



# WATER: INNOVATION IN DECENTRALIZED AND EXTREME DECENTRALIZED TECHNOLOGIES

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# WHY WORRY?

1

Overallocated and  
Under Valued

2

Poorly Governed

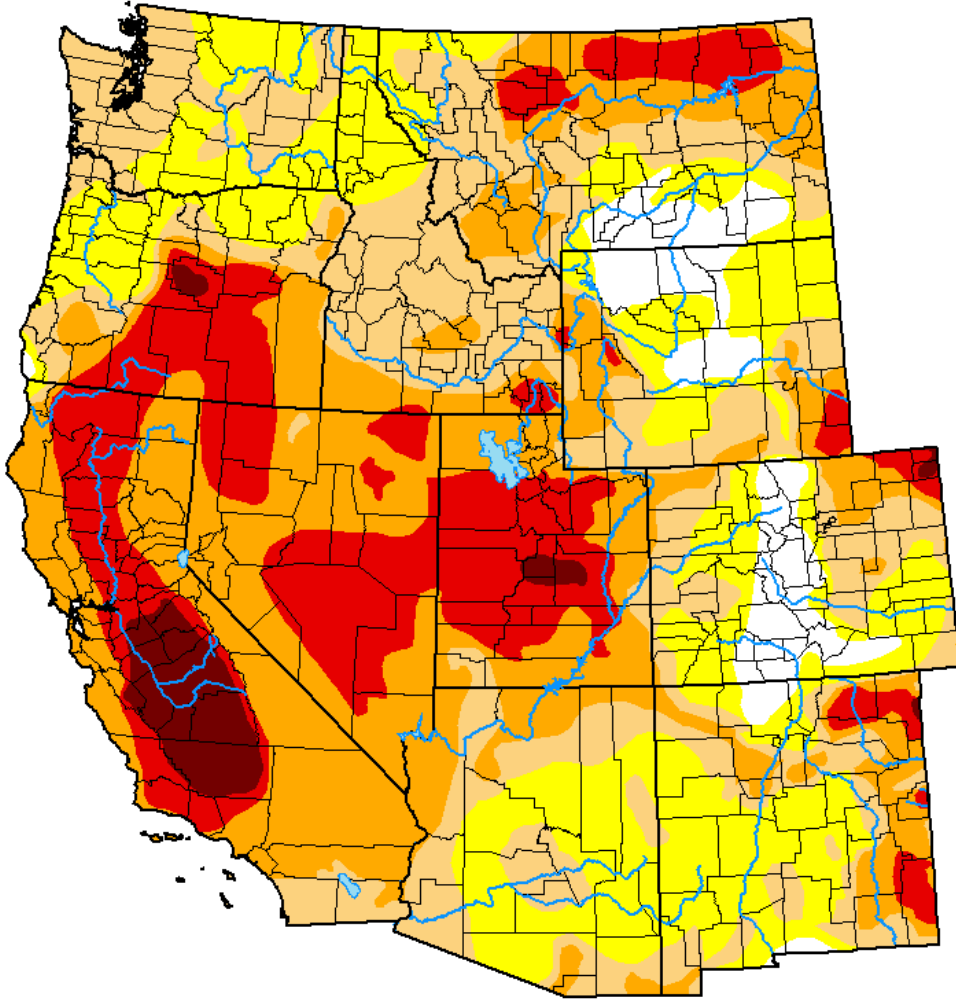
3

Non-Circular  
& Nexus  
Stress

4

Climate  
Change

# The American West: Aridification



The American west is likely too far gone to return to the way it was.

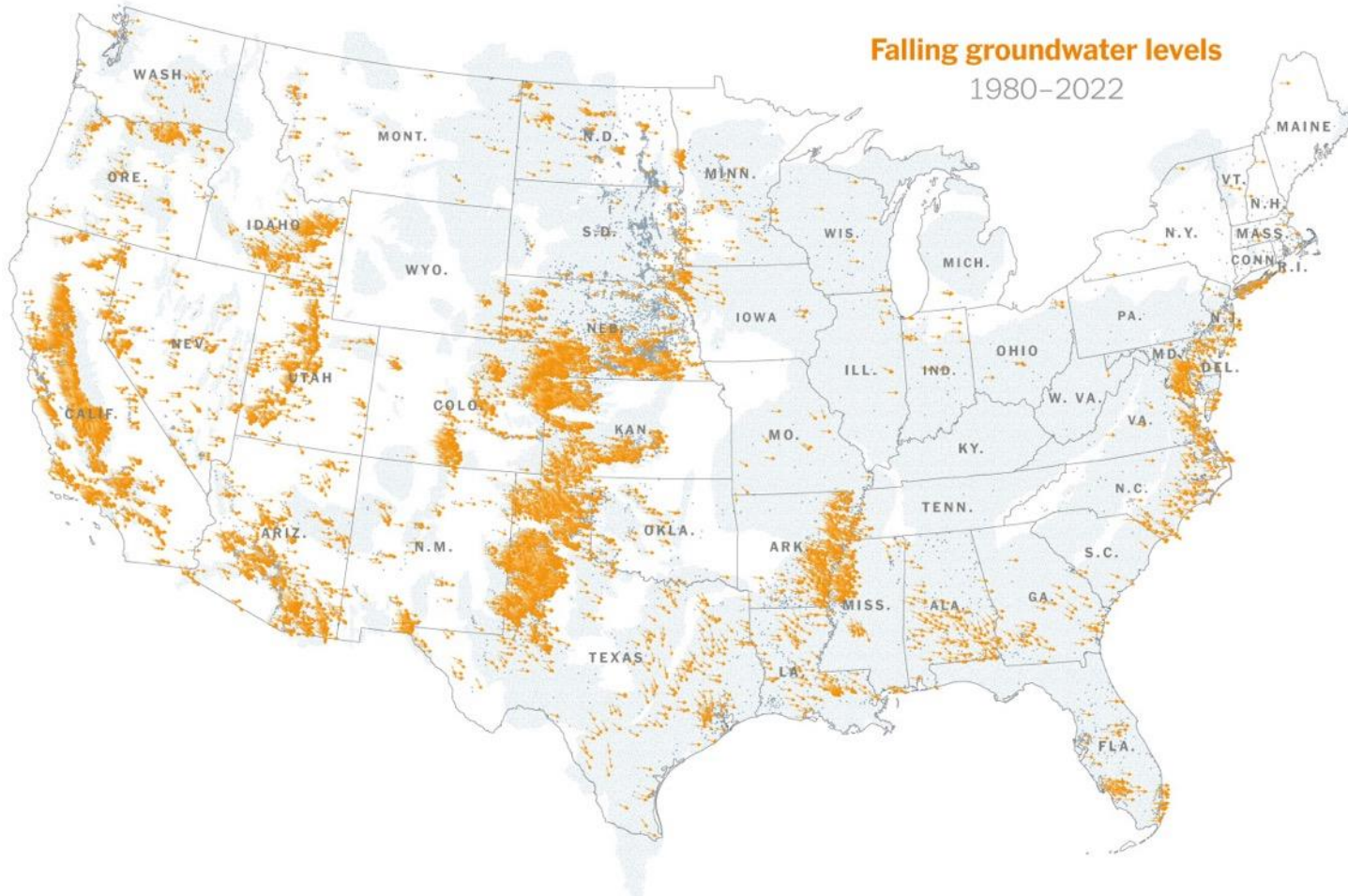
The term "aridification" has far different implications than "drought."

*February 15, 2022*

Federal government proposes landmark water cuts to conserve Colorado River water.

*April 11, 2023*

# Groundwater Depletion



“America is using up its groundwater like there’s no tomorrow.”

Overuse is draining and damaging aquifers nationwide.”

“Nearly half the sites have declined significantly over the past 40 years as more water has been pumped out than nature can replenish.”

*NYT, August 28 , 2023*

# Surface Water Decline

Satellites reveal widespread decline in global lake water storage.

“Three decades of satellite observations, climate data, and hydrologic models, finding statistically significant storage declines for 53% of these water bodies over the period 1992–2020.”

*Science, May 18, 2023*



# What Do Consumers Care About?

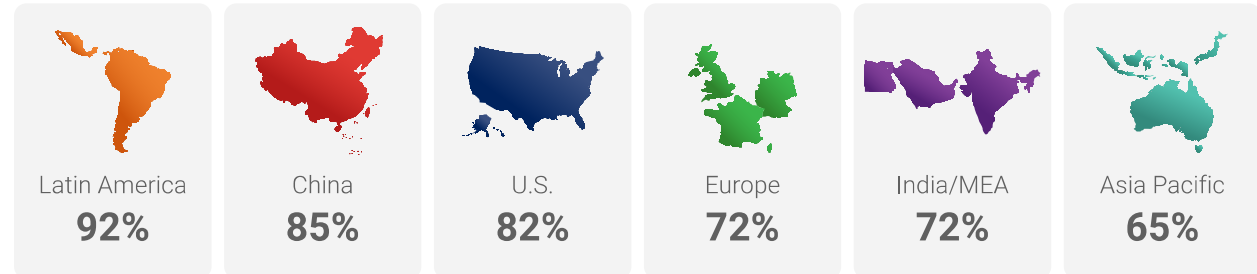


## Ecolab Watermark™ Study: 2023 State of Water Stewardship

### Clean and safe water is a top environmental concern for consumers.

Nearly three out of four consumers list clean and safe water as a top concern — more than climate change, pollution and recycling. The percentage is higher in Latin America, China and the United States.

Percentage of consumers that list clean and safe water as a significant environmental concern<sup>1</sup>



### Consumers hold governments and industry most responsible for water conservation.

The share of responsibility each of the following entities should have when it comes to conserving water

**Baby Boomers (82%) are notably more concerned than Millennials (78%) and Generation Z (74%)**

# Nearly 60 million Americans Don't Drink Their Tap Water

## An epidemic of distrust

A 2020 study found that in 2017-2018, the number of Americans who didn't drink tap water increased at an alarmingly high rate, particularly for Black and Hispanic adults and children.

Since **2013-2014 – just before the Flint water crisis** began – the prevalence of adults who do not drink their tap water has **increased by 40%**.

**Among children, not consuming tap has risen by 63%.**



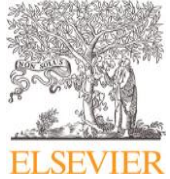
A scenic view of a turquoise lake surrounded by lush green forest and multiple waterfalls cascading down rocky cliffs. The water is a vibrant blue-green color, and the surrounding vegetation is dense and green. The waterfalls are numerous and vary in size, creating a dynamic and beautiful landscape. The overall scene is peaceful and natural.

Where Are We Headed?



# Resilient Urban Water Systems and Innovation Path

Water Research 185 (2020) 116276



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Water Research

journal homepage: [www.elsevier.com/locate/watres](http://www.elsevier.com/locate/watres)



## The third route: Using extreme decentralization to create resilient urban water systems



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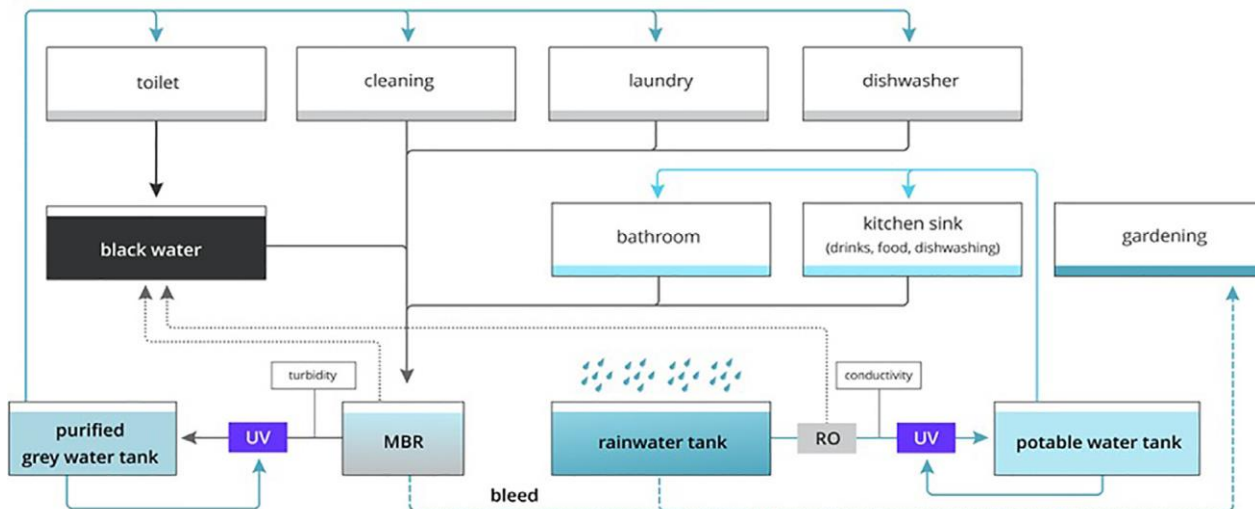
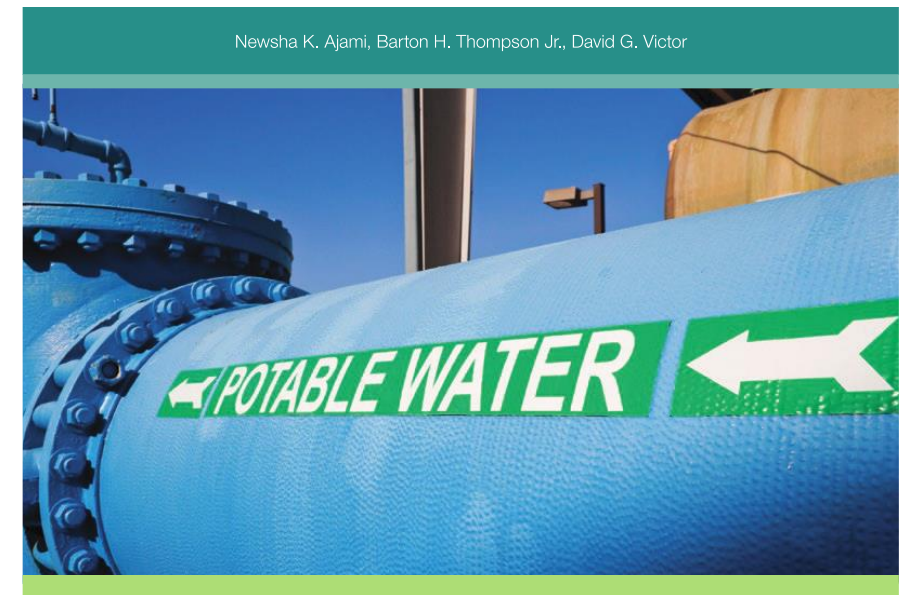


Fig. 1. Schematic system overview of a closed house / building level water system indicating different water sources and qualities.



## The Path to Water Innovation

Newsha K. Ajami, Barton H. Thompson Jr., David G. Victor



# 50 Liter Home Coalition



**50L HOME**  
Re-Invent Our Water Future

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**6** CLEAN WATER AND SANITATION

**13** CLIMATE ACTION

The 50L Home Coalition

- Is a global action-oriented platform.
- Includes leading companies, as well as public and civil society institutions.
- Advances systems-level change in domestic urban water management.

[www.50LHome.org](http://www.50LHome.org)

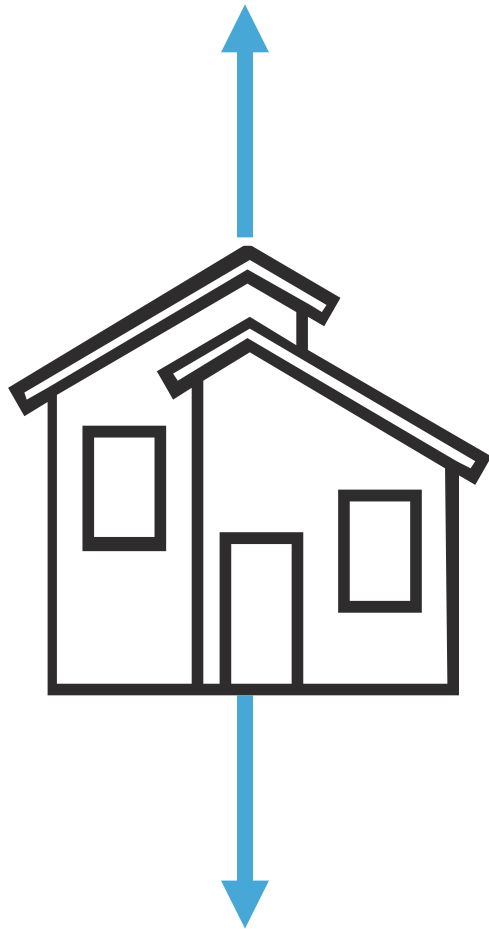


# Home Water Tech

## New Sources

**SOURCE** **Desolenator**

**FieldFactors**  
Inspired by water



## In Home: Efficiency & Hydration

**flume** Conservation Labs

**kelda** OASENSE



**bevi**

## Water Reuse

**HYDRALOOP** **epiccleantec**  
USE WATER TWICE

## Outside Home: Efficiency

**rachio**

# Alternative Sources: Air Moisture Capture



**SOURCE™**  ZERO MASS water™

- + 5/L day/panel
- + Large scale arrays
- + Off grid
- + Growth stage



**MAJIK WATER**

- + 10/L day
- + Off grid
- + Startup



**watergen®**

- + 30 to 600/L day
- + On grid
- + Growth stage

# Alternative Sources: Water Treatment



## DESOLENATOR®

Patented photovoltaic-thermal technology for optimized solar energy conversion resulting in 4x solar efficiency over competitors. 95% reduction in chemical use, scalable systems with 250 cubic meters production volume daily



Complete solar-powered water production systems for local coverage of perfect drinking water on a commercial platform with minimal eco footprint

## FieldFactors Inspired by water

BlueBloqs® is a family of products for rainwater treatment, control and monitoring. They work together to enable large volumes of rainwater storage and reuse on your site. The modularity of the system makes it suitable for different urban applications.

# Hydration Tech: Outside And Inside The Home



**HOPE**  
HYDRATION

**FLOWATER**

soda**stream**

**bevi**  
pour something good

# Water Efficient Fixtures and Reuse



RAINSTICK



kelda



OASENSE

# Commercial and Residential Water Treatment



**HYDRALOOP**<sup>®</sup>  
USE WATER TWICE



 **epiccleantec**



# Consumer Water Use and Irrigation

dropcountr





The future has arrived  
— it's just not evenly  
distributed yet.”

**William Gibson**  
Author, Neuromancer



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