ORANGE COUNTY WATER DISTRICT

Orange County's Groundwater Authority

TESTIMONY

OF

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FIRST VICE PRESIDENT
AND
MEMBER
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ORANGE COUNTY WATER DISTRICT
FOUNTAIN VALLEY, CALIFORNIA

PRESENTED BEFORE

SUBCOMMITTEE ON AFRICA, GLOBAL HEALTH, GLOBAL HUMAN RIGHTS, AND INTERNATIONAL ORGANIZATIONS
AND
SUBCOMMITTEE ON EUROPE, EURASIA AND EMERGING THREATS

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Mr. Chairman, members of the Subcommittee, I am Denis Bilodeau and I appear before you as an elected member of the board of directors for the Orange County Water District (OCWD). I am deeply honored to appear before the Subcommittee to discuss one of the most pressing issues of our times. OCWD is located in Southern California and provides groundwater to Orange County including the 19 cities and water agency's we serve. They include the cities of Anaheim, Buena Park, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, La Palma, Newport Beach, Tustin, Orange, Santa Ana, Westminster, Seal Beach and the East Orange County Water District, Golden State Water Company, Irvine Ranch Water District, Mesa Water District, Serrano Water District, and Yorba Linda Water District, which serve more than 2.4 million citizens and businesses.

Since 1933, OCWD has taken pride in advancing the development of sustainable water supplies to address a growing population and changes in precipitation patterns. This commitment is demonstrated vividly by our recently expanded Groundwater Replenishment System (GWRS). The GWRS is the world's largest advanced water purification system for potable reuse. It takes treated wastewater that otherwise would be sent to the Pacific Ocean and purifies it using a three-step advanced process.

OCWD is pleased to be part of today's hearing into the national security implications associated with an uncertain water supply future. We all know the statistics that illustrate how scarce our freshwater supplies are becoming. What is also becoming better known is the real consequences to the world's geopolitical order as potable water supplies become less secure. Simply stated, drought, population increases, pollution and other factors impacting water supplies manifest in conflict, starvation and significant shifts in migration by populations seeking a better human condition. All of this creates political and economic challenges for us as a nation. And from a domestic perspective, if we do not have a reliable supply of water, the impacts on food production, industrial production and recreational activities are dramatic with reverberations to our domestic economy.

Today, I would like to address these issues by discussing how OCWD and its partner the Orange County Sanitation District (OCSD) has developed a meaningful response to the drought conditions that we have experienced for almost a decade and the incredible severity of the drought during the past four years. It has often been stated that California has always met challenges and succeeded, defying the conventional wisdom that our state is too big and the problems are too big to find a long-lasting solution. In the case of water supply, OCWD and OCSD have taken a big problem, challenging meterological conditions, and designed a solution that delivers long-term water security for our region that can be replicated throughout the arid and semi-arid regions of our nation and the world.

In Orange County, we live in a desert. The base flow of the Santa Ana River, our main source of surface water, continues to decline. Imported water supplies from Northern California and Colorado are restricted. We expect droughts to occur three out of every 10 years. Population growth within our region is expected to increase and so will water demands. There was and is a need.

In the late 1980's OCWD recognized that to preserve our region's economic and social vitality the challenges of our groundwater depletion, seawater intrusion and unreliable surface water supplies demanded an innovative solution. OCWD implemented an aggressive program to develop a novel water treatment process with our sister agency, the Orange County Sanitation District. This initiative grew into the Groundwater Replenishment System (GWRS).

Unlike traditional approaches to water treatment, our approach recognized that wastewater is a valuable resource. The ability to design a technological approach that would capture this resource, remove the impurities and recycle it back into the environment would address multiple needs ranging from supplementing water supply to protecting our natural resources.

The GWRS takes treated wastewater from OCSD that otherwise would be discharged into the Pacific Ocean. It implements a sophisticated process to purify this water. The process involves using a three-step advanced treatment process that consists of microfiltration, reverse osmosis, and ultraviolent light with hydrogen peroxide. This treatment and purification process produces high-quality water that exceeds all state and federal drinking water standards. Let me emphasize this point. OCWD is able to exceed public health standards in developing a sustainable water supply.

GWRS has allowed our region to take control of our future. However, this effort has been achieved in a partnership with federal and state agencies that provided vital assistance in making this project a reality. Today, the partnership is responsible for delivering enough drinking water for 850,000 people with a production of 100 million gallons of water per day.

As much as GWRS is providing an important water supply, GWRS is also important for the message it sends to other water scarce regions of the nation and the world. GWRS is a project based upon a local solution grounded in local control, reliability and a high-quality water supply. The opportunity to implement a proven approach like GWRS can return important dividends to political and economic security needs.

Water reuse occurs in various ways throughout the world. It happens daily on rivers and other water bodies everywhere. If you live in a community downstream of another, chances are you are reusing its water and likewise communities downstream of you are most likely reusing your water.

There is no one-size-fits-all solution to water reuse. GWRS establishes a technology foundation to design and build individual approaches to sustainable water supply needs. Water needs of a specific community, water sources, public health regulations, costs, and the types of water infrastructure in place, such as distribution systems, man-made reservoirs or natural groundwater basins, determine if and how your reused water becomes part of the drinking water supply.

As the state of California faces severe drought conditions, increased attention is turned to local projects like the GWRS that provide reliable water supplies.

When we think about global water supply needs and ways in which to reduce tensions that arise from constrained potable water supplies, the ability to share experiences and promote collaboration is important. OCWD shares its knowledge in advanced water purification technology. It helped Singapore to enhance its own national water security. Today, Singapore is considered a shining example of how a nation state can effectively meet its water scarcity challenges.

Singapore learned the lesson of water supply vulnerability in the early days of WWII, when the Japanese cut off the water supply from Malaysia on which the Island of Singapore was dependent, leading to the rapid surrender of British forces.

Even in recent years, the country of Singapore has been principally reliant on water from Malaysia. With political differences between the nations and the expiration of long-term agreements for water transfers between Malaysia and Singapore, the Public Utilities Board of Singapore (PUB) was tasked with finding ways to make Singapore more water self-sufficient.

The Singapore PUB reached out to OCWD to learn about the technology that the District used to purify wastewater back into the groundwater supplies. Water leaders from Singapore visited OCWD to see what we were doing to recycle and purify wastewater and how we were communicating with the public to bolster public support for potable reuse.

Working with the information gained from OCWD's successes, Singapore developed both purified water, which they call NEWater, and seawater desalination to diversify their portfolio of available water sources for the drinking water system and to protect against depletion of their reserves during periods of drought or interruption of imported supplies.

Singapore also recognized the critical role this water supply provides to its industrial economic engine. It built a secondary water distribution system to enable it to serve high-purity water to high-technology customers, such as wafer fabricators and circuit board manufacturers, who need higher purified water for their manufacturing processes. This system of high-purity recycled water distribution helped to make Singapore a desirable place for valuable industrial customers to locate manufacturing facilities. Most of the NEWater produced in Singapore is used by industrial customers.

The contributions that OCWD has made to advancing the technological capabilities of developing safe and sustainable water supplies was recognized at the 2014 Singapore International Water Week. The Lee Kuan Yew Water Prize was presented to the Orange County Water District. This distinguished prize honors outstanding contributions by individuals or organizations toward solving the world's water problems by applying innovative technologies or implementing policies and programs that benefit humanity.

This prize is a tremendous achievement for OCWD and we are proud to serve as a global leader in the water industry. However, at the same time, it is just the start. Greater investments must be made to implement similar projects around the world. We must continue to create opportunities for water experts to engage with one another and exchange information to keep pushing the envelope and develop new and innovative solutions to global water problems.

The Singapore/Orange County Water District's example is that of a technology transfer and collaboration to solve global water supply and quality problems. This kind of collaboration delivers tangible benefits in the form of improved quality of life, robust economic activity, public health improvements, and long-term socio-economic stability. The lessons that OCWD has learned in its decades of developing and implementing responses to water scarcity demands a meaningful partnership among various local, regional, state national and international agencies to ensure the development of sustainable water supplies that, in turn, will reduced, if not eliminate, the potential for conflict related to unreliable water supplies.

Again, OCWD deeply appreciates the subcommittee's decision to explore this important national and international security matter. I would be happy to respond to any questions the subcommittee might have.