



A Framework and Tool for Evaluating California's Progress in Achieving the Human Right to Water

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OEHHA

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State Water Board's Public Water System – Risk Indicators Needs Assessment Workshop

Sacramento, CA



From the international arena to California: The Human Right to Water



OFFICE OF THE HIGH COMMISSIONER
FOR HUMAN RIGHTS



2002

General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant)

*Adopted at the Twenty-ninth Session of the Committee on Economic,
Social and Cultural Rights, on 20 January 2003
(Contained in Document E/C.12/2002/11)*

- Safe
- Acceptable
- Accessible:
 - Physically
 - Economically
 - Without discrimination
 - Information accessibility
- Sufficient



Assembly Bill No. 685

CHAPTER 524

An act to add Section 106.3 to the Water Code, relating to water.

[Approved by Governor September 25, 2012. Filed with
Secretary of State September 25, 2012.]

LEGISLATIVE COUNSEL'S DIGEST

AB 685, Eng. State water policy.

Existing law establishes various state water policies, including the policy that the use of water for domestic purposes is the highest use of water.

This bill would declare that it is the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. The bill would require all relevant state agencies, including the Department of Water Resources, the State Water Resources Control Board, and the State Department of Public Health, to consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and grant criteria are pertinent to the uses of water described above.

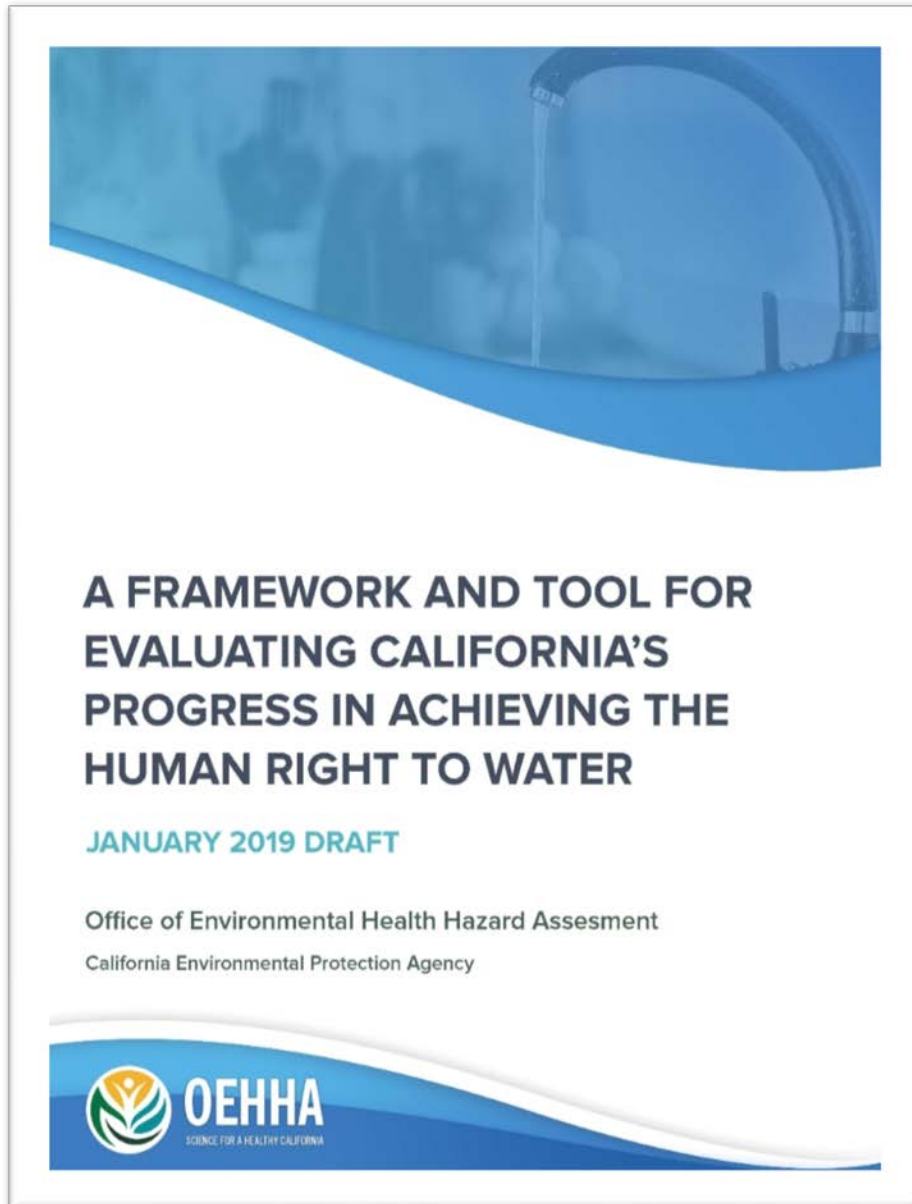
The people of the State of California do enact as follows:

SECTION 1. Section 106.3 is added to the Water Code, to read:
106.3. (a) It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

A vast array of water challenges exist across California



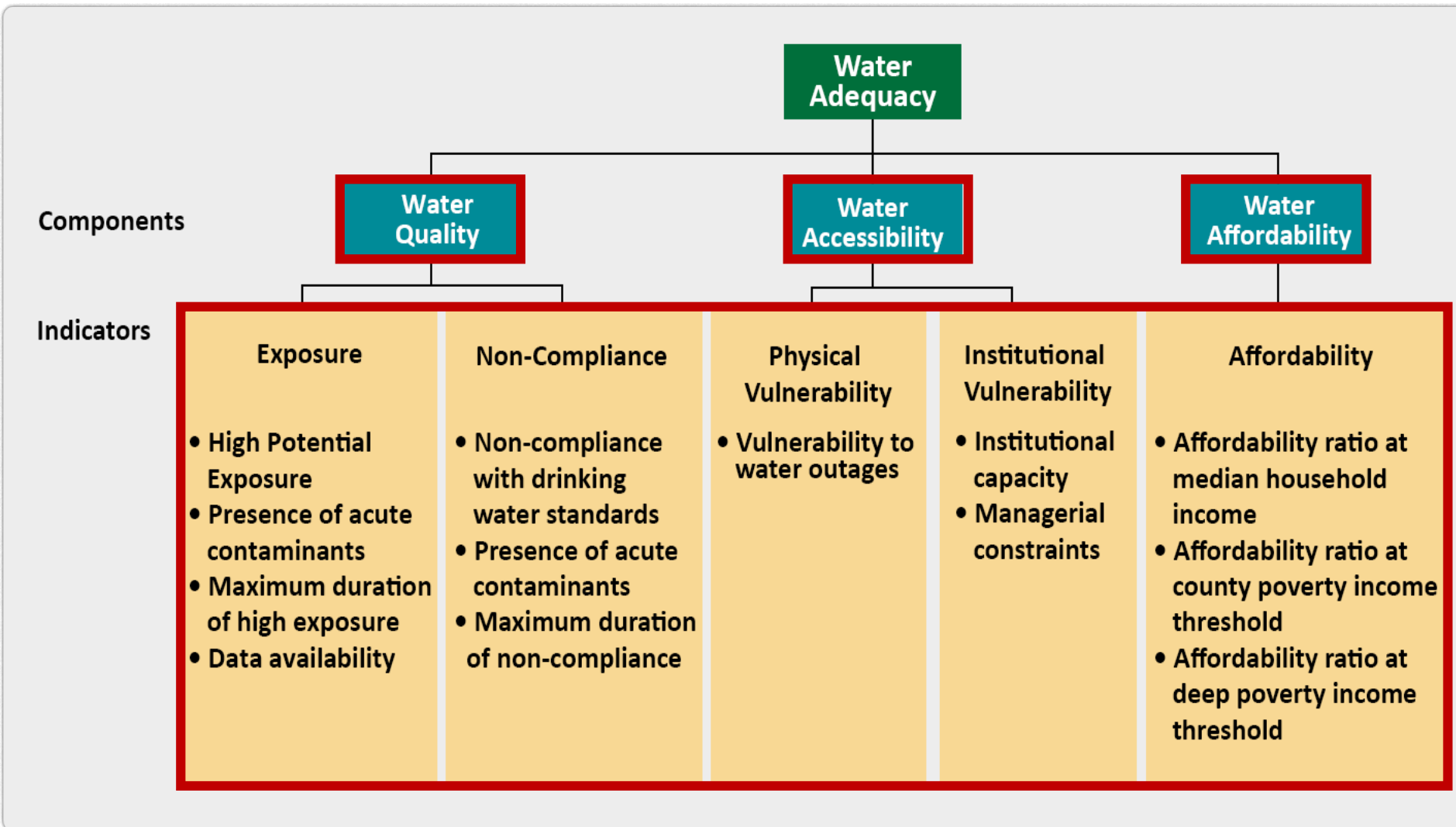
To address these challenges, measuring and tracking is key



The framework and tool:

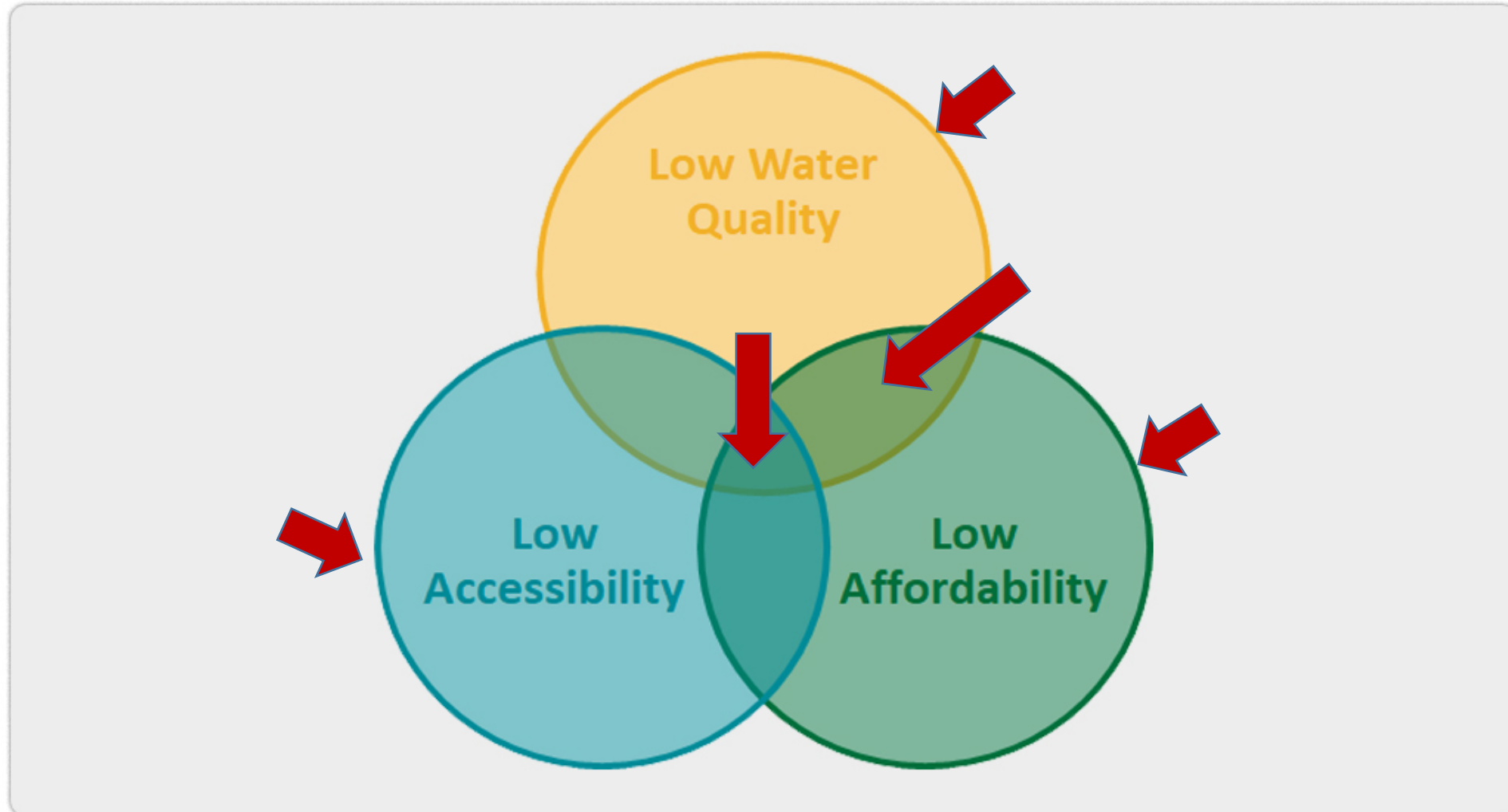
- **Monitors progress** in achieving the human right to water
 - **13 indicators** of water quality, accessibility and affordability
 - Community water system level
 - Statewide application
- **Represents first state-led effort to holistically assess** the quality, accessibility and affordability of drinking water

Framework Overview



- 13 Indicators
- Indicators selected based on relevance, data quality, coverage and public availability
- Years evaluated: 2008-2016

A Holistic View of Water System Challenges





Water Quality: Indicators rely on data from 19 contaminants

Contaminant	Measure Used in Water Quality Indicators	
	Exposure	Compliance
Arsenic	Yes	Yes
Barium	Yes	Yes
Benzene	Yes	Yes
Cadmium	Yes	Yes
Carbon tetrachloride	Yes	Yes
Dibromochloropropane (DBCP)	Yes	Yes
Lead [†]	Yes	No
Mercury	Yes	Yes
Methyl tertiary butyl ether (MTBE)	Yes	Yes
Nitrate	Yes	Yes
Perchloroethylene (PCE)	Yes	Yes
Perchlorate	Yes	Yes
Trichloroethylene (TCE)	Yes	Yes
1,2,3-Trichloropropane (1,2,3-TCP) [†]	Yes	No
Toluene	Yes	Yes
Total Coliform [†]	Yes	Yes
Total Trihalomethanes (TTHM)	Yes	Yes
Uranium	Yes	Yes
Xylene	Yes	Yes

Contaminants selected based on:

- **Significant coverage** of water quality data:

- $\geq 80\%$ of systems report at least one sample

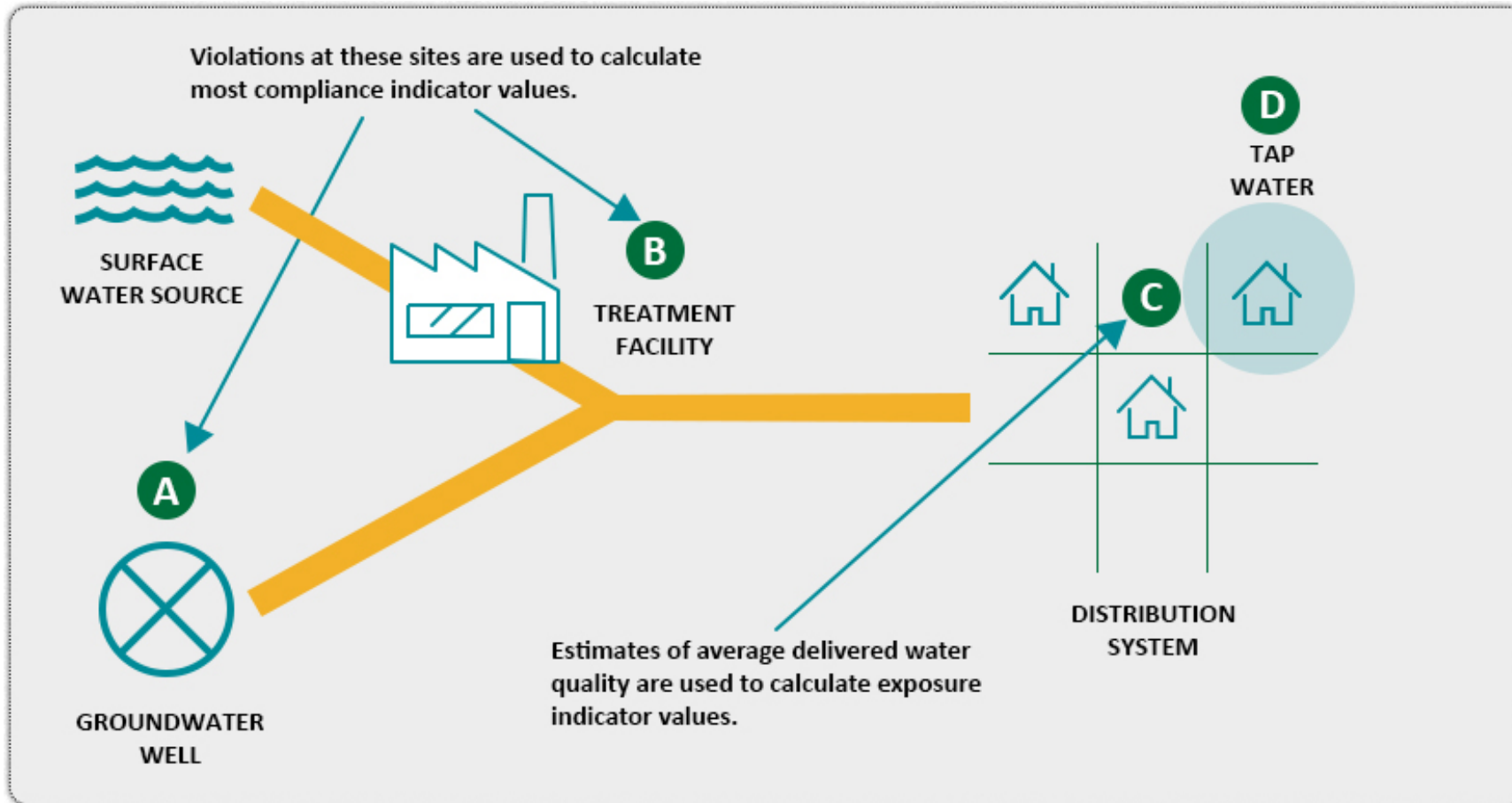
or

- **High priority:**

- significant number of MCL violations



Two types of water quality indicators: Compliance vs Exposure



Data sources:

Exposure indicators:

- Water Quality Monitoring database
→ annual average concentrations

Compliance indicators:

- SDWIS
→ number of MCL violations



Water Quality: 7 indicators

Exposure



Potential high exposure

How many contaminants' annual average concentration exceeded the MCL?



Presence of acute contaminants

Were any of the contaminants *acute*?
(Nitrate, Perchlorate, Fecal/E.Coli)



Maximum duration of potential high exposure

How long did exposure last?



Data availability

Was water quality data available?

Non-Compliance



Non-compliance with primary drinking standards

How many contaminants received at least one MCL violation?



Presence of acute contaminants

Were any of the contaminants *acute*?
(Nitrate, Perchlorate, Fecal/E.Coli)



Maximum duration of potential high exposure

How long did non-compliance last?



Water quality: Hypothetical example

Exposure



Potential high exposure
Arsenic



Presence of acute contaminants
No



Maximum duration of potential high exposure
9 years of arsenic at 20-30 ppb



Data availability
Had all data required

Non-Compliance



Non-compliance with primary drinking standards
Arsenic



Presence of acute contaminants
No



Maximum duration of potential high exposure
5 years of MCL violations



Water accessibility

Entails:

- Physical quantity
- Availability and reliability of supply (sufficient and continuous)
- Source type and collection time
- Economic accessibility*



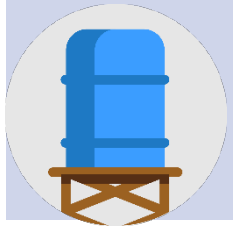
OEHHA's current focus: system-related characteristics that can impede access

- Physical vulnerability
- Institutional vulnerability



Water Accessibility: 3 indicators

Physical Vulnerability

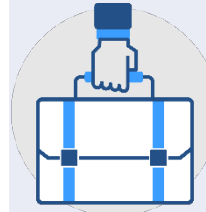


Physical vulnerability to water outages
What is the source type and how many sources?

Institutional Vulnerability



Institutional capacity
What is the size and disadvantaged community (DAC) status?



Managerial constraints
How many monitoring and reporting violations?

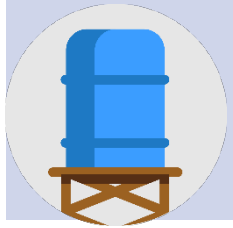
Data sources: SDWIS and census data

Gaps: Additional indicators to address other aspects of accessibility



Water Accessibility: Hypothetical example

Physical Vulnerability

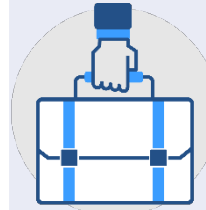


Physical vulnerability to water outages
1 groundwater well

Institutional Vulnerability



Institutional vulnerability
50 connections, 80 people
Median Household Income: \$42,271 (DAC)



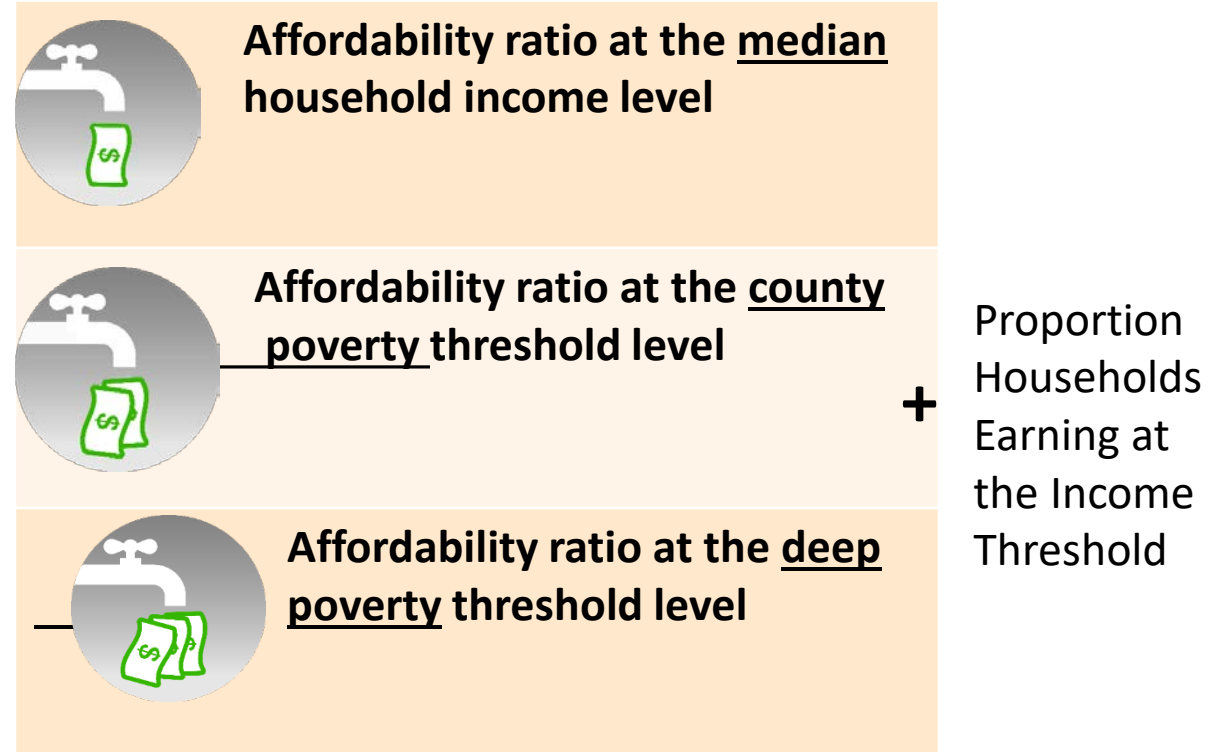
Managerial constraints
10 Monitoring & Reporting Violations



Water Affordability: 3 indicators

Proposed Affordability Ratio =

$$\frac{\text{Monthly Water Bill @ 6 Hundred Cubic Feet}}{\text{Income of Water System}} \geq \text{Multiple ratios}$$



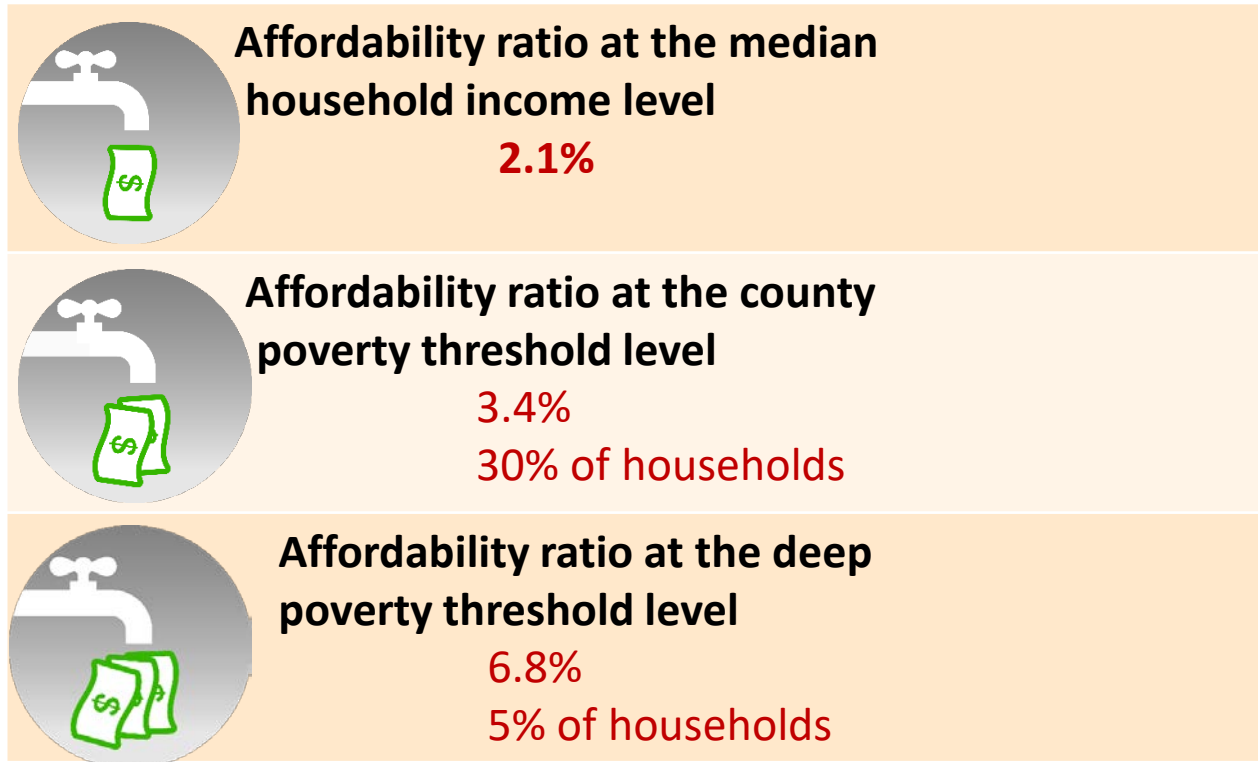
Data sources: electronic Annual Report, census data, poverty threshold calculations from Public Policy Institute of California

Gaps: Additional effort needed to fill in data gaps









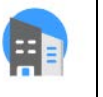






Water Affordability: Hypothetical Example

- **Monthly water bill** is \$72
- **Median Household Income:** \$42,279
- **County Poverty:** \$25,717
- **Deep Poverty:** \$12,858



Framework and tool allow for an assessment of the status of water systems...

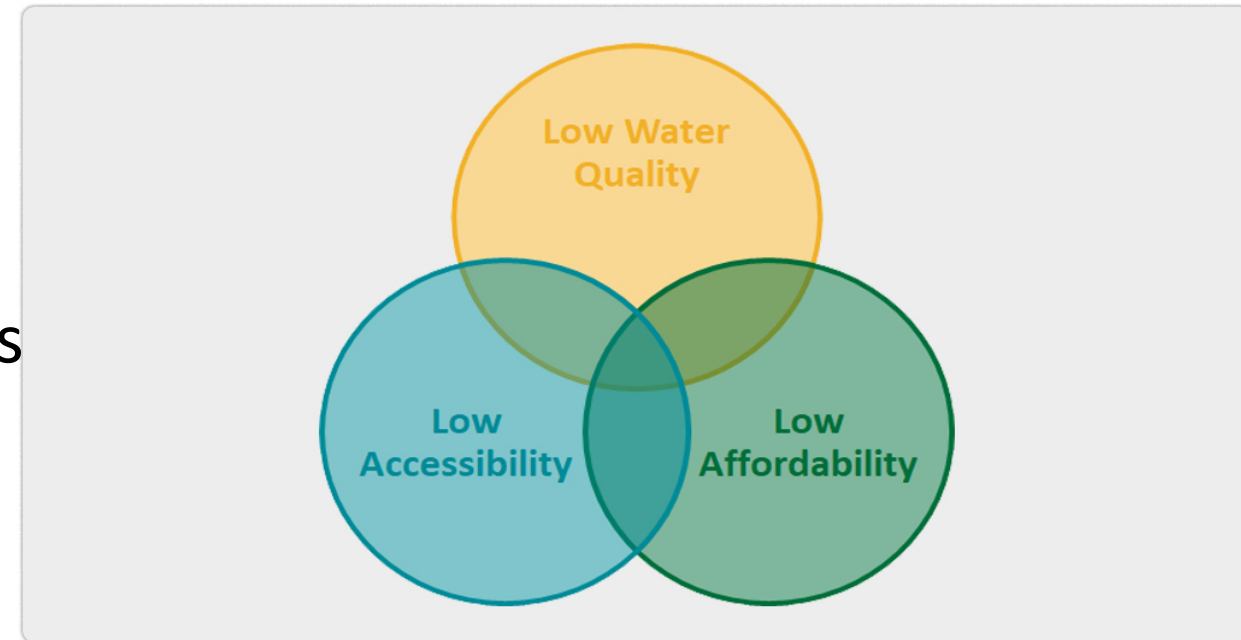
	Water Quality							Accessibility			Affordability		
Indicator													
	1	2	3	4	5	6	7	1	2	3	1	2	3
System A	Dark Blue	Light Blue	Dark Blue	Light Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
System B	Dark Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Light Blue	Light Blue	Dark Blue	Dark Blue
System C	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue





Conclusion

- Framework and tool summarizes 3 components and 13 indicators
- Holistic view can help show interrelationships
- Offers a view of big-picture trends across water systems and regions, statewide
- Helps capture how those trends might change over time



For more information....

<https://oehha.ca.gov/water/report/human-right-water-california>

Public Comment Webinar:

- January 23rd, 1pm
- Sign-up for OEHHA list-serve

Public Comments due February 4th, 2019

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Backup Slides

