

# Let's Talk About Water in the Desert!

Interviewed by Gilbert Lujan Rivera Jr.

Selso Villegas dreams of the day the Tohono O'odham people will have access to 500 years-worth of water.

As the director of the Tohono O'odham Nation Water Resources Department, Villegas, a member of the Tohono O'odham Nation, is dedicated to helping secure this clean source of water for O'odham communities.

One of his most important duties involves the implementation of the Nation's water code. This code follows steps outlined in the Southern Arizona Water Rights Settlement Act in order for the Tohono O'odham Nation to receive water from the Central Arizona Project (CAP).

Villegas is also responsible for writing laws, policies, and management plans that will protect the water supply of the Nation well into the future.

"[My department's] long-term goal is to group nearby water systems together," Villegas says. In order to group the systems, they must find a way to ensure that the common source of water is free of arsenic.

Because it is a naturally-occurring element, arsenic is found in geological features all around us. Arsenic cannot be destroyed and is categorized as a human **carcinogen**. Due to modern technological and industrial advances, arsenic levels in the environment are rising, posing potentially more health risks to humans.

**Carcinogen:**  
something that  
can cause cancer in  
living tissues, usually  
humans



*W is for water! Selso Villegas, Director of the Tohono O'odham Nation Water Resources Department // Photo courtesy: Selso Villegas*

## THE O'ODHAM

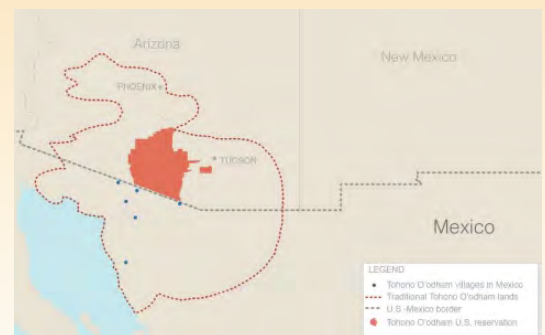
The sprawling land base in the Southwest known as the Tohono O'odham Nation is split by the U.S.-Mexico border.

A majority of the Nation is located in southern Arizona where O'odham homelands are artificially divided into five communities:

- The Tohono O'odham Nation
- The Gila River Indian Community
- The Ak-Chin Indian Community
- The Salt River (Pima Maricopa) Indian Community
- The Hia-C'ed O'odham

There are approximately nine O'odham communities located in Mexico.

Citizens of these communities speak the O'odham language and each community has their own distinct dialect.



*A map showing the O'odham communities in the U.S. and Mexico. // Sources: "Handbook of North American Indians, Vol. 10: Southwest"; O'odham Solidarity Across Borders Collective; Resource Center at the National Museum of the American Indian, New York.*

şu:dağı

This is the word for WATER in the Tohono O’odham language.

Human exposure to arsenic is so hazardous that in 2001, the U.S. Environmental Protection Agency (EPA) set a standard on the amount allowed in drinking water. This standard, set at 10 parts per billion (ppb), put 19 of the 35 public water systems on the Tohono O’odham Nation out of compliance, according to Villegas.

PPB: a representation of units in water or soil -the amount of mass within wach 1000 million units (ONE ppb is like one drop of ink in a 14,000 gallon pool!)

The arsenic levels found in these systems ranged from 11 to 33 ppb and potential risks associated with the increased levels concerned Villegas.

Villegas’s first step in combatting the elevated levels in the water was collaborating with the EPA, Indian Health Service, and the Tohono O’odham Utility Authority to install seven arsenic treatment plants in the Nation’s water systems. The treatment plants help to keep arsenic levels in the water below the EPA standard.

“Currently, all the public water systems on the Tohono O’odham Nation are in compliance,” Villegas says proudly.

The Tohono O’odham Nation Water Resources Department’s long-term goal of connecting neighboring water systems will cost an estimated \$11 million. The need for arsenic treatment plants will be eliminated as levels in the water system will remain less than 10 ppb, making the water system plan more cost-effective in the long run.

Always at the forefront of Villegas’ work is the health of his people, which he says will be negatively impacted as cancer risks will increase if arsenic is not controlled in the Nation’s water supply. To him, this risk comes at a higher cost to the Tohono O’odham Nation than the \$11 million.

“Water is very important. Like all Indigenous people, the O’odham celebrate water as a gift from the Creator,” Villegas says, of what makes his work so meaningful. “My greatest contribution to my community will be the infrastructure to deal with water issues in the near and distant future.”

Infrastructure: systems that help to service a community

Why should we care about arsenic in our drinking water?

Research studies have linked arsenic in drinking water to:

- bladder, lung, skin, kidney, and liver cancers
- birth defects and reproductive problems

For more information about the health effects of arsenic, visit: <http://www.nrdc.org/water/drinking/qarsenic.asp>.

How can we further protect ourselves from arsenic?

Filters can be purchased and attached to the faucets in your homes. They remove many harsh chemicals that you could be ingesting.



An arsenic treatment system on the Tohono O’odham Nation // Photo courtesy: Seldo Villegas

WHAT IS ARSENIC?

Arsenic is a metalloid, meaning that it has non-metal and metal chemical properties.

There are two types of arsenic: organic and inorganic.

Organic arsenic is usually found in marine organisms and is considered to be less toxic. Organic arsenic is not directly linked to cancer.

Inorganic arsenic is found in industrial operations and is considered to be highly toxic. Inorganic arsenic is classified as a carcinogen by the U.S. EPA.

Toxic: poisonous to living systems

Did you know...

Mining and burning of fossil fuels are major contributors of arsenic contamination in water, air, and soil.

Think for a minute

Are there mines near your community? How might that affect your environment and health?