

Testimony
of
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Presented to the
U.S. House of Representatives
Committee on Resources
Subcommittee on Water and Power

June 18, 2001

Cerritos, California

Good morning, Mr. Chairman.

My name is Ronald B. Linsky and I am the Executive Director of the National Water Research Institute (NWRI), located in Fountain Valley, California. I have attached a brief resume of my nearly 30 year professional career which includes research directorships at the University of Southern California and the University of Hawaii, and service as the Chief Technical Advisor to the United National Development Programme stationed on the Caribbean island nation of Trinidad Tobago.

The title of this Field Hearing, *Southern California Water Supply - Opportunities and Challenges*, aptly defines the future in what is, in fact, a desert environment: challenges and opportunities. The challenge to all Southern California water utilities is to ensure a supply that will sustain development, economic growth, and the environment. The opportunities are to make use of existing technologies, anticipate through research new or emerging technologies and to apply technologies to the needs of the urban watershed, which is in fact nearly all of Southern California.

When viewing a satellite image of Southern California, you are immediately impressed with the extraordinary expanse of reflected light from the concrete surfaces arising from the mountains to the sea. In this vast urban watershed, the seemingly endless houses, concrete curbs and gutters, storm drains, streets, and freeways have become the metaphors for the rivers, streams, valleys, and hills of yesterday.

In my opinion, the most important issue facing Southern California is the need to provide a sustainable, high-quality supply of water to the expanding population for all purposes. The California State Department of Finance has projected that the population of California will increase at a conservative annual rate of over 600,000 persons a year for the next 20 years. From a water supply perspective (and if we take a conservative approach) this means that over 60 million gallons a day of new water must be created to satisfy all the needs associated with maintaining the population, (e.g., manufacturing, food production and processing, environmental, life support, and recreational). Southern California can expect to receive about 65 percent of that population increase and, therefore, will need to find water to meet the demand for approximately 36 million gallons of new water per day.

Water resource managers literally know where all the waters are in California. With considerable precision, they know the amount of snow pack available and, therefore, its potential contribution to the overall water supply equation. They also know with reasonable accuracy the amount of water banked in groundwater aquifers throughout the state, as well as what level of dependability they can expect from imported supplies. Yet, with all this knowledge, doubts continue to grow that current supplies are inadequate and future supplies will be more limited and unreliable. The major question is, therefore, not whether the managers can satisfy the increasing demands forecasted for the next two decades, but where will new supplies come from and will they sustain the current and projected populations and, at the same time, provide for growth and economic development.

Within the Southern California coastal counties, more than a billion gallons of water are released to ocean environment on a daily basis. Only 2 percent of that volume was used to support the drinking water habits of the population. The remaining 98 percent was used to support everything else associated with the maintenance of the population. However, all that water was treated to drinking water quality standards, which required considerable investments of capital resources.

Using water more than once is a critical strategy to assist overcome the water needs of southern California as well as the rest of the nation, especially the arid southwest and Florida. It is a strategy that should be given a higher priority and taken seriously by the federal government because, in reality, there is no new water on our horizon. I have stated many times that the only new water will have to come from existing water supplies.

A prime example of addressing this major issue is the Groundwater Replenishment (GWR) System. The project will take highly treated wastewater from the Orange County Sanitation District, where currently it is discharged into the ocean, and purify it through an advanced water treatment system that includes microfiltration, reverse osmosis, and ultraviolet disinfection. A portion of the product water will be injected along the coast to create a hydraulic barrier to prevent seawater intrusion into a large groundwater basin that provides water for over 2 million residents of Orange County, California. The remaining purified water will be pumped to percolation ponds and naturally introduced into the groundwater basin. The purified water is nearly distilled in quality and will eventually blend into existing groundwater supplies to be extracted over time for everyday domestic and commercial/industrial use.

The GWR project has many values and benefits. One of the most important to Southern California, especially at this particular time, deals with the energy savings potential of the project relative to imported water supplies.

In terms of energy savings, it takes approximately 2,000-kilowatt hours of electricity to move one acre foot (326,000 gallons) of water from the Colorado River to Orange County. It takes even more energy - 3,260-

kilowatt hours of electricity - to bring one acre-foot of water from Northern California. It will take only 1,700-kilowatt hours of electricity to produce an acre-foot of water from the GRW project. Every gallon of water produced from the GWR system will be one less gallons of water that must be transported from the Bay Delta or Colorado River. This alone is an extraordinary benefit, which has extraordinary value to the region.

The first phase of the project will produce 78,000 acre feet of new water and the energy savings from that will be approximately 140 million kilowatt hours each year, which is the enough energy to serve over 21,000 homes a year. At the completion of the project in 2005, the energy savings could increase to over 215 million kilowatt hours each year. The project has enormous value to California and adjacent states that provide power and water to this region.

By taking advantage of current technologies, this project will provide a reliable supply of high-quality water for over 2 million people to enhance their water security, avoid excessive energy requirements, and ensure that future environmental needs can be met.

The federal government needs to encourage projects like the GWR system. The development of not only a research and development program, but a partnership program that would provide incentives to incorporate water reclamation, reuse, desalting and desalination as a component of integrated resource management strategies must be a long-term priority goal of the House Committee on Resources and its Subcommittee on Water and Power.

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