

**COMMITTEE ON SCIENCE AND TECHNOLOGY  
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT  
U.S. HOUSE OF REPRESENTATIVES**

*21<sup>st</sup> Century Water Planning: The Importance of a Coordinated Federal Approach*

Wednesday, March 4, 2009  
10:00 a.m. – 12:00 p.m.  
2318 Rayburn House Office Building

**PURPOSE**

On Wednesday, March 4<sup>th</sup>, the Committee on Science and Technology will hold a hearing entitled “*21<sup>st</sup> Century Water Planning: The Importance of a Coordinated Federal Approach*” at 10:00 a.m. in room 2318 of the Rayburn House Office Building. The purpose of the hearing is to receive testimony on *The National Water Research and Development Initiative Act* and examine the opportunities for the federal government to better coordinate and support research and technological innovation.

The witnesses will provide testimony on the research needed to address the challenges of managing water supplies to meet social, economic and environmental needs in the United States to accommodate population growth, climatic variation, and other factors. In addition, they will discuss their views on the need for federal research and development in the areas of water supply, water conservation, and water management. The witnesses will offer their perspectives on *The National Water Research and Development Initiative Act* and discuss its relationship to other federal policies and legislative proposals.

**WITNESSES**

- **Dr. Henry Vaux, Jr.**, *Professor Emeritus, University of California, Berkley*. From 1994 to 2001, Dr. Vaux served as Chair of the Committee of the Water Science and Technology Board which prepared a report in 2004 on federal research and development to address water resource issues. Dr. Vaux will testify on his work chairing the Committee and how *The National Water Research and Development Initiative Act* addresses the recommendations of the 2004 NRC report.
- **Dr. Peter Gleick**, *President of the Pacific Institute for Studies in Development, Environment, and Security*. The Pacific Institute is a research institute dedicated to addressing the connections between water and human health, the hydrologic impacts of climate change, sustainable water use, privatization and globalization, and international conflicts over water resources. Dr. Gleick will discuss his research and provide his perspective on *The National Water Research and Development Initiative Act* and its relationship to other federal programs and proposals.

- **Mr. Mark Modzelewski**, *Co-founder Water Innovations Alliance*. Created in 2008, the Alliance serves as an industry association working towards increasing water research funding, strengthening federal research and development, and improving education and outreach for water industry professionals. Mr. Modzelewski will offer an industry perspective to the need for increased federal research and development related to water.
- **Ms. Nancy Stoner**, *Co-director of the Water Program at the Natural Resources Defense Council (NRDC)*. NRDC is a national, nonprofit organization of scientists, lawyers and environmental specialists with a long history of working to protect the nation's waters. Ms. Stoner will offer an environmental perspective on the importance of additional federal efforts to ensure clean water supplies, her perspectives on the *National Water Research and Development Initiative*, and the legislation's relationship to other federal programs and proposals.
- **Ms. Christine Furstoss**, *General Manager of Technology, General Electric (GE) Water and Process Technologies*. At GE, Ms. Furstoss leads approximately 350 technologists working on critical chemical, membrane, device and processing technologies aimed at providing water treatment, water reuse and efficient process system solutions. Ms. Furstoss will testify about her work in water technology development and the role of private industry in water science research.

## **BACKGROUND**

The nation's water policy remains essentially unchanged despite a myriad of reports recommending broad changes to address dwindling water supplies. Multi-year droughts continue to plague regions and states around the country, including the Southeast, Texas, and California. For many municipalities, intense competition for water and diminished supplies will force local water agencies to make tough decisions on water allocations including implementation of restrictions to protect essential ecosystem services.

Droughts, changing patterns of precipitation and snowmelt, and increased water loss due to evaporation as a result of warmer air temperatures are indicators that climate variability and climate change have impacts that are being felt across the United States.<sup>1</sup> The Intergovernmental Panel on Climate Change's (IPCC) latest report projects that water supplies stored in glaciers and snow cover will decline in the course of the century, thus reducing water availability in regions supplied by melt water from major mountain ranges.<sup>2</sup>

January 2009, the driest month in California history, has left California's reservoirs and rivers operating at near record lows. On February 20, the Bureau of Reclamation announced that a large percentage of agricultural contractors in the State are expected to receive no water deliveries this year due to California's extreme drought and municipal contractors should count on receiving a 50 percent of their normal supply. The Bureau prepared two forecasts: a

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<sup>1</sup> U.S. Environmental Protection Agency. 2008. *Water Impacts of Climate Change*. Office of Water. EPA 800-R-08-001. [www.epa.gov/water/climatechange](http://www.epa.gov/water/climatechange). Accessed February 26, 2009.

<sup>2</sup> Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof, Eds., 2008: *Climate Change and Water*. Technical Paper of the Intergovernmental Panel on Climate Change, IPCC Secretariat, Geneva.

conservative forecast with a 90-percent chance of having runoff greater than forecasted and a median forecast with a 50-percent chance of having runoff greater than forecasted.

**Figure 1: California Water Allocation by Forecast**<sup>3</sup>

Mid-Pacific Region: Initial Water Year 2009 Supply Forecast									
Probability of Exceedence Forecasts	Historical Average Sacramento Valley Index & Year Type	North of Delta Allocation				South of Delta Allocation			
		Ag	M&I	R	WR	Ag	M&I	R	WR
Dry Forecast (90%)	41% Critical	0%	50%*	75%	75%**	0%	50%*	75%	77%
Median Forecast (50%)	55% Critical	10%	60%*	100%	100%	10%	60%*	100%	100%
Ag = Agriculture M&I = Municipal and Industrial R = Refuges WR = Water Rights M&I supply is based on historical deliveries									
*The allocation percentage for M&I is approximate and may be adjusted to meet public health and safety needs.									
**The potential for further reductions may exist if critically dry conditions continue.									

**Recommendations for the Obama Administration**

Last fall, the Pacific Institute’s Dr. Peter Gleick provided water policy recommendations to the next Administration. Dr. Gleick’s priorities include developing a comprehensive national water policy, spotlighting national security issues related to water, expanding the role of the U.S. in addressing global water problems, and integrating climate change into all federal water planning and activity.<sup>4</sup>

The United State’s fresh water resources are used ineffectively due, in part, to a lack of a national water policy. Dr. Gleick argues, “If inefficient use and water contamination continue unabated, they will impoverish this and future generations, destroy the limited remaining aquatic ecosystems, and threaten our future food supply.”<sup>5</sup>

In developing a 21<sup>st</sup> Century National Water Policy, the Pacific Institute recommends a reorganization of the diverse and uncoordinated federal water responsibilities and expanding the collection of water-use and water-quality data. In addition, the Institute calls for the re-

<sup>3</sup> Mid-Pacific Region Office, 2009. *Reclamation Announces Initial 2009 Central Valley Project Water Supply Allocation*. U.S. Bureau of Reclamation. <http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=26721>. Accessed February 26, 2009.

<sup>4</sup> Gleick, Peter, 2008: *Water Threats and Opportunities: Recommendations for the Next President*, Peter Gleick. Pacific Institute. 3pp. [http://www.pacinst.org/publications/essays\\_and\\_opinion/presidential\\_recommendations/background.pdf](http://www.pacinst.org/publications/essays_and_opinion/presidential_recommendations/background.pdf). Accessed February 26, 2009.

<sup>5</sup> Ibid, p. 1.

establishment of a new national, bipartisan Water Commission for the 21st Century to evaluate and recommend changes to national water policy.

### **H.R. 1145: National Water Research and Development Initiative Act**

The Committee held two hearings in the 110<sup>th</sup> Congress—on May 14, 2008 and July 23, 2008—on water supply research and development. At the hearings, witnesses’ discussed the need for better coordination of federal efforts on water, increased funding for research on the effects of climate change on groundwater, and improved consideration of efficient water use in energy systems. They also recommended that additional money be spent on public education programs.<sup>6</sup>

Despite an interagency research budget of approximately \$700 million, an increase in the number of water shortages and emerging conflicts over water supplies suggest that we are inadequately prepared to address the nation’s water management issues. The 2004 report by the National Research Council entitled, *Confronting the Nation’s Water Problems: The Role of Federal Research*<sup>7</sup>, advocates for a clear national water strategy to coordinate the 20 plus federal agencies responsible for conducting and funding research in order to avoid duplication and to tackle the looming challenges of maintaining adequate water supplies.

Chairman Gordon introduced the *National Water Research and Development Initiative Act* on September 23, 2008 following the Committee hearings (H.R. 6997) and in response to the recommendations in the Academy’s 2004 report.

Chairman Gordon reintroduced the legislation on February 24, 2009. H.R. 1145 coordinates federal research water efforts to ensure we have the best tools and information to maintain adequate supplies of water for Americans in the coming decades. The bill seeks to improve the federal government’s efforts in water research, development, demonstration, education, and technology transfer activities to address changes in water use, supply, and demand in the United States.

The bill codifies the Interagency Committee created in 2003, the Subcommittee on Water Availability and Quality (SWAQ) of the National Science and Technology Council’s Committee on Environment and Natural Resources. SWAQ was created to identify science and technology needs to address the growing issues related to freshwater supplies, develop a coordinated a multiyear plan to improve research on water supply and water quality, and to enhance the collection and availability of data needed to ensure an adequate water supply for the nation. H.R. 1145 incorporates suggestions in the National Academies’ 2004 report that are intended to strengthen the Committee. By strengthening the SWAQ and providing it explicit Congressional

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<sup>6</sup> For more information on these hearings, visit the House Science Committee Website at [http://science.house.gov/publications/hearings\\_markup\\_details.aspx?NewsID=2187](http://science.house.gov/publications/hearings_markup_details.aspx?NewsID=2187)

<sup>7</sup> National Research Council. 2004. *Confronting the Nation’s Water Problems: The Role of Research*. Water Science and Technology Board. Committee on Assessment of Water Resources Research. National Academies Press, Washington, D.C., p 324.

authorization, the recommendations of the 2007 SWAQ report<sup>8</sup> will receive due consideration and form the start of a national strategy to ensure we have a sustainable water supply.

Information and recommendations from witnesses obtained through the two hearings in the 110<sup>th</sup> Congress and from other water experts were incorporated into the bill introduced in the 111<sup>th</sup> Congress. Specific recommendations that have been included in the current legislation include: an expanded list of research outcomes, specific mechanisms to increase public input and involvement in shaping and evaluating the Initiative, and provisions to facilitate communication and outreach opportunities with non-governmental organizations.

### **Additional Water Legislative Proposals**

As Congress seeks to address future water supply challenges, it is important to consider how *The National Water Research and Development Initiative Act* relates to other federal policies and legislative proposals. Two bills that also address federal water policy are: H.R. 135, *The 21<sup>st</sup> Century Water Commission Act* and S. 22, *The Omnibus Public Land Management Act of 2009*.

#### **H.R. 135: 21<sup>st</sup> Century Water Commission Act of 2009**

H.R. 135 was introduced by Rep. John Linder (R-GA). This legislation would establish a Commission to provide for water assessments to project future water supply and demand, review current water management programs at all levels of government, and develop recommendations for a comprehensive water strategy. Modeled after the 1968 National Water Commission Act, H.R. 135 creates a commission consisting of non-federal experts appointed by the President, the Speaker of the House, and the Majority Leader of the Senate.

H.R. 135 requires the Commission to investigate a number of solutions to avert future water shortages including: aqueducts and pipelines, aquifer recharge, repairing aging infrastructure, building dams and reservoirs, desalination, the capture and storage of rainwater, recycled wastewater, conservation, and wetlands creation.

H.R. 135 complements the *National Water Research and Development Initiative Act*. The Commission's recommendations would be carried out by the 20-plus agencies overseeing federal water policy. In order to effectively implement these recommendations, the federal government must have a coordinated structure in place.

#### **S. 22: Omnibus Public Land Management Act of 2009**

S. 22, *The Omnibus Public Land Management Act of 2009*, authorizes many programs and activities in the Department of the Interior and the Department of Agriculture related to public lands.

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<sup>8</sup> National Science and Technology Council, Committee on Environment and Natural Resources, Subcommittee on Water Availability and Quality. 2007. *A Strategy for Federal Science and Technology to Support Water Availability and Quality in the United States*. Washington, D.C., p 35.

Title IX, Subtitle F of this legislation directs the Secretary of Interior to conduct a variety of activities related to water management on federal lands. The Secretary is required to establish a climate change adaptation program to address water management in watersheds containing federally authorized reclamation projects. The bill also directs the Secretary of Energy to conduct an assessment of potential climate change impacts on hydropower projects under the authority of the Federal Power Marketing Administration. In addition, S. 22 directs the Secretary of Interior to establish an interagency committee on water and climate change to review the impacts of climate change on freshwater resources in the U.S., to develop strategies to improve observations and expand data collection needed to assess climate impacts. The bill also provides an increased authorization for the U.S. Geological Service (USGS) for the National Streamflow Information Program and for expanded monitoring of groundwater resources.

H.R. 1145 ensures coordination of the research, development and demonstration activities of all federal agencies with expertise in water that will be required to develop the required assessments and the adaptive management strategies for water resources. Participation of the key federal agencies with expertise and authorities over water resources in the interagency committees authorized under these two bills will facilitate a transfer of coordinated research into coordinated water management policy.

**H.R. 1145**  
**SECTION BY SECTION**

Title: *National Water Research and Development Initiative Act*

Purpose: To improve the Federal Government's role in water research, development, demonstration, data collection, education, and technology transfer activities to address changes in water use, supply, and demand in the United States.

**Section 1: Short Title**

*The National Water Research and Development Initiative Act of 2009*

**Section 2: National Water Research and Development Initiative**

Section 2 directs the President to implement a National Water Research and Development Initiative to improve Federal activities on water, including: research, development, demonstration, data collection and dissemination, education, and technology transfer. As part of the Initiative, the President shall establish or designate an Interagency Committee with representation from all Federal agencies dealing with water and the Office of Management and Budget. The Office of Science and Technology Policy will chair the Committee.

The Committee is charged with developing a National Water Availability Research and Assessment Plan, coordinating all Federal activities on water that include research, development, demonstration, data collection and dissemination, education, and technology transfer, and promoting cooperation among agencies with respect to water research. The Committee is also responsible for facilitating technology transfer, communication, and opportunities for exchange with non-governmental organizations.

The President is directed to create a National Water Initiative Coordination Office to provide technical and administrative support to the Committee. The Office will disseminate information to the public and serve as a point of contact for the Initiative.

The National Water Research and Assessment Plan establishes priorities for Federal water research and assessment and shall utilize the recommendation from a 2007 Report issued by SWAQ (Subcommittee on Water Availability and Quality of the National Science and Technology Council) and recommendations by the National Academy of Sciences. This section also identifies required elements of the Plan. The Plan lists a number of water research outcomes to be achieved by the agencies participating in the Initiative.

The Plan will be subject to a 90 day public comment period and must be submitted to Congress within 1 year of enactment.

Section 2 also requires the President to establish or designate an advisory committee including non-governmental experts to provide guidance and recommendations to the interagency committee governing the Initiative.

### **Section 3: Budget Coordination**

Section 3 directs the President to provide guidance to each Federal agency in the Initiative with respect to the President's annual budget request. The President is required to describe and list the items in the request that are intended to achieve the outcomes of the Plan.

### **Section 4: Annual Report**

Section 4 directs the President submit an annual report to Congress describing the activities and results of the Initiative.