

SANDIEGO NEWSROOM

LET'S USE THE WATER WE HAVE BY DAVID KING

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On a camping and rafting expedition gone haywire, Homer Simpson, Flanders and Bart were stranded at sea with only one canteen of water. Unfortunately, Homer used the water to wash his socks. San Diego's use of water is similarly inefficient.

Per capita, the U.S. uses more water than any other nation on earth, but our costs of water are among the lowest. However much we complain about our water bills, the cost of water does not incentivize us to act in an economically rational manner or find alternatives to the current use of potable water.

In this arid climate--our manufactured oasis--only 3 to 5 percent of the total water used is recycled water. This is despite the fact that we use 60 percent of all our water on outdoor uses, and 80 percent of all our water on non-potable uses. In California, 20 percent of the energy we burn is used to transport water, so that we can sprinkle potable water on our lawns.

In our region, the recycled water we do use is dedicated to landscape irrigation. Approximately 98 percent of our recycled water is used for landscape irrigation, but no recycled water is used for agriculture because we lack the pipes to take the water uphill.

San Diego North City Reclamation Plant treats water to the point where it can be recycled, but then dumps the water back into the sewage system so the water is discharged into the Pacific. North City recycles more than enough water to irrigate Balboa Park, but we don't use it because Caltrans won't provide a corridor for purple pipe along Highway 163. Our missing infrastructure is the wiring needed between our ears.

We continue to blame Mother Nature and the Delta Smelt, but when it comes to matters within our own control our decision-making is poor.

The latest Clean Water Act waiver for the Point Loma Wastewater Treatment Plant was approved with a firm understanding that the costs the city of San Diego saves by not upgrading to secondary sewage treatment will be used to reduce the discharge --and recycle the water. If

Indirect Potable Reuse is achieved by City of San Diego, an average of 16 million gallons per day could be removed from the Point Loma waste discharge and used to augment the San Vicente Reservoir. This would satisfy approximately 20 percent of the water demand at the City of San Diego Alvarado facility. Other reuse projects in Lake Hodges and Otay Lakes could provide an average of 6.5 million gallons per day for source augmentation.

In 2009, 29 local wastewater agencies treated approximately 105,000 acre-feet of wastewater to provide approximately 55,000 acre-feet of recycled water. The monetary savings are substantial when using recycled water. The cost for recycled water is \$0.80 per hundred cubic feet of water-- compared to the current potable water rate charged to irrigation customers, which is about \$3.66 per hundred cubic feet. The cost of desalinated water is even higher due to the energy demands. The ultimate reduction in wastewater discharge could be greater if groundwater basins are augmented with recycled water.

Storm water is considered the most crucial issue impacting water quality, but we should consider storm water as a resource rather than a source of pollution. As to water quality -- our children should be able surf during a storm. This goal should go hand-in-hand with our use of rainwater to cut our demand for potable water.

Though rainwater harvesting has existed for millennia, it is painfully obvious and woefully underused. By simply collecting rainwater from rooftops and hardscapes and routing it through downspouts to cisterns and vaults, we can store, treat and use rainwater. Rainwater harvesting system components are simple: gutters, roof washers, cisterns or storage vaults, piping, labeling, inspections and maintenance. So long as we avoid cross-contamination with potable water and contact with bacteria, we can use rainwater.

We must establish specific codes and regulations for rainwater harvesting. Building and plumbing codes are largely silent on rainwater harvesting. Consequently, requirements for gray water—wastewater generated from domestic activities such as dish washing, laundry and bathing— are often used to govern rainwater harvesting systems, resulting in requirements that are more stringent than necessary.

Laws should define rainwater harvesting and establish it as an acceptable storm water management and water conservation practice. Codes should identify acceptable end uses for rainwater and set treatment standards. Rainwater is most commonly used for non-potable

applications, and it is segregated for indoor (toilets and HVAC) and outdoor uses (irrigation and vehicle washing).

Non-potable uses typically require minimal treatment. Outdoor uses normally need only prescreening to limit fouling of the collection system. Indoor non-potable uses do not necessarily require treatment beyond screening, although some municipalities have adopted a conservative approach and require filtration and disinfection prior to reuse.

An example of this process, with an emphasis on reducing storm water runoff, is the Saddleback Meadows development in Orange County. This project includes four water storage systems in addition to storm water retention vaults for overflow in large storm events. Homes will be equipped with a rooftop runoff collector and infiltration devices to reduce runoff and allow homeowner capture and use of water that typically goes to the street.

We should integrate wastewater recycling and rainwater harvesting in the future. Strategic implementation of both recycled water and storm water harvesting and use would prevent duplication of efforts where we may be able to afford only one approach. For example, getting pipes designated for transmitting recycled water to Balboa Park may be cost prohibitive, but collection of runoff in vaults could be achieved especially as the park is updated and improved.

New developments should be pre-designed to do both. Common areas could be used to locate underground vaults for storm water capture and harvest and purple pipe could be installed for recycled water.

Commercial establishments like big box store complexes should be an early target for retrofitting for both recycled water reuse and storm water harvesting and use. The roofs and parking lots are both prime sources and the landscaping around these businesses could benefit from reducing use of imported water, improving storm runoff hydrology and thus water quality.

We have to integrate our efforts, simultaneously advancing water quality and water supply, and protect the long-term viability of the San Diego region.