooms

Climate Change Research – What Is the U.S. Doing?

Presiding: Doug Yoder, Deputy Director, Miami-Dade Water and Sewer Department

1. USA – Matthew Larsen, Associate Director for Water, US Geological Survey
2. USA – Brad Udall, Director, Western Water Assessment, NOAA Earth Science Research Laboratory

Climate Change Research – What Is the European Union Doing?

EU – Andrea Tilche, Head of Environmental Technology Unit, European Commission, Environment Research Directorate

3:00 p.m. - 3:15 p.m.

Coffee Break

Climate Change Research – A Panel Discussion

Presiding: David Rager, Chair, Water Research Foundation Board of Trustees and Director, Greater Cincinnati Water Works

1. USA – V. (Ram) Ramaswamy, Director, NOAA Geophysical Fluid Dynamics Laboratory and Professor, Princeton University
2. Australia/N.Z. – Richard Warrick, Professor, University of the Sunshine Coast, Australia, and Director CLIMsystems Ltd, New Zealand
3. USA – Rob Renner, Executive Director, Water Research Foundation

Adaptation Principles Document – Presentation of the Adaptation Principles Document and a Call to Action for the U.S. Congress

USA – Ed Harrington, General Manager, San Francisco Public Utilities Commission; Chair, Water Utility Climate Alliance

Wrap-up/Closing of Forum

BIOGRAPHICAL INFORMATION

Sherburne (Shere) Abbott

Associate Director for Energy and Environment, White House Office of Science and Technology Policy

Shere Abbott is an environmental sustainability expert who has led international cooperation efforts for some of America's most prestigious scientific organizations. She came to the Office of Science and Technology Policy from the University of Texas at Austin where she was the Director of the Center for Science and Practice of Sustainability. She previously served as the Chief International Officer of the American Association for the Advancement of Science (AAAS). While at AAAS, she established and directed the Center for Science, Innovation, and Sustainable Development. Before joining AAAS, Abbott worked at the National Research Council over a 17-year period in capacities including executive director of the Board on Sustainable Development, where she directed the Sustainability Transition Study and the Global Change Research Program.

Hamlet J. (Chips) Barry

Manager, Denver Water

Prior to becoming Manager of Denver Water in 1991, Chips Barry was Executive Director of the Colorado Department of Natural Resources, an agency concerned with water, mining, parks, wildlife, geology, and oil and gas. He holds a law degree from Columbia University Law School and has spent more than 30 years pursuing a career in western water and natural resources matters. He has been a member of the Colorado Water Conservation Board, the Colorado Mined Land Reclamation Board and the Energy Impact Advisory Board and was a Trustee of the Colorado Chapter of the Nature Conservancy. Presently, he is a member of the Inter-Basin Compact Committee and Chairman of the Western Urban Water Coalition.

Martin Beniston

Professor, Chair for Climate Research and Director of the Geneva Environment Institute, University of Geneva

Martin Beniston's career in research has led him to Australia (Macquarie University, Sydney), Canada (University of Quebec), Germany (Max-Planck-Institute for Meteorology in Hamburg) and, since 1985, Switzerland. He has worked at the Swiss Federal Institute of Technology in Lausanne; from 1990-1992 he was director of ProClim (the Swiss National Climate Program), and from 1993-1996, he shared his time between a senior scientist position at the Swiss Federal Institute of Technology in Zurich and the vice-chairmanship of one of the working groups of the Intergovernmental Panel on Climate Change. He held a full professor position as head of the Department of Geosciences at the University of Fribourg from 1996-2006. In 2006, he was appointed full professor at the University of Geneva, where he holds the Chair for Climate Research and Director of the new Institute for Environmental Sciences. He is the initiator and coordinator of a major EU Framework Programme 7 project ("ACQWA") dedicated to assessing changes in water resources in vulnerable mountain regions.

Trevor Bishop

Head of Water Resource Policy, U.K. Environment Agency

As Head of Water Resource Policy for the U.K. Environment Agency, Trevor Bishop's national responsibilities include all aspects of policy development across water resources. He has recently been responsible for the delivery of the Environment Agency's Water Resource Strategy, looking out to the 2050s and is now working on a Water Plan, which will set policy direction for integrated clean water, wastewater and environmental management out to the 2080s. Prior to his current role he worked for more than 10 years in the water industry with a wide range of both strategic and operational roles in a number of water companies. His final role before joining the Environment Agency was Head of Regulation and Asset Performance at Mid Kent Water. Before joining the water industry Bishop worked as a consultant and a geologist in the oil industry.

Anne Castle

Assistant Secretary for Water and Science, U.S. Department of the Interior

In her capacity as Assistant Secretary for Water and Science, Anne Castle oversees water and science policy and has responsibility for the U.S. Bureau of Reclamation and the U.S. Geological Survey. Before joining Interior, Castle practiced law for 28 years in Denver, Colorado, specializing in water issues. Her clients spanned a wide spectrum of water users and suppliers, from small and large municipal water and wastewater treatment providers to farmers and ranchers, water and conservation districts and operators of commercial facilities. In 2007 she was appointed to the South Platte River Basin Task Force and from 1998-2002 she chaired the Board of Directors of the Genesee Water and Sanitation District. Castle was twice appointed to the Colorado Ground Water Commission and served from 1994 to 2002.

Fayez Bataineh

Advisor to the Minister of Water and Irrigation, Kingdom of Jordan, and Project Manager, Red-Dead Sea Project

Fayez Bataineh is the Advisor to the Minister of Water and Irrigation and the Project Manager of Red-Dead Sea Project. He started his career in 1975 as an operational engineer for the main wastewater treatment plant in Amman; afterward he worked in several positions in the Ministry, including Director of the Projects Department, Director of Laboratories, Director of the Directorate Water of the North Region and Assistant Secretary General for Technical Affairs and Planning. He also worked for nine years in the Sultanate of Oman as technical advisor for the Ministry of Environment.

Francisco Cubillo

Deputy Director of Research, Development and Innovation, Canal de Isabel II

Francisco Cubillo is the Deputy Director of Research, Development and Innovation at Canal de Isabel II, a company responsible for supplying, distributing and treating water for about six million people in more than 170 municipalities in the Madrid region of Spain. He chairs the International Water Association's Specialists Group EO&M (Efficient Operation and Management) and is a member of the IWA Strategic Council. Cubillo is a member of the Expertise Committee for Droughts of the Spanish Ministry of Environment and Water and was a representative of the Ministry of Environment and Water Management in the Government Consultative Advisory Group of the Dams and Development Project of the United Nations Environment Programme. He has more than 30 years of experience in the management of hydraulic supply, resources, environment and demand management acquired through his work with the Madrid regional government, the Environment Agency and the Water Resources Directorate. Before that, he also worked for several private engineering consulting companies.

Jean-François Donzier

General Manager, International Office for Water

Jean-François Donzier set up the International Office for Water (France) and has been its General Manager since 1991. He is also Permanent Technical Secretary of the International Network of Basin Organizations, Vice-President of the Mexican Training Center for Water and Sanitation and Administrator of the Gdansk Water Foundation (Poland) and of the International Water Secretariat (Canada). He is a member of the Royal Water Academy of Norway, the Advisory Committee of UNEP International Environmental Technology Centre in Osaka, and the French Commission for UNESCO, and expert to the City of Paris regarding water utilities. After serving as Governor of the World Water Council at its creation in 1997, Donzier is now a Steering Committee Member. Other positions have included Deputy Director at the Ministry of Agriculture (France), Secretary General to the Inter-ministerial Fund for Rural Development and to the National Council for Mountains and Chairman of the Commission of Rural Utilities at OECD.

Paul Fleming

Manager, Climate and Sustainability Group, Seattle Public Utilities

As Manager of the Climate and Sustainability Group for Seattle Public Utilities (SPU), Paul Fleming leads climate change initiatives and is responsible for developing and directing SPU's climate adaptation and mitigation strategies and research agenda as well as establishing collaborative partnerships with other utilities and research organizations in the U.S. and abroad. He also supervises SPU's green building program and is involved in SPU's water innovation and green stormwater infrastructure initiatives. Fleming is an active participant the Water Utility Climate Alliance, is Co-chair of U.S. EPA's Climate Ready Water Utility Working Group and serves on the Water Research Foundation's Climate Change Strategic Initiative Expert Panel.

Judi Hansen

General Manager, Sustainability, Sydney Water

Dr. Judi Hansen is the General Manager of the Sustainability Division at Sydney Water. She has worked in integrated water and wastewater planning and environment management over the past 19 years and has been responsible for leading the development of Sydney Water's extensive water conservation program and water recycling plan. Dr. Hansen has led the implementation of Sydney Water's sustainability planning framework and its integration into ongoing business practice. She is a member of the Board of the Water Research Foundation and is the Deputy Chair of the Board of Management of Water Reuse Australia. She previously held research positions in CSIRO, the Australian Institute of Marine Science and Sydney University.

Edward M. Harrington

*General Manager, San Francisco Public Utilities Commission
Chair, Water Utility Climate Alliance*

Edward Harrington is General Manager of the San Francisco Public Utilities Commission (SFPUC), overseeing the regional utility that delivers drinking water to more than 2.5 million customers, collects and treats wastewater and stormwater and provides hydroelectric and other renewable power resources for municipal customers. From 1991 to 2008, Harrington served as the Controller of the City and County of San Francisco, where he administered a \$6.1 billion budget. Before becoming Controller, Harrington was the Assistant General Manager and Finance Director of the SFPUC and was responsible for the financial activities for the Muni Railway, Water Department and Hetch Hetchy Water and Power System. He is a Certified Public Accountant and a member of the Board of Trustees of the Financial Accounting Foundation, which oversees the activities of the Governmental Accounting Standards Board and the Financial Accounting Standards Board.

Lisa P. Jackson

Administrator, U.S. Environmental Protection Agency

Administrator Lisa P. Jackson leads EPA's efforts to protect the health and environment for all Americans. She has pledged to focus on core issues of protecting air and water quality, preventing exposure to toxic contamination in communities and reducing greenhouse gases. Jackson also has promised that all of EPA's efforts will follow the best science, adhere to the rule of law and be implemented with unparalleled transparency. Before becoming EPA's Administrator, she served as Chief of Staff to the governor of New Jersey and Commissioner of the state's Department of Environmental Protection (DEP). Prior to joining DEP, she worked for 16 years as an employee of the U.S. EPA.

Pavel Kabat

*Science Director and Council Chair, Dutch National Climate Research Program
Professor, Wageningen University*

Pavel Kabat is science director and council chair of the Dutch National Climate Research Programme and professor and chair holder, Earth System Science and Climate, and chair of the Board of the Wageningen Climate Center at Wageningen University and Research Center. He also serves as the co-chair of the International Scientific Steering Committee of the International Geosphere-Biosphere Programme project iLEAPS, and as science director of the International Dialogue on Water and Climate and the International Cooperative Programme on Water and Climate. The former editorial board member of *Global Environmental Change* and *Hydrology and Earth System Sciences*, his recent publications include *Climate Proofing the Netherlands* and *Vegetation, Water, Humans and the Climate: A New Perspective on an Interactive System*. Dr. Kabat also served as a lead author at the Intergovernmental Panel on Climate Change from 2004 until 2007, and was both the lead author and review editor for the *Millennium Ecosystem Assessment* from 2004 until 2006.

Jeffrey Kightlinger

General Manager and Chief Executive Officer, Metropolitan Water District of Southern California

As General Manager and Chief Executive Officer for the Metropolitan Water District of Southern California, Jeffrey Kightlinger is responsible for directing the delivery of high-quality water to 19 million residents. He provides leadership and management of the District's public policies and strategic initiatives, assets and resources, and all administrative, operational and financial activities. Prior to his appointment in 2006 as General Manager, he was General Counsel for the District, directing the legal affairs of Metropolitan. Before joining Metropolitan in 1995, Kightlinger was in private legal practice representing a number of public agencies on environmental issues. He is a Governor's appointee to California's Bay Delta Vision Blue Ribbon Task Force – Stakeholders Committee, a board member on the California Climate Action Registry and a board member on the University of California at Los Angeles Continuing Education Sustainability Advisory Board.

Khoo Teng Chye

Chief Executive, PUB, Singapore

Khoo Teng Chye has served as the Chief Executive and a Board Member of PUB, Singapore's national water agency, since December 2003. He has concurrently served as the Executive Director of the Environment and Water Industry Development Council since May 2006. From 1992-96, he was the Chief Executive Officer/Chief Planner at the Urban Redevelopment Authority. Khoo also sits on the Boards of PUB Consultants Pte Ltd, Tropical Marine Science Institute of National University of Singapore, International Desalination Association and Singapore-Delft Water Alliance Board of Trustees. He is a member of the Advisory Committee for the Nanyang Technological University School of Civil & Environmental Engineering and a member of the International Advisory Panel for the Institute of Water Policy under the Lee Kuan Yew School of Public Policy, National University of Singapore.

Matthew Larsen

Associate Director for Water, U.S. Geological Survey

Matthew Larsen was named Associate Director for Water at the U.S. Geological Survey (USGS) in 2008 and is responsible for USGS water-related research and activities to provide reliable, impartial, timely information that is needed to understand the nation's water resources. Prior to this duty, he was the Chief Scientist for Hydrology and led the USGS National Research Program in hydrology. From 2000 to 2003 he was the USGS Caribbean District Chief. Dr. Larsen was the Luquillo, Puerto Rico, Water, Energy, and Biogeochemical Budgets (WEBB) project chief from 1990 to 2000. Prior to that he was a project chief on a USGS study of landslide hazards in eastern Puerto Rico. Dr. Larsen began his USGS career in 1977 with the Branch of Pacific and Arctic Marine Geology, Geologic Division. He is currently the Chair of the U.S. National Committee for the UNESCO International Hydrological Programme.

Jane Lubchenco

Administrator, U.S. National Oceanic and Atmospheric Administration (NOAA)

Dr. Jane Lubchenco, a marine ecologist and environmental scientist, is the ninth Administrator of NOAA. A former president of the American Association for the Advancement of Science, the International Council for Science and the Ecological Society of America, she served 10 years on the National Science Board. From 1999-2009 she led PISCO, an interdisciplinary team of scientists investigating the large marine ecosystem along the coasts of Washington, Oregon and California. Dr. Lubchenco has provided scientific input to multiple U.S. Administrations and Congress on climate, fisheries, marine ecosystems and biodiversity and co-founded three organizations that communicate scientific knowledge to the public, policy makers, the media and industry: the Leopold Leadership Program; COMPASS (the Communication Partnership for Science and the Sea); and Climate Central. She also served on the Pew Oceans Commission, the Joint Oceans Commission Initiative and the Aspen Institute Arctic Commission.

Jacqueline McGlade

Executive Director, European Environment Agency

Jacqueline McGlade became Executive Director of the European Environment Agency in Copenhagen in 2003. She is on leave from her position as Professor in Environmental Informatics in the Department of Mathematics at University College London. Until 2003, Professor McGlade was a Board member of the Environment Agency of England and Wales with responsibility for Thames Region, navigation and science. Before that, she was Director of the NERC Centre for Coastal and Marine Sciences, Professor of Biological Sciences at Warwick, Director of Theoretical Ecology at the Forschungszentrum Juelich and senior scientist in the federal government of Canada. Her research has focused on the dynamics of ecosystems with particular reference to marine resources and climate change.

David V. Modeer

General Manager, Central Arizona Water Conservation District

David V. Modeer joined the Central Arizona Water Conservation District (CAWCD) as General Manager overseeing all Central Arizona Project (CAP) operations in January 2009. He has been a leader in water resource management for nearly 40 years and has significant experience in all areas of water system operations, financing, customer service and planning. Prior to his arrival at CAP, Modeer was the Director of Water Services for the City of Phoenix and spent 10 years as the Director of Water in Tucson, Arizona. He also has more than 26 years of management experience with American Water Works, Inc. as Vice President of Operations for both the Pennsylvania-American and Western Region divisions. Prior to his selection as General Manager of CAWCD, he served six years on the District's publicly elected Board of Directors.

Patricia Mulroy

General Manager, Las Vegas Valley Water District and Southern Nevada Water Authority

Pat Mulroy oversees the operations of the Las Vegas Valley Water District, which serves more than 340,000 customers, and the Southern Nevada Water Authority, which is responsible for acquiring, treating and delivering water to local agencies that collectively serve 2 million residents and 40 million annual visitors. Mulroy joined the District more than 20 years ago and began serving as its general manager in 1989. She was a principal architect of the Authority, which has served as a model for other Western water agencies since its creation in 1991. Mulroy serves on the Board of Directors of the Association of Metropolitan Water Agencies and the National Water Resources Association, and on the Board of Trustees of the Water Research Foundation. Additionally, she was the original chairperson of the Western Urban Water Coalition and served on the Colorado River Water Users Association's Board of Directors.

Sue Murphy

Chief Executive Officer, Water Corporation of Australia

Sue Murphy joined Clough Engineering in 1980, commencing what would be a 25-year career in that organization. Twelve years in the field as a site engineer and project manager led to corporate roles with a focus on human resources, safety and engineering design management and her appointment in 1998 as the first woman on the Board of Clough Engineering Ltd. In 2008, she was appointed Chief Executive Officer of the Water Corporation. The Water Corporation manages Western Australia's water supply catchments, removes and treats wastewater, manages drainage networks and irrigation and supplies drinking water to communities spread across 2.5 million square kilometers of one of the driest countries on Earth. Murphy is the Deputy Chairman of the Rottneet Island Authority and a Board Member of the Water Services Association of Australia and the University of Western Australia Business School

Rob Pritchard

General Manager of Utilities and Environmental Protection, City of Calgary

Rob Pritchard is a professional engineer with 35 years experience in both the public and private sector, including 12 years with consulting engineers in Canada, England and Iraq, prior to joining the City of Calgary, Waterworks in 1986. In 2004, he was appointed General Manager of Utilities and Environmental Protection, where he proceeded to integrate waterworks, wastewater and drainage into a single functional model, with two business units: water resources and water services. With additional responsibility for waste and recycling services and environmental and safety management, he holds a broad strategic view on mitigation and adaptation to climate change within the City of Calgary. Pritchard is a member of PIEVC, an Engineers Canada national committee on infrastructure assessment and adaptation to climate change, and is an Executive Director on the Alberta Water Council, established by the Government of Alberta to steward implementation of its Water For Life strategy.

Venkatachalam (Ram) Ramaswamy

*Director, NOAA/Geophysical Fluid Dynamics Laboratory
Professor, Princeton University*

Ram Ramaswamy is Director of NOAA's Geophysical Fluid Dynamics Laboratory and is a Professor with the Atmospheric and Oceanic Sciences Program and the Princeton Environmental Institute at Princeton University. His primary research is on numerical modeling of the global climate system and he led the first international assessment of the decadal-scale stratospheric temperature trends. He was a Coordinating Lead Author on the Intergovernmental Panel on Climate Change Third (2001) and the Fourth Assessment Reports (2007) and also was part of the Writing Team of the Summary for Policymakers. Dr. Ramaswamy served as Vice-Chair of the World Climate Research Program's Joint Scientific Committee and as member of the panel that initiated the Anthropogenic Climate Change cross-cutting project in WCRP. He is the Manager of the Climate Research & Modeling Program of NOAA's Climate Goal.

Robert C. Renner

Executive Director, Water Research Foundation

Robert Renner is the executive director of the Water Research Foundation, an international organization that sponsors research to enable water utilities, public health agencies and other professionals to provide safe and affordable drinking water to consumers. He joined the Foundation after serving as executive director of ISA (International Society of Automation). Prior to his experience at ISA, Renner was the deputy executive director of the American Water Works Association. He has more than 20 years of consulting experience helping utilities optimize treatment plant performance and assisting with management and administrative issues. He directed the U.S. Environmental Protection Agency's research aimed at improving utility operations and management and developed the materials used in the "Partnership for Safe Water," a national program used to assist drinking water utilities in meeting the complex provisions of the Safe Drinking Water Act.

Rob Skinner

Managing Director, Melbourne Water

Rob Skinner was appointed Managing Director of Melbourne Water in February 2005 and is currently a board member of the Water Services Association of Australia. He is actively involved in a number of innovative sustainability initiatives in Melbourne and has been a leading figure in Melbourne's water sensitive urban development programs. Prior to joining Melbourne Water he was the chief executive officer of a major Melbourne municipality during which time he held a number of key positions in the water sector including Chairperson of the Southern Rural Water Corporation and Chair of the Victorian Stormwater Advisory Committee. Skinner has initiated a number of collaborative relationships between Melbourne Water and agencies in Singapore, the United Kingdom, Israel and Timor Leste. He is currently a member of the International Water Association's Cities of the Future Steering Committee.

Andrea Tilche

Head of the Environmental Technology Unit, European Commission, Environment Research Directorate

Andrea Tilche's scientific career has been mainly carried out in Italy where he established and directed the wastewater treatment laboratories of ENEA in Bologna, carrying on research on advanced anaerobic treatment and biological nutrient removal technologies. In 1998 he moved to the Joint Research Centre of the European Commission in Ispra as Head of the Water Research and Monitoring Unit, and later moved to Brussels to lead the Water Key Action of the 5th Framework Programme. Dr. Tilche is now Head of the Environmental Technologies and Pollution Prevention Unit within the Environment Directorate of Directorate General Research. In this position, he is in charge of drafting European research programs in the field of Environmental Technologies and of managing their execution.

Brad Udall

Director of Western Water Assessment, NOAA Earth Science Research Laboratory

Brad Udall is Director of Western Water Assessment (WWA), one of seven RISA (Regional Integrated Sciences and Assessments) programs funded by the Office of Global Programs at the U.S. National Oceanic and Atmospheric Administration (NOAA). These programs are designed to develop partnerships with regional stakeholders and tailor NOAA data products to meet their needs. Lessons learned here are also contributing to NOAA's emerging National Climate Service, the climate analog to the existing National Weather Service. WWA was created in 1999 and is a joint effort between CIRES and the Climate Diagnostics Center. Using multidisciplinary teams of experts in climate, water, law and economics, the WWA provides information about natural climate variability and human-caused climate change. This information - usually in the form of climate forecasts and regional vulnerability assessments - is designed to assist water-resource decision makers.

Paula Verhoeven

Climate Office Director, City of Rotterdam

On March 1, 2009 Paula Verhoeven was appointed the first Director of Climate Affairs in the Netherlands for the City of Rotterdam. Her main objective in her current role is to ensure that the Rotterdam approach to climate is imbedded in all aspects of municipal policy. Prior to assuming this office, she held several positions with the City, beginning in 1993. First she served in the Human Resources Department of the Mayor's Office, and from 1997 to March 2009 she worked as head of the HRM Department, head of the Department of Water Management and Director and Vice Director General at the municipal Department of Public Works. Since 2006 her responsibilities have included the areas of infrastructure, maintenance and environment, as well as international relations and the Rotterdam Climate Proof Programme (2008). Between 1986 and 1992 she held several positions at the Dutch Ministry of the Interior in the Department of Public Order and Safety.

Richard Warrick

*Professor, University of the Sunshine Coast, Australia
Director, CLIMsystems Ltd, New Zealand*

Richard Warrick holds the position of Professor of Climate Change Adaptation at the University of the Sunshine Coast, Australia and is a Director of CLIMsystems Ltd, New Zealand. He has a 30-year professional interest in climate variability and change, impacts on bio-physical and human systems, and adaptation to reduce risk. Over the last two decades he has focused on the development of integrated assessment models that link observed climate data, climate change scenario generators, and sectoral impact models as a way of helping to bridge the gaps between science, policy and planning. This work includes the SimCLIM modeling system, which has been applied at different scales (national to local) throughout the world. Professor Warrick has been a Lead Author in all four of the IPCC Assessment Reports.

Mark Williams

Environmental Regulation and Climate Change Manager, Scottish Water

Mark Williams joined the water industry to work in environmental management in 2000 having previously followed an academic research career in marine biology and chemical ecology at the universities of Cardiff and St. Andrews. In 2006, he was appointed Business Strategy and Climate Change manager at Scottish Water and developed long term strategy and vision for the company as well as establishing carbon management strategies and plans, carbon accounting and reporting tools and climate adaptation strategies and activities. He also led the development and scoping of the climate change aspects of Scottish Water's investment plan in the 2010-2015 period. Williams became Environmental Regulation and Climate Change Manager in September 2009. This is a pan-Scotland role that covers all aspects of environmental quality, management and regulation, including regulatory licensing, environmental policy and strategy, environmental investment drivers, carbon management and climate change adaptation. He also leads the climate change program for U.K. Water Industry Research, a research organization that is funded by and operates on behalf of all U.K. water companies.

Douglas Yoder

Deputy Director, Miami-Dade Water and Sewer Authority Department

Douglas Yoder is Deputy Director of the Miami-Dade Water and Sewer Department, the largest utility in the southeastern United States and one of the largest utilities in the country. His specific responsibilities include oversight of planning, regulatory compliance and capital improvements. Dr. Yoder has worked with Miami-Dade County over the past 38 years and has extensive water resource management experience with the Department of Environmental Resources Management. He served for eight years on the U.S. EPA National Drinking Water Advisory Council (NDWAC) and is past chair of the Florida Local Environmental Resource Agencies. He currently serves on the Water Resources Advisory Commission, advising the South Florida Water Management District on water management policy, and was recently named to the Climate Ready Utilities Working Group by EPA to advise the NDWAC.

FORUM ORGANIZERS

Association of Metropolitan Water Agencies (www.amwa.net)



AMWA is the definitive voice for the nation's largest publicly owned drinking water systems on regulatory, legislative and security issues. The Association supports strong federal action to research and respond to the impacts of global climate change upon the nation's drinking water supplies. The long-term viability and sustainability of the nation's water supply is

integral to a viable national economy and therefore a comprehensive, unified, and coordinated federal research program is essential for developing decision support tools, adaptation and mitigation strategies, and for helping local utility managers access better information on the regional impacts of climate change on drinking water quality and quantity.

Water Research Foundation (www.waterresearchfoundation.org)



The Water Research Foundation sponsors research to enable water utilities, public health agencies, and other professionals to provide safe and affordable drinking water to consumers. Since 2003, the Foundation has sponsored research to assess and plan responses to the impacts of climate change. In 2008, its Strategic Research Initiative on Climate Change was launched as

a comprehensive multi-year, multi-project approach to create valuable, practical information and tools to help drinking water utilities respond effectively to climate change challenges.

International Water Association (www.iwahq.org)



IWA is an international organization that connects water professionals worldwide to lead the development of effective and sustainable approaches to water management. The Association's climate change program seeks to assist the water sector in meeting intensified challenges and uncertainties to build systems that are more robust, flexible and resilient than before. The

program focuses on the need to model, predict and assess current and future impacts, cost for society and the environment and further to support decision making under uncertainty. Its activities build on the knowledge of available and co-evolving best practice on a diversity of interventions.

American Water Works Association (www.awwa.org)



AWWA's 60,000 members worldwide share knowledge on water resource development, water and wastewater treatment technology, water storage and distribution, and utility management and operations. The Association provides knowledge, information and advocacy to improve the quality and supply of water in North America and beyond and advances public health, safety and

welfare by uniting the efforts of the full spectrum of the water community.

Water Utility Climate Alliance (www.wucaonline.org)



A coalition of eight of the USA's largest water utilities, WUCA was formed in March 2008 to work for improved research into the impacts of climate change on water utilities, to develop strategies for adapting to climate change and to implement tactics to reduce their greenhouse gas emissions. Founders include Denver Water, the Metropolitan Water District of Southern California,

New York City Department of Environmental Protection, Portland Water Bureau, San Diego County Water Authority, the San Francisco Public Utilities Commission, Seattle Public Utilities and the Southern Nevada Water Authority.

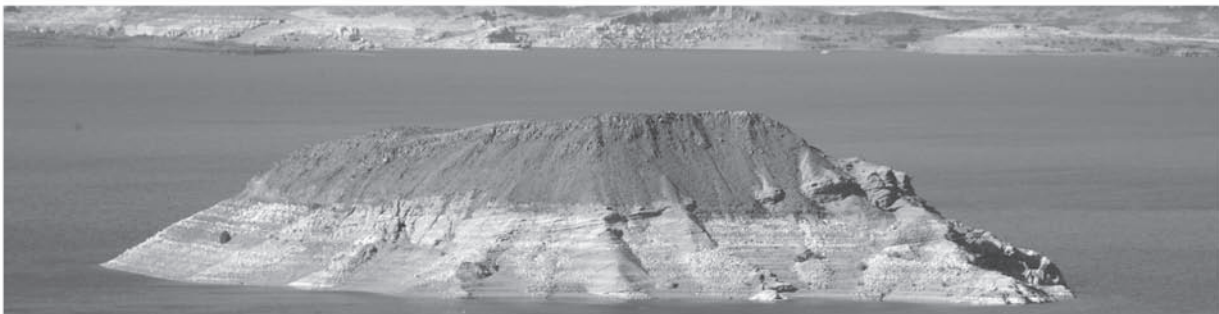


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www.waterclimateforum.org

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