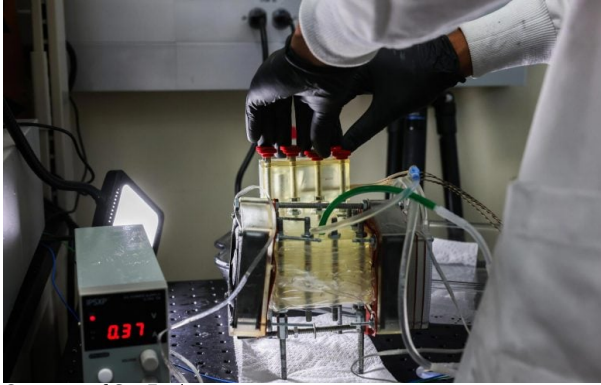


# Innovative Technology Creates Lifesaving Water from Dry Desert Air

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Courtesy of SynEvol  
Credit: Jeff Scheid/ UNLV

It has long felt like a miracle, more science fiction than reality, to turn the air around us into drinking water, particularly when it comes to extracting a sustainable amount from arid, low-humidity settings.

But in the midst of a deepening megadrought that is affecting water supplies throughout the Southwest, scientists at UNLV have created a ground-breaking technique that can extract a sizable amount of water from even dry air.

H. Jeremy Cho, a mechanical engineering professor at UNLV, is spearheading this ground-breaking study. He and his colleagues have developed a radically novel method of atmospheric water harvesting, which involves turning atmospheric water vapor into a form that can be used. This new technique is made to work well even in very dry situations, in contrast to current technologies that struggle below 30% humidity and offer low results.

"This paper clearly shows that water can be captured very quickly," Cho remarked. We may begin estimating the size of the system required to generate a specific volume of water. In Las Vegas, we can produce roughly one gallon of water each day with one square meter, or roughly three feet by three feet. In humid conditions, that amount can increase by up to three times.

Tested outside in Las Vegas, this technology and method works well in environments with humidity levels as low as 10%. It enables new capabilities for dry locations by immediately capturing water in a liquid salt solution that may be processed further to produce energy or drinking water.

A hydrogel membrane "skin" is an essential component of the procedure. Tree frogs and air plants, which employ a similar process to move water from ambient air into a liquid for internal storage, served as the model for this item.

He stated, "We tried to do it in our own way by taking that biological idea." "You just need to look around, learn, and be inspired by the many amazing things that are occurring in nature."

The study also shows that atmospheric water collection may be driven by solar energy. In regions like the Las Vegas Valley, which receives 300 sunny days on average annually, sunshine is abundant enough to supply enough energy to lower the potential and final cost of producing water.

Cho stated, "Our planet's climate is changing and our water resources are running out." We must alter our behaviors if we want to achieve sustainability. Although the entire concept seems like science fiction, we are actually doing this and it is feasible.

One company that is already putting the study to use is WAVR Technologies, Inc. Cho was a co-founder of this UNLV firm that creates gadgets for both personal and business applications that can extract water vapor from the surrounding air.

The National Science Foundation's (NSF) Regional Innovation Engines initiative has produced WAVR, a leading university company spinoff dedicated to commercializing ideas that tackle local sustainability and climate issues.

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