

**Testimony by  
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of the House Committee on Natural Resources  
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Los Angeles**

**About the San Diego County Water Authority**

The San Diego County Water Authority is a public agency (special act district) that provides imported water supplies that amount to approximately 80% of all water used in San Diego County to support the region's \$170 billion economy and 3.1 million people. The Water Authority is comprised of 24 member retail water providers – water districts and cities – and is governed by a 36-member board of directors.

The Water Authority owns, operates and maintains one of California's largest regional water distribution systems, with more than 300 miles of large-diameter pipelines, pump stations, reservoirs, and water treatment facilities.

The Water Authority imports water from two principle sources: 1) the Colorado River, via supplies purchased from the Metropolitan Water District of Southern California (MWD) and through long-term water conservation and transfer agreements with the Imperial Irrigation District; and 2) the Sacramento-San Joaquin Bay-Delta, through supplies purchased from MWD and additional short-term, dry-year water transfers from sellers located upstream of the Bay-Delta.

**Colorado River Supply**

**What is the Quantification Settlement Agreement (QSA) and how does its implementation affect California's overall water supply?**

The Colorado River Quantification Settlement Agreement, signed in 2003, along with 34 related agreements (collectively referred to as the QSA), settled more than seven decades of disputes over the use of Colorado River water within California. The QSA parties include the Imperial Irrigation District, Coachella Valley Water District, Metropolitan Water District of Southern California, San Diego County Water Authority, the State of California, the Federal Government, five Bands of Mission Indians, and other parties. The QSA quantifies California's entitlement to Colorado River water, provides mechanisms for transfer of conserved water, establishes obligations for funding and implementation of environmental mitigation and restoration programs, implements federal law providing for the lining of the All American and Coachella Canals, and settles various lawsuits and legal proceedings. The QSA permitted the implementation of the California 4.4 Plan, in compliance with United States Supreme Court order, as well as an array of water conservation and transfer agreements that provide significant water supply certainty and reliability throughout Southern California. The QSA is critical to the State's water supply reliability and helps reduce pressures on the ecologically sensitive Sacramento-San Joaquin Bay-Delta. A reliable water supply

from the Colorado River is vitally important for Southern California water agencies as they manage water supply shortages from drought and regulatory restrictions on pumping of water from the Bay-Delta.

In 2010, the Quantification Settlement Agreement (QSA) and its water transfers and other programs are entering their seventh year of implementation. When the QSA is fully implemented, it will facilitate more than 765,000 acre-feet of transfer water annually to millions of Californians. Nearly half of all Californians receive at least a portion of their water supply from water transfers and other supply programs made possible by the QSA.

Before the QSA was signed in 2003, disputes among the “Seven States”<sup>1</sup> over use of the Colorado River were commonplace. Because of its large share of Colorado River supplies, California was at the center of most of those disputes. By quantifying the entitlement of the Imperial Irrigation District (the largest user of Colorado River water), and the Coachella Valley Water District, and settling disputes among competing California users, the State of California and the United States, the QSA provided the basis for conserved water transfer program and provided all Colorado River users with greater certainty over their rights to, and reliability of Colorado River water.

The QSA implements the Colorado River Interim Surplus Guidelines approved in January 2001, and includes the *Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement*, providing a clear framework for management of California’s deliveries of Colorado River water. It also paved the way for more recent and equally historic multi-state accords involving the Colorado River, including the agreements implementing the Record of Decision for the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operation of Lake Powell and Lake Mead, adopted in December 2007. The 2007 Interim Guidelines, amended and extended the 2001 Interim Surplus Guidelines, and provides a framework for additional conservation, storage, and delivery of Colorado River water. The agreements adopted pursuant to the 2007 Interim Guidelines provide additional water for Nevada, Arizona, and California. Under these agreements, California agencies are entitled to store conserved water year in Lake Mead under the agreement’s Intentionally Created Surplus provisions.

### **What happens (i.e., what would be the water supply) if the QSA is not implemented as negotiated?**

The certainty in water supply reliability that the QSA provides has been called into question by a recent ruling by the Sacramento Superior Court. Soon after the QSA was finalized in 2003, the Imperial Irrigation District filed a *validation action*<sup>2</sup> to obtain a judicial determination of the validity of its actions regarding 13 of the QSA agreements.

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<sup>1</sup> In the U.S., seven western states -- Wyoming, Colorado, Utah, New Mexico, Nevada, Arizona and California -- share water supplies from the Colorado River. Under a U.S.-Mexico treaty, the Republic of Mexico also receives supply from the Colorado River.

<sup>2</sup> A validation action is a special kind of lawsuit under which a government agency can proactively seek a court’s determination – or validation – that its actions or contracts are consistent with California law.

The Coachella Valley Water District, Metropolitan Water District, San Diego County Water Authority, State of California, Vista Irrigation District, and City of Escondido joined the lawsuit in support of IID's validation effort. Individual land owners, the County of Imperial, and the Imperial County Air Pollution Control District opposed validation of the agreements. In addition, several parties filed separate lawsuits challenging various aspects of the QSA. The lawsuits, several of which have been dismissed by the court, were coordinated in a single proceeding in the Sacramento Superior Court. Superior Court Judge Roland Candee was assigned the case as the trial judge.

On December 10, 2009, Judge Candee issued a tentative ruling that found that the agreement creating the Quantification Settlement Agreement Joint Powers Authority (QSA JPA Agreement) violated a provision of the California Constitution governing financial obligations and appropriation of money by the State. On Jan. 14, 2010, Judge Candee issued a Statement of Decision affirming his tentative ruling and granting an initial 30-day stay from the date of the final ruling while the parties contemplate an appeal. Once Judge Candee issues a final judgment in the case, an appeal will be filed. Because Judge Candee found that 12 of the agreements were interdependent, he invalidated 11 other QSA agreements affecting long-term QSA transfers. As to the balance of the QSA agreements not before Judge Candee and already validated as a matter of law, Judge Candee ruled that they remained valid. In all, agreements that govern the conservation and transfer of more than 765,000 acre-feet annually may be affected by the ruling.

**The Colorado River Basin is also experiencing drought conditions. What effects will continued drought conditions in the Colorado Basin have on overall California water supplies?**

California's share of the Colorado River under shortage conditions is governed by the shortage guidelines that the Bureau of Reclamation implemented in December 2007 (*Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead*). These guidelines detail the conditions under which water shortages are declared on the river, and the agencies that are responsible for absorbing the shortages. A shortage condition exists when the Secretary of Interior determines that insufficient water is available to satisfy the normal 7.5 million acre-feet (maf) of demand for the Lower Basin states (Arizona, California, and Nevada)<sup>3</sup> in a given calendar year. During a normal year, the Lower Basin states receive this water in the following proportion:

- Arizona: 2.8 maf
- California: 4.4 maf
- Nevada: 0.30 maf

Under provisions of the shortage guidelines, Reclamation would declare varying levels of shortage that depend upon projected elevations of water in Lake Mead. The supplies

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<sup>3</sup> The Upper Basin states are comprised of Wyoming, Colorado, Utah and New Mexico.

to Arizona and Nevada would be progressively reduced under an increasingly severe shortage, but California would retain its 4.4 maf normal year apportionment. The following table shows how shortages would be implemented depending upon projected Lake Mead elevations. As of Jan. 11, 2010, the Lake Mead's elevation was 1,097 feet.

Deliveries to Lower Basin States Under Shortage Guidelines:

State	Mead Elevation: 1,075' – 1,050'	Mead Elevation: 1,050' – 1,025'	Mead Elevation: Below 1,025'
Arizona	2.48 maf	2.4 maf	2.32 maf
Nevada	0.287 maf	0.283 maf	0.28 maf
California	4.4 maf	4.4 maf	4.4 maf
<b>Total Lower Basin</b>	<b>7.17 maf</b>	<b>7.08 maf</b>	<b>7.0 maf</b>

### **Groundwater Supply**

**What role does groundwater play in overall water supply management and allocation? What is the status of groundwater supplies in Southern California? How can groundwater basins be recharged efficiently to maintain levels and minimize the impact of saltwater intrusion?**

San Diego County has very limited groundwater resources, but we are working to make the most of what we do have. While San Diego County does not have the large basins that exist in parts of Orange, Los Angeles, Riverside and San Bernardino counties, it does have groundwater capabilities in the sandy alluvial basins along some of the local rivers and streams.

Most of the groundwater in the Water Authority's service area is brackish and many of the plans to use that water involve removing the salt through the use of desalination technology. Because of the advances in reverse osmosis membrane treatment and energy recovery technology, brackish groundwater recovery has become cost effective. Brackish groundwater and pumped groundwater currently meet 3% of our region's need for water. The Water Authority's member retail water agencies have plans to double that number to 6% by 2020 through brackish groundwater recovery and conjunctive use projects that would recharge a basin with local or imported water. Two of our member agencies -- the Fallbrook Public Utilities District and Marine Corps Base Camp Pendleton -- are working together on a conjunctive use project that will recharge a basin using local surface water runoff that will serve both Fallbrook and Camp Pendleton.

Other local agencies are exploring the idea of recharging a groundwater basin with highly treated recycled water using the same technology used to desalt brackish groundwater and ocean water.

While groundwater does not provide a very significant amount of supply to the region overall, for some retail water agencies it can be substantial and a key element of their overall water supply reliability. Two of our local retail agencies -- the City of Oceanside

and the Sweetwater Authority -- operate brackish groundwater desalters that when fully expanded will make up 18% and 27% of their water supply by 2020.

Other agencies are exploring brackish groundwater recovery, but one of the limitations on the size of these projects is balancing the extraction of water from the basin with impacts to vegetation and habitat that rely on the groundwater. Cost effective recharge opportunities to maintain water groundwater level are limited because of our geology and most of these projects operate on a safe yield basis.

Although we don't have the local geology to develop large scale recharge projects in San Diego County, we still believe that groundwater is an important part of the region's water supply portfolio.

As an alternative to local groundwater storage, having water in storage south of the Delta is a key strategy to lessen the impacts of reduced Delta exports and a strategy that the Water Authority has embraced. Our agency has entered into two 35-year agreements for groundwater banking south of the Delta in Kern and San Bernardino Counties. Those agreements will provide our region with 70,000 AF of storage capacity with guaranteed annual put and take capacity. This provides San Diego County with additional drought protection in times like these, as well as allowing us to have a place to store water in wetter years when imported supplies may be available.

### **Water Supply Forecasting**

**What do you see a the cumulative effect of the decrease in snowpack in the Sierra Nevada and the Rocky Mountains and what can be done in the short term and long term to mediate the effects? What tools are you using to forecast water supply demands?**

Scientists have established that the early signs of climate change are already being felt in California. We have seen increased average temperatures, changes in temperature extremes, reduction in snowpack in the Sierras and snowmelt occurring earlier.

### **Sierra Nevada**

The California Climate Adaptation Strategy issued in late 2009 includes projections for 2050 of: a 2 – 5 degree F rise in temperature, a 12 – 35% reduction in precipitation, and a 12-18 inch sea level rise. This strategy further concludes that more precipitation will fall as rain. With increased rainfall and earlier runoff from snowmelt, the state will face increasing challenges of water storage for the dry season and protection from floodwaters during the wet season. Sea level rise may increase salt water intrusion into the Delta.

### **Colorado River**

IPCC Working Group II concludes that there will be a 10% - 30% runoff reduction over some dry regions at mid-latitudes during the next 50 years. Studies of the impacts of climate change on Colorado River streamflows have been going on for several decades, including statistical studies by U. S. Scientists from the 1980s and early

1990s, plus climate model studies from the last few years. These studies reflect a range of projections from a 5% reduction to a 45% reduction. Studies are currently under way to narrow the range of uncertainty of the reduction in flow on the Colorado River resulting from climate change.

Water supply planning is facing new uncertainties that challenge the use of conventional planning methods. Supply planning has traditionally used historical data based on a set of predictable patterns, such as recorded weather and hydrologic time series, to determine and shape future projections. This has served water utilities well in the past; however planning methods will need to change with the introduction of new uncertainties such as climate change and the greater weather variability that comes with it. To better guide the incorporation of uncertainty information into its water supply planning, the Water Authority will utilize a decision assessment framework as part of its 2010 Urban Water Management Plan update.

As a start to this process, the Water Authority is currently performing a water demand and supply mix vulnerability assessment. Once the vulnerabilities have been identified, the Water Authority will utilize a decision support planning method – “scenario planning” – which develops a small but wide-ranging set of future scenarios to test and make planning decisions more robust. Common strategies, or “No & Low Regrets” strategies, will be identified that can address a wide range of uncertainties. These No & Low Regrets solutions are adaptive and flexible, and can ramp up or ramp down, depending on how the future scenarios progress.

The Water Authority plans to revisit the scenario planning process every five years, as required under California law, to update its Urban Water Management Plan. The UWMP update will be the long-range planning assessment of the water supply mix reliability. As part of the shorter-term planning process, the Water Authority will evaluate the water supply mix reliability on an annual basis in its Annual Water Supply Report. Through this annual assessment process, the No & Low Regrets strategies can be revisited and their implementation adjusted, if needed, should changes to the scenario outcomes occur.

The end result is a more robust water supply mix with the highest level of reliability to respond to future uncertainties.

#### Near-Term and Long-Term Planning

The San Diego County Water Authority and nine other large urban water agencies formed the Water Utility Climate Alliance (WUCA) dedicated to providing leadership and collaboration on climate change issues affecting drinking water utilities by improving research, developing adaptation strategies and creating mitigation approaches to reduce greenhouse gas emissions. A key priority of WUCA has been federally-supported climate research, this stems from our need to better understand the potential impacts of climate change on the water systems we manage. Recently WUCA released a white paper on the state of the science on climate modeling and downscaling and how these tools can be improved to meet our needs. We hope that this white paper will be a

catalyst for a continued dialogue between water utilities, the climate modelers, the research community and federal agencies.

A key finding of the paper is that for the next few years, significant uncertainties will remain at the scale and in the timeframe that utilities make decisions. In the meantime, water utilities will have substantial decisions to make with the potential for significant impacts. Although water utility planning is usually based on static climate projections and historical data, new approaches are needed to incorporate the wide range of climate projections into water utility planning.

As a result of this need WUCA will release a second white paper at the end of the month to provide guidance to water utilities, which may be conducting vulnerability assessments and want to move forward with adaptation strategies. The report documents five decision support planning methods that utilities can use to assist in characterizing and comprehending multiple uncertainties while minimizing the risks associated with these decisions.

Although the Water Authority and the members of the Water Utility Climate Alliance have made significant efforts to comprehend the impacts of climate change on water utilities, we encourage the federal government to:

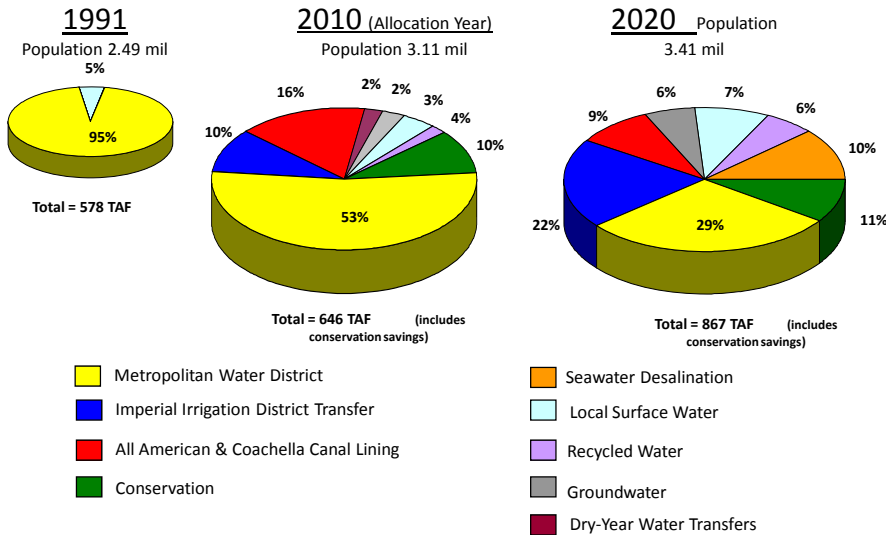
- Focus on improving climate modeling, including regional downscaling, to better meet the needs of water utility managers
- Provide support for climate adaptation projects, including infrastructure enhancements for large urban water utilities, that may be needed to reduce the regional impacts of climate change.

### **Conservation, Water Reuse, and Water Reclamation**

**What is the role of conservation, water recycling, and water efficiency in meeting future demands? What lessons can we learn from the city of Los Angeles cutting their water use by 17% in five months?**

After the drought of the late 1980s and early 1990s, San Diego County learned the vitally important lesson of the consequences of overreliance on a single source of imported water. We emerged from that experience with a strategy to achieve greater reliability through development of a diversified water supply portfolio. Since 1991, the Water Authority and its 24 member agencies have been singularly focused on achieving diversification of both our imported and local water supplies. The following pie charts compare San Diego County's water supply portfolio in 1991, fiscal year 2010 and the projected supply mix in 2020.

## Diversifying San Diego County's Water Supply



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Conservation, water recycling and reuse and the development of ocean water desalination are critical elements to our diversification strategy and successfully achieving supply reliability.

We have dedicated significant funds in the last 18 years to implement conservation and are an original signatory to the Memorandum of Understanding for Urban Water Conservation. Conservation programs and water efficiencies implemented since 1991 have reduced our service area's demand for water by 8% —enough water to meet the total annual water needs of 100,000 households of four. When coupled with the water use restrictions and aggressive outreach put in place to address the current supply situation, San Diego County used the same amount of water in 2009 that we last used in 1996 although we have added 400,000 people to our region.

Our goals for conservation in the future remain ambitious and we believe we are well on our way to accomplishing the states goal of a 20% reduction by 2020. We have had extensive dialogue with stakeholders through three regional Conservation Summits and the public and business community involvement that resulted. We are pioneering the use of water budgets to manage water use in the landscape and in creating a supply chain of water efficient landscape and a trained profession that knowledgeable in low water use plants and irrigation practices. San Diego County is home to a unique Water Conservation garden that provides the public an opportunity to see real world low water use landscape and how to do it. Managing demand through water use efficiency is an important part of our diversified portfolio, but we believe that supply reliability cannot be achieved by conservation alone. We cannot conserve water we don't have.



Water Recycling and Seawater Desalination are key elements in our diversified supply portfolio. Recycled water is expected to meet at least 6% of San Diego County's need for water by 2020. There are 17 active water recycling projects in the county for a variety of landscaping and industrial purposes. The Water Authority along with the Metropolitan Water District has provided financial incentives to almost all these recycling projects in order to make the projects more cost effective and price competitive with buying imported water. Because San Diego County does not have large industrial users of water or large groundwater basins to recharge reuse of recycled water is primarily limited to seasonal irrigation. This idles recycling plants during the wetter winter months. To better utilize these resources local agencies are exploring indirect potable reuse of highly treated recycled water through blending with surface water in reservoirs. If successful, reservoir augmentation could significantly increase the amount of recycling in San Diego County.

Seawater desalination is considered by our Board to have one of the greatest potentials as a new supply for San Diego County. Because of our proximity to the ocean, the geological limitations I have discussed in my earlier testimony today, the Pacific Ocean represents a significant drought proof resource for our region that uses proven technology and can be developed cost effectively and in an environmentally responsible manner. Current plans to construct a 50 million gallon per day seawater desalination plant in Carlsbad through a public-private partnership involving 9 of our local retail agencies will supply enough water to serve over 100,000 households in San Diego County. The Water Authority itself is engaged in studies to develop additional seawater desalination projects and is planning for that resource to make up 10% of our supply portfolio by 2030. We are working with Marine Corps Base Camp Pendleton on the siting of a plant on the Base that would provide the opportunity for future expansion up to 150 million gallons per day and provide water to businesses and residents throughout the County. We are also exploring opportunities for desalination with Mexico as part of the effort to augment Colorado River supplies.

As with any of the supplies in our diversified portfolio we do not believe there is a single solution and it is no different with seawater desalination. It is an important part of our future supply but it is by no means the only part or the most important part but it is a supply we believe should be developed and we are pursuing it along with conservation and water recycling.

### **Northern California Water Supply**

**How are the water agencies in Southern California handling the reduced water imports from Northern California? What actions are they taking to make up for the reduced supply to meet their user demands? What management actions are being taken to maintain service to citizens?**

As a result of continuing dry conditions and regulatory restrictions that are limiting pumping to southern California, water agencies across the region have responded by implementing drought management actions that range from drawing on dry-year storage reserves to supplementing reduced supplies with water transfers from willing sellers in

northern California to implementing voluntary and mandatory allocation and water use restrictions to reduce municipal and agricultural water demand.

As an example of this response, the San Diego County Water Authority activated its Drought Management Plan in 2007 when the current dry conditions and pumping restrictions began to threaten water supplies. The Water Authority's Drought Management Plan, or DMP, includes a series of progressive measures to manage through shortage conditions, depending on severity. As conditions worsened in 2008 and 2009, the Water Authority moved from a call for voluntary reductions in water use to our current allocation of water supplies, coupled with mandatory water use restrictions at the consumer level, now in place across most of our service area. The Water Authority also moved to supplement our supply with the purchase of dry-year transfer water from willing sellers in northern California. These supply and demand management actions sparked a tremendous consumer response to the region's water supply shortage. Since July, consumer demand is well below allocation targets and as much as 13 percent below 2008 levels and 17 percent below 2007 levels.

### **Role of Congress**

**How can Congress assist in addressing demands for increased water supplies that may help some users balance the needs of the at risk species, the economy, and ecosystems in general?**

The federal government is a critical partner in improving California's water supply reliability and can play vital roles in a number of water supply issues, including resolving problems plaguing the Sacramento-San Joaquin Bay Delta, in its role as water master on the Colorado River, and through support of local water supply development, including promising new technologies.

### **Bay-Delta**

- Support the completion of the Bay-Delta Conservation Plan and consider actions that help implement the plan.
- Ensure that federal regulatory actions and congressional oversight recognizes the truly co-equal goals of the environment and the economy.

### **Regional Self-Sufficiency**

- Reduce dependency upon imported water supplies and improved regional self-sufficiency through development of new local water supplies, including reclamation, seawater and groundwater desalination, conservation and local storage.
- Increase funding for Title XVI Water Reclamation Programs and Conservation Programs.

## Climate Change

- Focus federal efforts on improving climate modeling, including regional downscaling, to better meet the needs of water utility managers.
- Provide financial support for climate adaptation projects, including infrastructure enhancements for large urban water utilities, which may be needed to reduce the regional impacts of climate change.