Testimony of
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Committee on Science & Technology
U.S. House of Representatives
Hearing on 21st Century Water Planning: The Importance of a Coordinated Federal Approach
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Chairman Gordon, Ranking Member Hall, and members of the Committee, I am pleased and honored to have this opportunity to appear before you today as the Executive Director of the Water Innovations Alliance. The Alliance is the public policy voice of the world's water researchers, technologists and innovators. Our role is to advocate policies that promote the aggressive development of water technologies and innovations across all sectors and users of water by creating new market opportunities, increasing funding, strengthening research and development programs, removing regulatory and market barriers, and improving education, communication and outreach efforts.

Our membership, which includes a broad spectrum of business, academic institutions, health and development activists, believes strongly in the tremendous importance of securing safe and affordable access to water resources as a cornerstone of our nation's physical health, economic prosperity, and general welfare. We share this Committee's belief that Federal investment in water technology R&D is essential for our nation's future – and the world's.

We are all familiar with the statistics: in 2002, 1.1 billion people lacked access to a reliable water supply, and 2.6 billion people lacked access to adequate sanitation. By 2025, over half the world's population will live in water-stressed or water-scarce countries. 25 percent of global freshwater use exceeds local long-term accessible supplies. Agricultural uses are the biggest concern, with an estimated 15 to 35 percent of irrigation withdrawals in excess of sustainable limits. Industrial withdrawals of water are expected to rise by 55 percent out to the year 2025. In addition, within the US, population has been migrating from the water-rich North to the water-depleted sunbelt. Crumbling infrastructure means that cities such as Chicago lose upwards of 60 percent of their water in transit from treatment facilities to faucets. Over the past five years, municipal water rates have increased 27 percent throughout the United States.

In order to address the problems of access in the developing world and our own significant infrastructure needs, we must either spend hundreds of billions of dollars on current technology or invest a fraction of that funding in advancing water technology. Unfortunately, despite the maxims that "water is the next oil," and that "water equals life," nobody ever seems to put their money where their mouth is in the water sector – corporate and government R&D investment has historically been far below the level we see in less important industries. The proposed legislation is a major step toward reversing this trend. It will help develop and bring to market new technologies that allow for greater efficiencies, the ability to reuse this precious resource, and new capabilities to tap new water sources.

We strongly agree with the Chairman's calls for interagency collaboration and coordination, as well as increased evaluation and funding for water technology. Before founding the Water Innovations Alliance, I founded the NanoBusiness Alliance, where I worked extensively on the 21st Century Nanotechnology Research and Development Act. I believe that it can serve as a great model for interagency coordination and public-private collaboration on key issues surrounding water technology.

General Comments on the Proposal

While the Water Innovations Alliance strongly supports the Chairman's proposal, we do have a few suggestion for the Committee's consideration. In general, we would encourage the Committee to take an aggressive approach to water innovation that ensures speed, quality and accountability. We also urge that the Committee encourage new voices to come to the table and create opportunities for interdisciplinary research. We still deal with water technology with brute force methods that use hazardous chemicals, heat and pressure. Nearly all research has been focused on little tweaks to make these processes marginally cleaner or more energy efficient, rather than exploring game-changing new approaches. Finding and implementing these new approaches will require outside-the-box thinking and longer-term vision. In addition, we need to find ways to spur innovation among small businesses in the water sector, where innovation has the greatest chance of taking root.

Specific Suggestions for the Proposal

Assessment: To date, there have been several efforts to evaluate the state of water infrastructure and research spending in America, including work at the National Academies and several private organizations. None has been thorough enough to create a clear picture and a develop a comprehensive response. As time is of the essence, we believe it is necessary to get the task done quickly, thoroughly, and accurately. We suggest a National Water Census, the collection of water data to create a comprehensive database of information on available quantity, quality, consumption, recharge capacity and threats to ground water and surface water resources. To maintain this information resource, we recommend the development of a new generation of water monitoring techniques and technologies.

Information Technology (IT): One key area where there is a lack of innovation in water is in information technologies. Little has been done to create a common system for measurement, evaluation and reporting. Common standards do not exist. Even with current infrastructure, filtration, and treatment technology, the overlaying of an effective IT management system could result in annual savings of 30-50 percent. It is vital that an effort be made to create and fund a water information technology initiative through partnership with the IT industry to develop and deploy a common platform – a national "smart water grid," if you will – within the water sector. A coordinated effort could result in a system being in place in just a few years that would save money and provide data to support bolder moves to conserve and manage water.

NSF Centers: The lack of water R&D progress indicates a need for Federal research centers for water technology and innovation. There are 15 NSF nanotechnology centers as well as additional ones from other federal agencies including centers at a number of the DOE labs. Yet

only one center exists for water R&D. That center, at the University of Illinois, is set to sunset in three years. To create new national research centers, additional long-term funding will be needed. Other nations establishing such centers commit funding for ten years at a time, with similar investments by the private sector. Switzerland, a country that is water rich and a fraction of our size, is spending approximately $100 million per year to develop new technologies to reduce domestic water usage, particularly in its energy sector. It is likely that a greater level of funding will be needed in the U.S. to solve the larger problems the we face over several major sectors and across disparate geographic regions. The Alliance strongly urges the creation of a minimum of five new NSF water centers, each tasked with a specific focus area (e.g. IT, desalination, purification) to begin to address the multitude of pressing needs in the water technology field.

National Water Pilot Testing Facility: In water R&D, one of the largest hurdles beyond funding has been the gap between benchtop research and real-world conditions. There are few opportunities for researchers to test their new developments under real-world conditions due to regulatory hurdles that deter experimentation and the absence of a pilot testing facility for water. The Alliance strongly encourages the Committee to consider creating a national water pilot testing facility to be housed at a national laboratory or a university. In addition, we encourage the Committee to examine the regulatory barriers that hinder innovation and testing of new beneficial solutions for the water industry.

Thank you, Chairman Gordon, Ranking Member Hall, and members of the Committee for the opportunity to provide this testimony. I would be happy to answer any questions you may have.