

# Californians Without Safe Water and Sanitation

CALIFORNIA WATER PLAN UPDATE 2013





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# Californians Without Safe Water and Sanitation

## Executive Summary

While most Californians enjoy access to safe drinking water and adequate sanitation, some residents live in communities or areas that do not have access to safe drinking water and/or adequate sanitation facilities. This report provides a framework for estimating the number of Californians that lack safe drinking water and/or adequate sanitation facilities (Table ES-1). It also focuses on small (rural and urban) communities and tribal communities who often face similar challenges in accessing safe water and providing adequate sanitation. These challenges include aging infrastructure, more stringent water quality standards, financial capacity, and the affordability of operation and maintenance costs associated with new treatment systems.

This report was prepared as part of the *California Water Plan Update 2013* process and is an update to the *2005 Californians without Safe Water* report. It continues the dialogue regarding Californians without safe drinking water and/or adequate sanitation facilities and includes 14 recommendations towards ensuring that all Californians have safe drinking water and adequate sanitation facilities. The report also highlights Governor Brown's goal of ensuring that all Californians have access to safe drinking water, as specified by his signing of Assembly Bill (AB) 685 and the release of the *California Water Action Plan* that includes Action 7, "Provide Safe Water for All Communities."

In recent years, there has been significant progress in heightening the awareness of the drinking water and sanitation problems facing small and disadvantaged communities in California, as evidenced by the numerous plans and reports on the issue. However, despite these efforts, there is still a lot of work to do to ensure that all Californians have access to safe drinking water and sanitation. In support of this effort, the following 14 recommendations were developed with input from State agencies and public stakeholders:

1. State, regional, and local governments should coordinate to estimate the statewide total population without safe water, including those residing in areas served by a state small water system, local small water system, or private domestic well.
2. State, regional, and local governments should coordinate to identify communities, unincorporated areas, and populations that rely on inadequate onsite wastewater treatment systems or septic systems. In addition, the State Water Resources Control Board (SWRCB) should coordinate with interested stakeholders to determine how to estimate the population without adequate sanitation who are part of a centralized wastewater treatment system.
3. State, regional, and local governments along with interested stakeholders should coordinate to develop performance metrics and track the progress of achieving safe drinking water and sanitation for all Californians. Periodic progress reports should be prepared that show what improvements have been made and what additional actions are needed.

**Table ES-1 Estimate of Californians Without Safe Drinking Water**

Type of System (No. of Service Connections)	Total No. of Systems	Total Population	No. of Systems Without Safe Water	Population Without Safe Water
Private Domestic Well (1)	200,000 – 600,000 <sup>1</sup>	600,000 to 2,000,000 <sup>1</sup>	Data Not Available	Data Not Available
Local Small Water System (2 - 4)	Data Not Available	Data Not Available	Data Not Available	Data Not Available
State Small Water System (5 - 14)	Data Not Available	Data Not Available	Data Not Available	Data Not Available
Tribal Water System	125 <sup>2</sup>	Data Not Available	(10,934 homes) <sup>3</sup>	36,000 <sup>3</sup>
Small Community Water System (15-1,000)	2,267 <sup>4</sup>	930,000 <sup>4</sup>	161 <sup>5</sup>	55,000 <sup>5</sup>
Medium Community Water System (1,001 - 3,300)	232 <sup>4</sup>	1,400,000 <sup>4</sup>	Data Not Available	<660,000 <sup>6</sup>
Large Community Water System (> 3,300)	421 <sup>4</sup>	35,000,000 <sup>4</sup>		

Note: Footnotes are available in the report.

4. Ensure implementation of the policy goals within California Water Code Section 106.3 (AB 685), which states that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.
5. The California Department of Water Resources (DWR), SWRCB, California Department of Public Health (CDPH), other State agencies, and tribal governments should establish a workgroup to build relationships and collaboration to identify and address the challenges of ensuring safe water and sanitation for all tribes in California. This would allow the State to receive direct advice from the tribal community on issues pertaining to safe water and sanitation and would allow tribes to participate in the planning, development, and implementation of water projects, services, and policies of State agencies. It also provides an opportunity to further government-to-government relationships. However, this work group would not be considered government-to-government consultation.



6. State government should remove barriers to local and regional funding for water projects conducted to support disadvantaged and environmental justice communities.
7. State government should provide incentives for the consolidation, acquisition, or improved management of small water systems.
8. Support financial mechanisms to facilitate improved and sustainable wastewater removal systems.
9. SWRCB and other State agencies that provide funding to third-party technical assistance providers to assist small water and wastewater systems should allow tribal water and wastewater systems to be eligible to receive this technical assistance.
10. SWRCB and other State agencies should submit an endorsement letter to the U.S. Environmental Protection Agency (EPA) and Congress supporting an increase in the funding allocation (currently at 2%) for the Safe Drinking Water Act Drinking Water Infrastructure Tribal Set-Aside and Clean Water Act Indian Set-Aside Programs.
11. SWRCB and other State agencies should endorse and provide incentives for a job share program that allows tribal drinking water and wastewater operators an opportunity to gain experience at municipal drinking water or wastewater systems.
12. The Legislature, in keeping with the goal of AB 685 that drinking water be safe, clean, affordable, and accessible, should identify a long-term source of funding to replace the Proposition 50 and Proposition 84 grant monies and provide funding to assist small disadvantaged communities with operation and maintenance costs.
13. The Governor’s Office of Planning and Research should include in its update of the General Plan Guidelines a recommendation to city and county governments that, prior to approval of new developments or facilities, an evaluation should be conducted to determine if the new development or facility can be connected to an existing public water system or if the new development or facility can be operated by an existing permitted public water system. This evaluation could be included in a Water Supply Assessment created to comply with the California Environmental Quality Act or Subdivision Map Act.
14. State government should begin and continue to implement the recommendations and actions identified in its reports to the governor, reports to the Legislature, strategic plans, and program plans.

## Introduction

While most Californians enjoy access to safe drinking water and adequate sanitation, some residents live in communities or areas that do not have access to safe drinking water and/or adequate sanitation facilities. Other homeowners rely on a private domestic well or are part of a local small water system and may be unaware of their drinking water quality, since they are not required to test the quality of their drinking water.

In 2005, the California Department of Water Resources (DWR) released a report titled *Californians Without Safe Water* to serve as a starting point for dialogue and research on this topic. The report focused on Californians without safe drinking water and/or adequate sanitation facilities, with an emphasis on the needs and challenges facing many small communities, especially disadvantaged communities and tribal communities. Similar to the 2005 report, the *Californians Without Safe Water and Sanitation, Update 2013* is intended to continue the dialogue and research on this topic and focus on those without safe drinking water and/or adequate sanitation facilities. The title has been updated to bring additional attention to those communities and unincorporated areas that do not have adequate sanitation facilities.

This report was prepared with assistance from other State agencies, members of the Tribal Advisory Committee, and public stakeholders. It includes an assessment of those without safe water or adequate sanitation facilities; however, significant data gaps exist and only a partial assessment can be made. There is discussion on the challenges facing small communities and tribal communities, and some of the progress made over the past 10 years as a result of the increased efforts from stakeholders, the legislature, the governor, and government agencies to address this issue. One of the major milestones has been the signing of AB 685 by the governor in 2012. The passage of this bill established as a State policy that every person has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes (California Water Code Section 106.3).

This report finishes with conclusions and recommendations that, if implemented, will advance the progress to achieve safe drinking water and adequate sanitation for all Californians. Governor Brown's *California Water Action Plan* is also included in the recommendations section, since one of the 10 actions in that plan is to provide safe water for all communities. This report is a reference to the *California Water Plan Update 2013* (Update 2013).

## Population Without Safe Water or Sanitation

To estimate the number of Californians without safe water or adequate sanitation, the type and size of the system that serves each home must be determined. Depending on where people live, various types and sizes of water and wastewater systems may serve a home. For example, someone living in a rural area might use a private domestic well to supply drinking water to their home, or they might share a well with a handful of other homes and be considered a local small water system, state small water system, or small community water system (CWS). In urban areas, drinking water is usually provided by multiple medium and large CWSs that utilize a combination of surface water and groundwater supplies. However, due to the fragmented nature of drinking water systems, there are often some small CWSs nested in urban areas as well.

In this chapter, a framework is provided to estimate the population that lacks safe drinking water and/or adequate sanitation at their place of residence. Some information is available, as shown

**Box 1 Definitions****Community Water System**

A public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents.

**Small Community Water System**

A community water system that serves a population of 25 to 3,300 or 15 to 1,000 service connections.

**Medium Community Water System**

A community water system that serves a population of 3,301 to 10,000 or 1,001 to 3,300 service connections.

**Large Community Water System**

A community water system that serves a population of more than 10,001 or more than 3,300 service connections.

**Disadvantaged Community**

A community is considered to be disadvantaged if their median household income (MHI) is less than 80 percent of the statewide MHI. A community is considered to be severely disadvantaged if their MHI is less than 60 percent of the statewide MHI. (California Health and Safety Code sections 116275 and 116760.20, and Public Resources Code section 75005(g).) The California 2012 MHI was \$58,724, therefore a community was considered disadvantaged if their MHI is less than \$46,979, and severely disadvantaged if their MHI is less than \$35,234.

The DWR Integrated Regional Water Management grant program has released a statewide DAC Mapping Tool. The maps and GIS files are derived from the US Census Bureau's American Community Survey and are compiled for the 5-year period 2006-2010. The mapping tool is available at the following link: <http://www.water.ca.gov/irwm/grants/resourceslinks.cfm>.

**Private Domestic Well and Local Small Water System**

Small water systems with 1-4 service connections are not defined by either the California Health and Safety Code or Title 22 of the California Code of Regulations. The California Department of Public Health and various county environmental health agencies throughout the state acting as the drinking water program primacy agency for "state small water systems" or "small community water systems" generally define private domestic wells as wells serving up to four (4) service connections. However, some local health agencies define a private domestic well as serving an individual residence (single connection) and "local small (or shared) water system" as having 2 to 4 service connections (Governor's Drinking Water Stakeholder Group 2014).

In this report and consistent with the Governor's Drinking Water Stakeholder Group report titled *Data Collection and Management of Local and State Small Water Systems*, a private domestic well is defined as a single connection water system, and a local small water system is defined as a water system with 2-4 service connections.

**Service Connection**

The point of connection between a customer's piping or constructed conveyance, and the water system's meter, service pipe, or constructed conveyance. See Section 116275 of the California Health & Safety Code for the entire definition, including exceptions.

**Small Wastewater System**

A wastewater system with a permitted flow of less than 1 million gallons per day as reported in State Water Resources Control Board's California Integrated Water Quality System database.

**State Small Water System**

A drinking water system that serves 5 to 14 service connections/homes and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year (California Code of Regulations, Title 22, Section 64211).

in the following tables; however, significant data gaps exist to completely assess the state's population without safe water or sanitation.

### Californians Without Safe Water

Safe drinking water, for the purposes of this report, is defined as water that meets all federal and State primary drinking water standards (maximum contaminant levels). To estimate the number of Californians without safe water at their home, one must first look at the type of water system that supplies drinking water to each home. Water systems were grouped into the following five categories: private domestic well, local small water system, state small water system, tribal water system, and CWS. Based on these categories, a partial estimate of the population without safe water was compiled using information from various data sources and reports (Table 1). However, there is no statewide data available to estimate the number of people without safe water who receive drinking water from a private domestic well, local small water system, or state small water system.

#### Private Domestic Well Systems Without Safe Drinking Water

The State Water Resources Control Board (SWRCB) estimates that the population who uses private domestic wells is between 600,000 to 2 million (State Water Resources Control Board 2013a). For this report, private domestic well systems supply only one home or service connection. These systems are generally not regulated outside of the initial construction permit that may be required at the local level. Therefore, there is limited water quality data on private domestic wells, and there is no statewide estimate of the population without safe drinking water who uses private domestic wells.

Some of the limited water quality data available on private domestic wells comes from the SWRCB's Groundwater Ambient Monitoring and Assessment (GAMA) program's domestic well project. As part of this project, private domestic wells in a six county focus area (Yuba, El Dorado, Tehama, Tulare, San Diego, and Monterey) were sampled for commonly detected chemicals. In addition, the U.S. Geological Survey recently sampled private domestic wells in the Salinas River and Pajaro River valleys as part of the SWRCB's GAMA program and Central Coast Regional Water Quality Control Board's Groundwater Assessment and Protection Program. A total of 1,236 private domestic wells were sampled as part of these programs, and this one-time sampling event was free for well owners who volunteered. The water quality results were shared with the well owners and were used to evaluate the groundwater quality of private domestic wells in these areas. The 1,236 wells that were sampled is a very small fraction of the 200,000 to 600,000 private domestic wells that are estimated to exist in the state.

A statewide concern for groundwater users is nitrate contamination, since it poses a serious health risk to pregnant women and infants if consumed at concentrations above the maximum contaminant level (MCL) of 45 milligrams per liter (as  $\text{NO}_3$ ). Out of the 1,236 private domestic wells sampled by the SWRCB GAMA program, the nitrate standard was exceeded in 1% of the wells sampled in Tehama County and 40% of the wells sampled in Tulare County (Table 2).

In addition to private domestic well systems, there are surface water systems that only supply one home or service connection and the total population and the population without safe water who utilize these systems are unknown and should be evaluated.

**Table 1 Estimate of Californians Without Safe Drinking Water**

Type of System (No. of Service Connections)	Total No. of Systems	Total Population	No. of Systems Without Safe Water	Population Without Safe Water
Private Domestic Well (1)	200,000 – 600,000 <sup>1</sup>	600,000 – 2,000,000 <sup>1</sup>	Data Not Available	Data Not Available
Local Small Water System (2 - 4)	Data Not Available	Data Not Available	Data Not Available	Data Not Available
State Small Water System (5 - 14)	Data Not Available	Data Not Available	Data Not Available	Data Not Available
Tribal Water System	125 <sup>2</sup>	Data Not Available	(10,934 homes) <sup>3</sup>	36,000 <sup>3</sup>
Small Community Water System (15-1,000)	2,267 <sup>4</sup>	930,000 <sup>4</sup>	161 <sup>5</sup>	55,000 <sup>5</sup>
Medium Community Water System (1,001 - 3,300)	232 <sup>4</sup>	1,400,000 <sup>4</sup>	Data Not Available	<660,000 <sup>6</sup>
Large Community Water System (> 3,300)	421 <sup>4</sup>	35,000,000 <sup>4</sup>		

**Notes:**

1. From State Water Resources Control Board's (SWRCB's) 2013 report, *Communities that Rely on a Contaminated Groundwater Source for Drinking Water*.
2. This is the number of tribal public water systems in California that are regulated by U.S. Environmental Protection Agency (EPA). This total does not include federally non-recognized tribes or small systems supplying less than 14 homes that are not regulated by EPA.
3. From the Indian Health Services (IHS) Sanitation Deficiency Construction Program. In 2012, there were 1,207 homes without water and 9,727 homes with an IHS Deficiency Level of 3, 4, or 5 that either lack safe water or have an inadequate or partial water supply. The population estimate assumes 3.3 persons per home.
4. Data is from California Department of Public Health's (CDPH's) Permits, Inspection, Compliance, Monitoring and Enforcement (PICME) database as of June 2012. Population estimates for community water systems are as reported by each system to CDPH and may include transient persons (i.e., visitors) within the water system boundary. Consequently the estimate here is greater than the resident population that was estimated at 36 million for all community water systems in SWRCB's report, *Communities that Rely on a Contaminated Groundwater Source for Drinking Water*.
5. The number of small community water systems and population estimated without safe water as reported in CDPH's *Small Water Program Plan* as of December 31, 2013. Additional information is available at: [http://www.waterboards.ca.gov/drinking\\_water/cert/cdrinkingwater/Smallwatersystems.shtml](http://www.waterboards.ca.gov/drinking_water/cert/cdrinkingwater/Smallwatersystems.shtml).
6. This estimate was based on SWRCB's *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* report that stated that more than 98% of the population supplied with drinking water from community water systems receives safe water. This report also estimates that 36 million are served by community water systems.

**Table 2 Select Sampling of Private Domestic Wells for Nitrate**

Location	Years Sampled	Total Wells Sampled for Nitrate	Number of Wells Sampled that Exceed the Nitrate Standard	Percent of Wells Sampled that Exceed the Nitrate Standard
Salinas River and Pajaro River Valleys	2012/2013	90	29	32%
Monterey County	2011	79	9	11%
San Diego County	2008/2009	137	25	18%
Tulare County	2006	181	72	40%
Tehama County	2005	223	2	1%
El Dorado County	2003/2004	398	7	2%
Yuba County	2002	128	2	2%

Note: This table only represents nitrate results for 1,236 private domestic wells. Well owners volunteered to be part of this one-time sampling event. Statewide there are an estimated 200,000 to 600,000 private domestic wells.

Sources:

1. State Water Resources Control Board Groundwater Ambient Monitoring & Assessment Program – Private Domestic Well Project available at: [http://www.waterboards.ca.gov/gama/domestic\\_well.shtml](http://www.waterboards.ca.gov/gama/domestic_well.shtml).
2. Central Coast Regional Water Quality Control Board Groundwater Assessment and Protection Program – Salinas and Pajaro Valley Domestic Well Project 2012/2013 (Preliminary Results) available at: [http://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/gap/index.shtml#special\\_projects](http://www.waterboards.ca.gov/centralcoast/water_issues/programs/gap/index.shtml#special_projects).

### Local Small Water Systems Without Safe Drinking Water

An unknown number of Californians receive their drinking water from a water system referred to as a “Local Small Water System” that supplies drinking water to two to four homes and does not regularly serve more than 25 people. These systems are generally not regulated outside of the initial construction permit that may be required at the local level. Similar to private domestic well systems, there is limited water quality data on local small water systems and no statewide estimate of the population without safe drinking water supplied by local small water systems.

### State Small Water Systems Without Safe Drinking Water

An unknown number of Californians receive their drinking water from a water system referred to as a “State Small Water System” that supplies drinking water to 5 to 14 homes and does not regularly serve more than 25 people. State small water systems are regulated at the county or local level with less stringent requirements than community water systems. Currently, there is no

comprehensive database available to assess the total population or the population without safe water who are supplied by a state small water system.

### Tribal Water Systems Without Safe Drinking Water

A number of tribal communities and homes continue to lack access to safe drinking water. The Indian Health Services (IHS) Sanitation Facilities Construction Program reviews requests from tribes regarding their water and sanitation system problems. In 2012, the IHS estimated that in California 1,207 homes did not have a drinking water supply, and 2,336 homes lacked safe drinking water, receiving an IHS deficiency level of 4 or 5. (IHS levels range from 1 to 5; where Level 1 indicates a fully adequate water supply, sewage disposal, and solid waste disposal facilities, and Level 5 indicates no safe water supply and no sewage disposal system). In addition, there were 7,391 homes with a partial or inadequate water system which received an IHS deficiency level of 3. Based on this information, it is estimated that 10,934 homes or approximately 36,000 people either lack a drinking water supply, lack safe drinking water, or have a partial, inadequate water supply.

### Small Community Water Systems Without Safe Drinking Water

Statewide there are more than 2,200 small CWSs that provide drinking water to more than 900,000 people (estimated), see Tables 4 and 5. Small CWSs account for more than 75% of the CWSs in the state. These systems are regulated by the State; however, in many areas the local county has been delegated by the State as the local primacy agency or regulator of small CWSs that serve fewer than 200 service connections. In 2012, the California Department of Public Health (CDPH) developed a *Small Water System Program Plan* with a goal of increasing the compliance rate and focusing additional attention on small systems. In their plan, CDPH identified 183 small CWSs statewide (serving approximately 60,000 people) that did not meet one or more health-based primary MCL or drinking water standard. As of December 2013, 22 of the 183 small CWSs have resolved their problem and now provide safe drinking water to their communities. Therefore, as of December 2013, there are still 161 small CWSs (serving an estimated 55,000 people) remaining that do not meet all primary drinking water standards and do not provide safe water.

In each of the 10 major hydrologic regions in the state, there is at least one small CWS that does not meet all primary drinking water MCLs, and therefore does not provide safe water, see Table 3. The majority of small CWSs that fail to provide safe water are located in the Tulare Lake, South Lahontan, Sacramento River, Central Coast, and the San Joaquin River hydrologic regions. Most of these systems use groundwater that exceeds either the arsenic or nitrate drinking water standard. CDPH also reports that construction projects to correct water system deficiencies are underway for 24 of the 161 small CWSs that do not provide safe water. Specific water system information is available in CDPH's *Small Water System Program Plan* at [http://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/Smallwatersystems.shtml](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Smallwatersystems.shtml).

### Medium and Large Community Water Systems Without Safe Drinking Water

Statewide there are more than 650 medium and large CWSs that provide drinking water to more than 35 million people (estimated), see Tables 4 and 5. Medium and large CWSs account for less than 25% of the CWSs in the State. These systems are regulated by the State with the majority

**Table 3 Small Community Water Systems Without Safe Water**

Hydrologic Region	No. of Small CWSs Without Safe Water	Estimated Population	No. of Small CWSs that exceed the Arsenic or Nitrate MCL
Tulare Lake	57	25,339	Nitrate (27 systems), Arsenic (24 systems)
South Lahontan	19	10,514	Arsenic (18 systems)
Sacramento River	17	6,429	Arsenic (13 systems), Nitrate (1 system)
Central Coast	25	3,585	Nitrate (14 systems), Arsenic (8 systems)
San Joaquin River	25	3,271	Arsenic (20 systems), Nitrate (5 systems)
South Coast	5	2,550	Nitrate (5 systems)
Colorado River	3	930	Arsenic (3 systems)
North Lahontan	2	900	Arsenic (2 systems)
North Coast	7	741	Arsenic (6 systems), Nitrate (1 system)
San Francisco Bay	1	49	Arsenic (1 system)
TOTAL	161	54,308	Arsenic (95 systems), Nitrate (54 systems)

Source: CDPH Drinking Water Program - Small Water System Program Plan as of December 31, 2013.

providing safe water. However, it is estimated that up to 660,000 people do not receive safe drinking water from medium and large CWSs. Data is not readily available to identify which medium and large CWSs and associated population are without safe drinking water. The above estimate, regarding the population without safe water, was indirectly calculated using data from the SWRCB's *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* report. In that report, it is noted that there are an estimated 36 million Californians who are served by a CWS and that more than 98% of this population receive safe drinking water. That equates to less than 720,000 people (2%) without safe drinking water. There are approximately 60,000 people without safe water who are served by small CWSs, meaning that less than 660,000 people who are served by medium and large CWSs are without safe water.

### Californians Without Adequate Sanitation

To evaluate the population without adequate sanitation, wastewater systems were grouped into the following three categories: onsite wastewater treatment system (OWTS) or septic system, tribal wastewater system, and centralized wastewater treatment system with sewer collection. However, upon review of the available data, only an estimate of the population without adequate sanitation for tribal wastewater systems is available, as shown in Table 6. Currently, there is no data available to estimate the statewide population without adequate sanitation.



**Table 4 Community Water Systems in California**

Hydrologic Region	Community Water Systems			TOTAL
	LARGE	MEDIUM	SMALL	
Central Coast	31	25	339	395
Colorado River	15	12	102	129
North Coast	11	16	233	260
North Lahontan	3	3	50	56
Sacramento River	44	42	418	504
San Francisco Bay	54	7	123	184
San Joaquin River	29	35	369	433
South Coast	181	57	182	420
South Lahontan	18	13	154	185
Tulare Lake	35	22	297	354
TOTAL	421	232	2,267	2,960

Source: CDPH's Permits, Inspection, Compliance, Monitoring and Enforcement (PICME) database as of June 2012.

### Homeowners Without Adequate Sanitation Who Use a Septic System

Similar to homeowners who utilize private domestic wells, some homeowners may use an OWTS or septic system to treat and dispose of wastewater generated at their home. Generally, septic systems are only reviewed by local agencies when they are initially constructed or when significant modifications are made. There is limited and often no data available to assess if these systems are functioning properly. Therefore, no statewide estimate can be made regarding the number of homeowners with inadequate or improperly functioning septic systems.

In 2012, the SWRCB adopted a policy for OWTSs to allow continued use of these systems while protecting water quality and public health. In this policy document, it was reported that there are more than 1.2 million septic systems statewide, with the majority of these systems functioning properly. This policy established a statewide, risk-based, tiered approach for the regulation and management of OWTSs and set the level of performance and protection expected from OWTSs. This policy also requires local agency OWTS management programs to submit, to applicable RWQCBs, an annual report and a 5-year assessment that evaluates the monitoring program and assesses the impact of OWTSs on water quality (State Water Resources Control Board 2012). In the future, these annual reports and 5-year assessments may possibly be the basis to identify the population without adequate sanitation who use septic systems. The SWRCB's OWTS policy is available at [http://www.waterboards.ca.gov/water\\_issues/programs/owts/docs/owts\\_policy.pdf](http://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf).

**Table 5 Population Served by Community Water Systems in California**

Hydrologic Region	Community Water Systems			TOTAL
	LARGE	MEDIUM	SMALL	
Central Coast	1,201,754	157,343	104,985	1,464,082
Colorado River	716,977	67,673	41,859	826,509
North Coast	359,575	95,992	85,598	541,165
North Lahontan	56,730	18,134	24,311	99,175
Sacramento River	2,545,212	270,019	171,582	2,986,813
San Francisco Bay	6,381,090	48,619	61,535	6,491,244
San Joaquin River	1,501,338	186,402	140,390	1,828,130
South Coast	19,456,617	358,422	113,668	19,928,707
South Lahontan	762,492	80,670	68,698	911,860
Tulare Lake	2,036,266	153,154	113,317	2,302,737
TOTAL	35,018,051	1,436,428	925,943	37,380,422

Source: CDPH's Permits, Inspection, Compliance, Monitoring and Enforcement (PICME) database as of June 2012.

Note: Population estimates are as reported by each system to CDPH and may include transient persons (i.e., visitors) within the water system boundary. Consequently, this estimate is greater than the resident population that was estimated at 36 million for all community water systems in SWRCB's report, *Communities that Rely on a Contaminated Groundwater Source for Drinking Water*.

### Tribal Communities Without Adequate Sanitation

Some tribal communities and homes are without adequate sanitation services. The IHS Sanitation Facilities Construction Program reviews requests from tribes regarding their water and sanitation system problems. In 2012, the IHS estimated that 1,721 California homes lack a basic sewage disposal system, and these homes were ranked with an IHS deficiency level of 4 or 5. (IHS levels range from 1 to 5; where Level 1 indicates a fully adequate water supply, sewage disposal, and solid waste disposal facilities, and Level 5 indicates no safe water supply and no sewage disposal system). In addition, there were 7,728 homes with a sewage disposal system that did not comply with pollution control standards and received an IHS deficiency level of 3. Therefore, there are an estimated 9,499 homes or 31,000 people who either lack a basic sewage disposal system or operate a sewage disposal system that does not meet current water quality standards.

### Communities Without Adequate Sanitation Using a Centralized Wastewater Treatment system

Currently, there is no statewide estimate of the population without adequate sanitation whose homes are connected to a sewer system and centralized wastewater treatment plant. Prior to

**Table 6 Estimate of Californians Without Adequate Sanitation**

Type of System	Total No. of Systems	Total Population	No. of Systems Without Adequate Sanitation	Population Without Adequate Sanitation
Onsite Wastewater Treatment System (Septic System)	1,200,000 <sup>1</sup>	>3,960,000 <sup>1</sup>	Data Not Available	Data Not Available
Tribal Wastewater System	Data Not Available	Data Not Available	9,499 homes <sup>2</sup>	31,000 <sup>2</sup>
Small Wastewater System	577 <sup>3</sup>	Data Not Available	Data Not Available	Data Not Available
Medium & Large Wastewater System	317 <sup>3</sup>	Data Not Available	Data Not Available	Data Not Available

Notes:

1. Estimate from State Water Resources Control Board's (SWRCB's) 2012 Onsite Wastewater Treatment System policy. The population estimate assumes that all 1.2 million septic systems are for residential use and assumes 3.3 persons per household.
2. From the Indian Health Services (IHS) Sanitation Deficiency Construction Program. In 2012, there were 9,499 homes with an IHS Deficiency Level of 3, 4, or 5 that either lack a sewage disposal system or have a sewage disposal facility that does not comply with pollution control laws. The population estimate assumes 3.3 persons per household.
3. From SWRCB's California Integrated Water Quality System (CIWQS) database. Since population data is not available in CIWQS, the number of small wastewater systems was estimated by determining the number of systems with a permitted flow of less than 1 million gallons per day (MGD), and the number of medium and large systems was estimated by determining the number of systems with a permitted flow of more than 1 MGD.

assessing which communities are without adequate sanitation, additional discussion is needed among State agencies and stakeholders to develop the definition of adequate sanitation as it pertains to centralized wastewater systems. Recently, stricter environmental requirements have made it more challenging for wastewater treatment systems to comply with discharge requirements that may not be related to a public health threat. Further discussion is needed regarding how non-public health violations should be included in assessing the number of Californians without adequate sanitation.

One suggestion is to develop different categories or levels in the assessment of centralized wastewater treatment systems. For example, Level 1 may include communities whose centralized wastewater treatment plant and sewer system pose a significant public health risk all the time. Level 2 may include communities whose centralized wastewater treatment plant and sewer system pose a significant public health risk seasonally or for part of the year. Level 3 may include communities whose centralized wastewater treatment plant only poses a threat to the environment due to non-compliance with water quality discharge standards.

## Challenges Faced by Small Communities

Small communities face many challenges in ensuring that residents have safe, clean, affordable, and accessible water. Some of the challenges between drinking water and wastewater systems are similar, some are unique to either drinking water or wastewater, and others may be interconnected where action or inaction by a drinking water or wastewater system may affect the other system. Climate change can also pose obstacles for many small communities. All of these challenges are further compounded if a community is economically disadvantaged.

### Similar Challenges

Small communities with drinking water and wastewater systems often face similar challenges between the two systems, which may include being located in remote rural areas, aging infrastructure, more stringent water quality standards, financial capacity, affordability, access to government funding, and climate change.

### Rural Areas

Many small communities are located in rural, sparsely-populated areas with larger lot sizes than those of urban communities. Larger lot sizes require greater pipeline lengths in the drinking water distribution system and the wastewater sewer collection system, which generally increases the cost to provide these services. In addition, some poor land use planning decisions have contributed to the problem. Many small communities were formed more than 40 years ago before the development of general plans, and some newer developments were also inappropriately sited without adequate infrastructure or beneficial economics to sustain their water infrastructure.

Rural communities residing in foothill or mountain areas may only have access to drinking water through the drilling of “hard rock” wells. These wells are drilled through rock such as granite, greenstone, or basalt with the intent of intersecting fractures in the rock that contain groundwater. Newly drilled “hard rock” wells may provide a suitable supply at first, but then begin to decline in production due to insufficient recharge rates. Many “hard rock” wells seasonally decline in production from the wet seasons (winter and spring) to the dry seasons (summer and fall) as recharge rates decline. In addition, some small water systems may be located too far away from an economically viable source of safe drinking water or may not have the technical or managerial capacity to seek out a better water source.

### Aging Infrastructure and More Stringent Water Quality Standards

Aging infrastructure and more stringent regulatory requirements to better protect public health and the environment are challenges faced by both water and wastewater systems. Water system infrastructure that was installed 20 to 30 years ago or longer may not be adequate to meet current water quality standards. Also, as this infrastructure ages, it is more prone to failure which poses a risk to public health and the environment.

For drinking water systems, the lowering of the arsenic MCL from 50 parts per billion (ppb) to 10 ppb is an example of more stringent water quality standards. Some small CWSs that rely on groundwater have arsenic concentrations between 10 to 50 ppb and were previously in

## Box 2 Surveying the Needs and Assisting Disadvantaged Communities in the Inyo-Mono Integrated Regional Water Management Program

Formed in 2008, the Inyo-Mono Integrated Regional Water Management (IRWM) Program is comprised of diverse geographies, including the highest and lowest points in the contiguous United States occurring within 150 miles of each other. The vast majority of communities in this rural region are small, with access to water primarily via small water systems or private domestic wells. Likewise, the majority of domestic water comes from groundwater, and elevated levels of naturally occurring contaminants such as arsenic and uranium are unfortunately far too common. Roughly one-half of the communities in the Inyo-Mono region are economically disadvantaged, with several being severely disadvantaged.

Given the prevalence of disadvantaged communities (DACs) in the region, a central focus of the Inyo-Mono IRWM Program has been to engage with DAC stakeholders and support their water-related needs. With the support of Proposition 84 IRWM funding from the California Department of Water Resources (DWR), both programs and projects have been implemented to address critical DAC water supply and water quality needs.

Initially, the Inyo-Mono IRWM Program set out to identify critical water-related needs of DACs in the region. This was accomplished through an outreach water needs survey that was developed and circulated to over 200 water systems in the region. Additionally, working with the California Rural Water Association (CRWA), formal needs assessments were conducted with 39 small water systems in the region. From these information gathering efforts, it was learned that common water supply and water quality problems exist throughout the region, and that many small DAC water systems lack the resources (technical, managerial, and financial) to address and solve these issues.

Information gathered through various efforts has also been used to build capacity of DACs and associated water systems and to provide needed resources. Based on needs identified through this work, and working with CRWA and others, a series of trainings was provided free of charge (supported through a DAC-specific grant from DWR). Training topics ranged from grant writing, to setting water system rates, to an update of water system-relevant regulations. In addition, the IRWM Program serves as a go-to source of information for small and DAC water systems as they seek to improve infrastructure, meet regulatory standards, and build their knowledge base.

Another way of supporting water-related needs in Inyo-Mono DACs is through funding discrete projects. The residents and visitors of Tecopa do not have local access to safe drinking water. Springs in and near the town produce water high in arsenic and fluoride, and Tecopa residents regularly drive to Pahrump, Nevada — 30 miles away — to purchase drinking water. The lack of safe drinking water is presenting both economic and human health challenges in this community. Through Proposition 84, the Inyo-Mono IRWM Program funded a feasibility study to assess various local water sources and develop options for treating local sources to drinking water standards. The result was that two feasible options for treatment, distribution, and storage were developed with unanimous support from Tecopa residents. The Inyo-Mono IRWM Program will continue to work with stakeholders from Tecopa to secure funding to build a treatment/distribution/storage system and begin delivering safe drinking water to the town.

The work completed thus far has drawn greater attention to the significant need to address the critical issue of having an accessible and reliable source of safe drinking water in communities such as Tecopa. Moreover, it is recognized that to achieve more accessible and reliable safe drinking water, programs such as DWR's IRWM Program, along with others are of paramount importance.

*Source: Mark Drew, Inyo-Mono IRWM Program*

compliance. However, to meet the new standard, they must either install an arsenic treatment system that is generally expensive to operate and maintain, or find an alternate water supply. Currently there are approximately 95 small CWSs that do not meet the new arsenic standard, and most are pursuing government funding to develop a sustainable solution.

Similarly for wastewater systems, some small communities are faced with meeting stricter water quality discharge requirements at centralized wastewater treatment plants that were not designed to remove certain toxic pollutants. In 2000, the EPA adopted the California Toxics Rule (section 131.38 of Title 40 of the Code of Federal Regulations) which set numeric water quality criteria for California's surface waters. The SWRCB subsequently adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as SIP, which is the State's implementation plan for the California Toxics Rule. The RWQCBs then began to include stricter water quality standards for toxic pollutants in monitoring requirements and effluent limits in National Pollutant Discharge Elimination System (NPDES) permits. Around the same time, the RWQCBs started to adopt total maximum daily load (TMDL) allocations and enforcing these TMDLs in NPDES permits, waste discharge requirements, and conditional waivers. Many small communities with centralized wastewater treatment plants have found it difficult to comply with the new standards. Often their only option is to upgrade their wastewater treatment plant, which comes at an increased cost to ratepayers.

Ultimately, small communities will need to replace or install new infrastructure to address challenges with aging infrastructure and to meet more protective water quality standards.

### Financial Capacity and Affordability

In order to provide safe water and sanitation, all communities must, at a minimum, be able to collect sufficient revenue from their customers to fund operation and maintenance activities. These operation and maintenance expenses typically include costs for power, replacement parts, operator salaries, treatment chemicals, water quality monitoring, replacement of filter media, and disposal of treatment residuals. Small communities generally face higher per capita costs for capital improvements and operation and maintenance activities due to their smaller ratepayer base, which results in higher, sometimes prohibitive, water and sewer rates. Since many small communities are considered financially disadvantaged, the combination of higher per capita water and sewer rates combined with a low household income means that residents of small disadvantaged communities often pay a larger percentage of their income for water and sewer services (State Water Resources Control Board 2008). Small systems that are only able to collect enough revenue to fund operation and maintenance costs to keep rates affordable, generally do not have sufficient reserve funds available to cover the cost of future infrastructure improvement projects or unforeseen emergencies.

### Government Funding

Many small communities are unable to finance infrastructure improvements to ensure their customers have access to safe water and sanitation. There are government funding programs available that provide grants and loans to install new or replace existing water and wastewater infrastructure to address a community's problem. However, these programs only provide funding for capital improvements and do not provide funding for annual operation and maintenance costs because of the philosophy that successful water projects must be sustained by their communities. Raising water or wastewater rates to cover the operation and maintenance costs associated with a

### Box 3 The Edgemont Water Quality Improvement Project, Examining the Needs of an Urban Disadvantaged Community

Edgemont is an economically disadvantaged community that is in search of a solution to meet its drinking water needs. The community lies within the City of Moreno Valley in western Riverside County and is supplied with drinking water by the Box Springs Mutual Water Company. The Box Springs Mutual Water Company is a small community water system that provides water to an estimated 3,000 people through approximately 565 service connections and was established in the 1920's to serve a primarily rural area. However, after World War II the area experienced rapid urbanization, and the community had an influx of families which changed the nature of the mutual water company.

The Box Springs Mutual Water Company's distribution system is old and deteriorated, and in need of replacement. However, the community of Edgemont is economically disadvantaged, and the residents are unable to afford the cost to replace the water distribution system. In addition, the mutual water company's main groundwater well is contaminated with nitrate that exceeds the drinking water standard. In order to use their main well, it must be blended with treated water from Western Municipal Water District to lower the nitrate level below the drinking water standard.

Many Edgemont residents are property owners who have a share in the Box Springs Mutual Water Company; however, they do not understand how a mutual water company operates or that they are even shareholders in the company. The mutual water company recently acknowledged that they have not issued shares since approximately 2005. This lack of information has created problems in the community, including a vast disconnect with the system that they rely upon for water. Another challenge is that a portion of Edgemont's population is primarily Spanish speaking, resulting in very little interaction between the Box Springs Mutual Water Company and its residents.

The City of Moreno Valley is committed to find a drinking water solution for Edgemont. In this effort, the City of Moreno Valley has launched a bilingual outreach program in the community to engage and empower the residents. Because of this effort, the residents have created a community based group, the Edgemont Water Quality Improvement Task Force, to communicate with the residents on what options are available to improve the drinking water infrastructure and protect public health in their community. The City of Moreno Valley and the community task force are working together to secure the needed funding to replace the deteriorated water distribution system, and to address the water quality issues that have plagued the community for many years. They are hopeful that other local, regional, and State partners will also participate to solve the community of Edgemont's drinking water needs.

*Source: Maria Elena Kennedy, Kennedy Communications*

new project can be a major issue, and may indefinitely delay construction of a needed project. All publicly owned systems must go through the Proposition 218 process to approve a rate increase, and for some small communities the rate increase will likely be blocked. Similarly, some small systems are organized as mutual water companies where all of the property owners own a share of the mutual water company, which can make it difficult to reach a consensus on raising rates.

Some of the government agencies that provide funding include: SWRCB, CDPH, DWR, U.S. Department of Agriculture (USDA), and U.S. Department of Housing and Urban Development (HUD). In order for a small community to receive government funding, a number of items must be addressed, which includes:

- Meeting technical, managerial, and financial (TMF) requirements, such as showing how the small community can afford the additional operation and maintenance costs associated with the project.

- Hiring a civil engineer.
- Evaluating and determining the most feasible alternative.
- Overcoming obstacles associated with consolidation and interconnection of drinking water systems.
- Overcoming obstacles associated with installing a sewer system for a community that was previously using septic systems.
- Addressing Proposition 218 challenges on increasing water rates.
- Hiring an attorney to address all of the legal issues that may arise, such as ownership, service boundaries, lack of legal entity, lack of adequate water rights, and other legal questions.

Since the government funding process is complex and can take a significant amount of time, some government agencies provide technical assistance to small communities through organizations such as California Rural Water Association, Rural Community Assistance Corporation, and Self Help Enterprises. These technical assistance providers are familiar with the various government funding programs and can help with many of the funding-related items.

One of the major challenges in receiving government funding is meeting the TMF capacity. Satisfying the TMF elements is intended to ensure that small systems have long term sustainability and are able to maintain compliance with all applicable laws and regulations. Project funding may be delayed when a small system has difficulty satisfying one or more of the TMF elements. At CDPH, the four mandatory TMF elements include ownership documentation, water rights documentation, evaluation of consolidation options, and development of a balanced 5-year budget projection that includes all expenses and revenues (California Department of Public Health 2013a).

Another challenge is funding eligibility. Government funding is generally available for small community water systems and small community wastewater systems. However, there is no government funding available for state small water systems, local small water systems, or owners of private domestic wells, which can make it difficult for these systems to address a drinking water problem.

### Climate Change

Climate change projections include warmer air temperatures, diminishing snowpack, extremes in precipitation and storm intensity, prolonged droughts, more severe floods, and further increases in sea level rise. In addition, managers and operators of drinking water and wastewater systems face existing challenges, including population growth, land-use changes, aging infrastructure, availability of infrastructure funding, regulatory constraints, and meeting water quality standards. These challenges are already driving the water sector to take action. Climate change adds another dimension that will complicate these long-standing challenges for managers and operators of drinking water and wastewater systems (Environmental Protection Agency 2012a).

Minority, disadvantaged, and other vulnerable communities face the greatest risks from climate change (Moser et al. 2012). Disadvantaged communities that have problems in securing safe water and sanitation are unlikely to have the capacity to deal with additional challenges (California Natural Resources Agency 2014). Climate change is projected to adversely affect water quantity and quality and could cause damage to drinking water and wastewater



infrastructure. Drinking water treatment plants may need to be upgraded if source waters experience higher pollutant loadings, such as higher turbidity levels due to increased flooding and wildfires or more frequent algal blooms due to an increase in temperature. Floods could damage wastewater treatment and collection systems and cause sanitary sewer overflows. A rise in sea level could affect the integrity of coastal wastewater treatment plants and increase salinity in coastal aquifers critical for local water supplies. To begin to address these and other climate change impacts, communities are encouraged to incorporate climate change considerations into their drinking water and wastewater system planning to ensure that they are prepared.

## Drinking Water Challenges

In order for small communities to provide safe drinking water, they must develop adequate water supplies and meet all drinking water standards which may include complying with contaminant MCLs, providing treatment, and maintaining water system pressure. For some small systems that are unable to provide safe drinking water, an option may be to consolidate with a neighboring water system that has the capacity to provide safe drinking water. This option comes with its own challenges that are discussed later in this section.

## Groundwater Contaminants

Many small communities use groundwater as their main source of drinking water since it generally is readily available and typically does not require treatment outside of adding chlorine to ensure that the drinking water remains safe within the water distribution system. However, some small systems are affected by groundwater contaminant(s) from either human-caused or naturally occurring contaminants. In order for these small systems to provide safe water, they usually must either install a treatment system that is often expensive to operate and maintain or locate an alternate water supply. If a small water system elects to install a treatment system, they must consider the additional cost for operator salaries, treatment chemicals, water quality monitoring, filter media replacement, and disposal of treatment residuals to ensure the sustainability of the new treatment system.

CDPH's *Small Water System Program Plan* lists the small CWSs that are unable to provide safe water, and a review of this plan found that groundwater contaminants affect an estimated 175 of the 183 identified small CWS. The primary groundwater contaminants are arsenic and nitrate. Statewide there are approximately 95 small CWSs that exceed the arsenic MCL and approximately 53 small CWSs that exceed the nitrate MCL (see Table 3). All ten major hydrologic regions in the state have at least one small CWS that exceeds either the arsenic or nitrate drinking water MCL. The majority of the small systems that exceed the arsenic MCL are located in the Tulare Lake, San Joaquin River, South Lahontan, Sacramento River, Central Coast, and North Coast hydrologic regions. The majority of the small systems that exceed the nitrate MCL are located in the Tulare Lake, Central Coast, San Joaquin River, and South Coast hydrologic regions. The source of arsenic in groundwater is primarily due to naturally occurring sources, while the source of nitrate in groundwater is primarily due to human caused sources of contamination.

In 2014, CDPH adopted a Chromium-6 MCL of 10 ppb that is expected to affect some large and small CWSs that use groundwater. Chromium-6 is found to occur naturally in the environment at low levels, and there are also areas of contamination in the state due to historical industrial use,

such as manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion coatings (California Department of Public Health 2013b).

### Inadequate Surface Water Treatment

All communities that use surface water supplies are required to treat their water to meet surface water treatment rule requirements. These treatment requirements ensure a safe drinking water supply by removing or inactivating microbial contaminants such as giardia, cryptosporidium, viruses, and bacteria that may be present in surface water supplies, and if left untreated would contribute to a higher incidence of waterborne disease. Statewide there are 8 small CWSs that inadequately treat a surface water supply and are unable to provide safe drinking water to their communities (California Department of Public Health 2013). These 8 small CWSs are located in the Central Coast, Tulare Lake, and Sacramento River hydrologic regions.

### Maintaining Adequate Water Supply and Pressure

All water systems must maintain an adequate water supply and water pressure to ensure that safe drinking water is delivered to their customers. If a water system fails to maintain adequate water pressure in its distribution system, the drinking water quality may be jeopardized, since microbial contaminants can enter the distribution system through a cracked or leaking pipe. For some small CWSs maintaining adequate water supply and water pressure can be a challenge. Small CWSs that only have a single groundwater well with no backup supply are at risk, as well as small CWSs that are located in foothill and mountain areas that rely on “hard rock” wells, which typically decline in water supply from the spring to the fall months.

### Consolidation

Consolidation of a small CWS, state small water system, local small water system, and/or private domestic well owner with a neighboring larger CWS can provide relief to systems that are having difficulty providing safe water. However, there are many challenges that must be overcome for a consolidation project to be successful. These challenges include local politics and the high cost to construct a consolidation pipeline, especially if the two systems are many miles away or located in mountainous terrain. In addition, some concerns expressed by the larger water systems include:

- Cost of inheriting old and leaking infrastructure that will need to be replaced.
- Water loss due to leaking infrastructure that increases the operating cost.
- New residents from the consolidated water system unable to afford the new water bill.
- Liability issues.

A successful consolidation project involves cooperation among both water systems, by working together to address these and other challenges. State government should also assist and provide funding incentives to facilitate and ensure a successful project.

### Sanitation Challenges

In addition to drinking water challenges, small communities face specific challenges related to their wastewater systems. Some small communities rely on outdated or undersized centralized

wastewater treatment systems that no longer meet current water quality standards, and others may use septic systems that no longer function properly. The continued use of these wastewater systems poses a threat to public health and the environment.

### Failing Septic Systems

The SWRCB estimates that statewide there are more than 1.2 million onsite wastewater treatment systems or septic systems, with the majority of these systems located in rural areas. When properly sited, designed, operated, and maintained, septic systems treat domestic wastewater to protect public health and to reduce its polluting impact on the environment. The vast majority are functioning in a satisfactory manner and meeting their intended purpose.

However, there have been occasions in California where septic systems did not satisfactorily protect either public health or water quality. Some instances of these failures are related to the septic system not being able to adequately treat and dispose of waste as a result of poor design or improper site conditions. Other instances have occurred, where septic systems operate as designed, but the high density of septic systems results in a combined effluent that is more than can be assimilated into the environment, which could affect drinking water supplies.

As California's population continues to grow, and there is both increased rural housing densities and the building of residences and other structures in more varied terrain. These changes may increase the risk to public health and may cause environmental damage from the use of septic systems. What may have been effective in the past may not continue to be, as conditions and circumstances surrounding particular locations change. More scrutiny of septic systems is needed, but moderated by an appropriate balance of only the necessary requirements, balanced so that the use of septic systems remains viable. (State Water Resources Control Board 2012).

### Outdated/Undersized Centralized Wastewater Treatment Systems

There are approximately 577 small centralized wastewater treatment systems in the state. This is based on the number of systems with a permitted flow of less than 1 million gallons per day in the SWRCB's California Integrated Water Quality System database. As water quality discharge standards become more stringent and communities continue to grow, many of these small wastewater treatment systems are becoming outdated and/or undersized. To correct the problem, wastewater systems often require major upgrades that increase wastewater treatment operation and maintenance costs and ultimately may be unaffordable for residents in small communities.

### Consolidation of Homeowners Using Septic Systems

Constructing a sewer system in an unsewered area is a possible solution when septic systems are not functioning properly or when the effluent resulting from multiple septic systems is more than can be assimilated into the environment. Similar to the consolidation of a small water system, there are many challenges that must be overcome for a successful sewer consolidation project. Some of these challenges include:

- Cost to install the new sewer system.
- Cost to install a sewer lateral from each home to the new sewer system.

#### **Box 4 City of Beaumont's 6th Street and Maple Avenue Sewer Project, the Need to Replace a Failing Septic System in a Disadvantaged Community**

The residents of the 6th Street and Maple Avenue area in downtown Beaumont have suffered for many years from a failing septic system, one which often spews raw sewage onto their streets. After a rainfall, it is not uncommon to see children playing in water, which may be tainted by sewage from the failing septic system. To protect public health and improve water quality, the City of Beaumont has made some progress toward eliminating failing septic systems in its community. Since 2002, more than 100 homes with failing septic systems have been connected to the municipal sewer system. The City hopes to continue this effort by connecting an additional 100 homes in the 6th Street and Maple Avenue area to the municipal sewer system.

The 6th Street and Maple Avenue area of Beaumont is a trailer park community, originally built for overnight stays. But as time went on, families moved into the trailer park in search of affordable housing and transformed the trailer park into year-round housing. The trailers rely on a communal septic system, which is old and often fails. The residents are aware of this, and take a shower sparingly since too much water entering the septic system can cause it to fail. In addition, many residents are unable to use their washing machines because of the negative impact on the septic system. This poses a burden for the residents, since the laundromats are several miles away and some residents do not have cars.

The City of Beaumont is seeking assistance from the State Water Resources Control Board's (SWRCB) Clean Water State Revolving Fund program to connect the trailer park to the municipal sewer system, and thus eliminate the failing septic system. A preliminary review of the project was completed by SWRCB staff, and the area was initially deemed as a non-disadvantaged community. However, the city felt that the proposed project does serve a disadvantaged community, and hired the Rural Communities Assistance Corporation to conduct an income survey of the project area.

Sensitive to the fact that residents are often hesitant to respond to mail from someone they do not know, the city hired an outreach consultant to inform the residents before the income survey was mailed. Initially, the residents did not see the need or benefit to complete the income survey, but as the outreach consultant explained the process to them in Spanish, they became informed and saw the need to respond to the survey. In spite of the initial outreach, it took time for the residents to trust the process and complete the form. Once the trust was established and the residents saw that the city had their interest at heart, they responded enthusiastically. According to the outreach consultant, the most heartening part of the process has been the enthusiasm shown by the children. Once the outreach consultant gained the trust of the community, the children became interested in helping with the outreach and helped explain the need for the project to their Spanish speaking parents.

The income survey for the 6th Street and Maple Avenue project area has been completed, and the survey does show that the community is economically disadvantaged. The residents are still coping with the failing septic system and are hopeful that the SWRCB will partner with them to solve a complex problem that poses a public health threat to them and their children.

*Source: Maria Elena Kennedy, Kennedy Communications*

- Cost for centralized wastewater treatment system
- Overcoming local politics.
- Affordability of wastewater services.
- Liability issues.

A successful sewer consolidation project involves cooperation between the homeowners and the wastewater system to address these and other challenges. State government should also assist and provide funding incentives to facilitate and ensure a successful project.

## A Focus on California's Native American Population

Understanding tribal sovereignty is essential in appreciating the complex framework that interplays between tribes and states with water rights and management in Indian country. Tribes are sovereign entities much like foreign nations. Control over natural resources is especially important since it is one of the fundamental attributes of sovereignty that has endured. Tribes exercise their sovereignty and retain control over their natural resources and manage them in such a way as to not harm neighboring sovereign states.

Because water is inextricably linked to tribal economies, culture, and traditions, the potential impact of state water regulations on tribal sovereignty is great. Likewise, the impacts of tribal water regulations and policies on non-Indian water users are often a great concern of the state. However, providing access to safe drinking water and sanitation services is an uncontroversial priority for both tribes and state. Thus, the following discussion focuses on tribal drinking water and sanitation challenges, not the political issue.

American Indian tribal communities are vulnerable to housing deficiencies, which includes access to safe water and sanitation. The lack of infrastructure on tribal lands can be a result of low socio-economic conditions of the tribe or of the terrain the homes occupy. These deficiencies are of concern to the federal IHS program, whose objective is to protect the health of American Indians.

Most American Indian households on tribal lands have access to untreated drinking water supplies, but some may lack access to safe drinking water and sanitation. Some American Indian households still lack the needed infrastructure to have basic water service available in their homes or domiciles. As with other rural California residents, the households may use buckets to retrieve surface water from springs or creeks, which is then hauled back to their homes. Others may use a pipeline that they lay in a creek, and the untreated water is then gravity-fed back to their house or trailer. Still others may use a community spigot or well, but still need to bring the water into their dwelling by means of a bucket. Many communities have failing septic systems that allow raw sewage to seep to the surface, which creates a public health threat and eventually degrades the surrounding surface water and groundwater quality.

## Tribal Water Management, Programs, and Oversight

California has the second largest number of federally recognized Indian tribes, and according to the 2010 U.S. Census, California is home to the largest Native American population in the United States. There are currently 109 federally recognized Indian tribes based in California (Federal Register 2013). There are also indigenous communities which, although they existed prior to the formation of the United States, are not currently recognized as sovereign states by the federal government. As of 2013, 81 tribes in California are petitioning for federal recognition (Bureau of Indian Affairs 2013). All California Indian tribes, whether recognized by the federal government or not, have distinct environmental, economic, and public health concerns and needs. These differences may exist due to availability of resources, subsistence lifestyles, unique cultural beliefs and traditions, and/or specific connections to areas of California that are their ancestral homelands.

### Safe Drinking Water Act

In order to ensure that safe water is provided, many tribal communities operate a “public water system” (PWS), which must comply with the federal Safe Drinking Water Act (SDWA). The SDWA establishes overall minimum drinking water protection standards for the United States. The federal SDWA authorizes the U.S. Environmental Protection Agency (EPA) to establish safe drinking water standards and regulate public water systems to protect human health from contaminants in drinking water. The EPA and delegated states or tribes are responsible for ensuring that public water systems meet certain requirements for water quality, treatment techniques, operator certification, recordkeeping, and reporting.

Under the SDWA, an Indian tribe may assume primary enforcement responsibility for Public Water System Supervision and Underground Injection Control programs that are “within the area of the Tribal Government’s jurisdiction” (42 United States Code Section 300j-11(b)(1)(B)). The SDWA authorizes the EPA to “treat tribes in the same manner as states” for purposes of approving a federally recognized tribe primary authority to implement and enforce drinking water regulations. This responsibility requires significant resources and capability, among other things. Based upon a variety of factors, often including program costs, assistance and maintenance costs, and availability of technical expertise, tribes may decide not to assume primary enforcement responsibility under the SDWA. When tribes do not undertake regulatory authority under the SDWA, the EPA administers the drinking water programs on tribal lands, as appropriate. Currently, no tribes within California have obtained SDWA primary enforcement responsibility.

### Clean Water Act

The primary function of the federal Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 United States Code Section 1251(a)). Similar to the SDWA, under the CWA, tribes may attain the same status as states for the purpose of implementing and enforcing the CWA Water Quality Standards program (Section 303 of the Clean Water Act). Coupled with this is also the authority to review and certify (or not certify) certain permits written by the EPA, states, and the U.S. Army Corps of Engineers that may adversely affect the waters over which the tribe has authority (Section 401 of the Clean Water Act). Currently, five tribes in California have obtained primary enforcement authority over water quality standards (Environmental Protection Agency 2014).

### Tribal Laws

To reflect their concerns about water quality, many tribes have enacted comprehensive water codes that regulate water use and water quality to promote the public health, safety, and general welfare of its community, in accordance with standards established by the tribe and the federal government.

## Drinking Water and Sanitation Challenges

There are approximately 125 tribal public water systems in California that are regulated by the EPA in accordance with the requirements of the SDWA. Two-thirds of these systems are very small, serving fewer than 500 people and one-third serve fewer than 100 people. The majority of these water systems rely on groundwater, with 83% of the systems using groundwater and 17%

of the systems using surface water. An increasing number of tribal systems have had to install drinking water treatment plants in order to comply with requirements of the SDWA.

Nationwide, approximately 48 percent of tribal drinking water systems in Indian country had health violations or other significant reporting violations in 2010, this compares to approximately 26 percent for all public systems in the United States (Environmental Protection Agency 2012b). Based on a population percentage, tribal water systems in California are more likely to be issued a drinking water violation, either health based or monitoring and reporting, than non-tribal systems in the State. The population percentage served by tribal water systems in California that received a violation in the past 3-year period ending March 31, 2012, is twice that of non-tribal systems in California (27% vs. 13%). The population percentage served by tribal water systems in California that received a health-based violation is 12% as compared to 8% for non-tribal systems in California.

Most residential homes or domiciles on tribal land continue to rely on onsite wastewater treatment systems or septic systems. As noted earlier in this report, septic systems may fail due to the lack of maintenance or if there are too many septic systems in an area and the combined effluent resulting from multiple systems is more than can be assimilated into the environment. There are many environmental responsibilities that require significant resources of tribes to provide industry standard wastewater treatment and collection systems. Based upon a variety of factors, often including costs, assistance, maintenance, and availability of technical expertise, tribal governments may focus on certain high-priority activities, which may exclude industry standard wastewater collection and treatment facilities. Building infrastructure to convey and treat wastewater can be a huge financial burden on tribal communities. In most cases, tribal communities are spread over a large area, thus reducing the affordability of a centralized wastewater treatment plant. It may also be impractical from an engineering standpoint. If a tribal community did construct and operate a centralized wastewater treatment plant, it would be required to obtain a NPDES permit, which may include discharge limits based on tribal water quality standards established under the Clean Water Act. These standards, unlike the permit technology-based standards, generally do not take into account technological feasibility or costs, which may be key to the implementation of treatment facilities. Currently, only six tribes in California have wastewater treatment facilities with an EPA NPDES permit.

## Funding and Affordability Challenges

Funding for new infrastructure, as well as for repairs, rehabilitation, and upgrades to existing infrastructure is provided by several federal agencies including the EPA, IHS, USDA-Rural Development, and HUD. Recent increases to the EPA CWA and SDWA Tribal Set Asides, in conjunction with the 2009 American Reinvestment and Recovery Act funding, have contributed to increased funding in Indian country, but significantly more is needed.

The IHS's Sanitation Facilities Construction program provides the largest annual level of funding for tribal water infrastructure; however, the amount of funding was cut by 17% in the 2012 fiscal year and the reduction is retained in the United States' 2013 fiscal year budget. Similarly, the 2013 fiscal year budget for the EPA contains a 20% cut to the Clean Water State Revolving Fund (SRF) and a 7.4% cut to the Safe Drinking Water SRF. These SRF cuts disproportionately affect tribes because they do not have loan repayments to offset the cuts like states do. Even when grants and loans can be obtained, the cost of installing and operating a new treatment system may put a large cost burden on a tribal community because of the small number of people sharing the

### **Box 5 The Kashia Band of Pomo Indians Case Study, Why Small Systems Should Consider the Affordability of Operation and Maintenance Costs when Installing Drinking Water and Wastewater Treatment Systems**

The Kashia Band of Pomo Indians of the Stewarts Point Rancheria is located on a ridge top area on the Sonoma County Coast. The Kashaya Utility District (KUD), which is managed by the tribe, provides drinking water and wastewater services for the Rancheria, which includes 16 homes and approximately 118 people depending on the time of year. The KUD upgraded its drinking water and wastewater treatment systems; however, the affordability of the operation and maintenance cost associated with these treatment systems was not thoroughly assessed prior to their installation.

The KUD draws its drinking water from the Wheatfield Fork of the Gualala River, since water sources within the Rancheria are insufficient to support the community. The drinking water was previously treated through a surface water treatment plant that included a sand filtration system, disinfection system, and a 32,000-gallon storage tank. However, the water system was continually out of compliance since the filtration system could not lower the turbidity level to meet drinking water treatment standards.

In 2007, the KUD, on the recommendation of federal agencies, decided to install a microfiltration system and a 67,000-gallon storage tank to replace the inadequate filtration system and storage tank. The microfiltration system has worked well; however, the operation and maintenance needs associated with the microfiltration system does not appear to have been adequately considered. The system is computerized and requires a level of knowledge that is not available with some of the tribal water treatment operators. The KUD has contacted federal agencies and a non-governmental organization to attempt to find an affordable resource in the event that troubleshooting the microfiltration treatment system is needed, but these agencies and organization do not have staff trained on this system.

In 2010, the treatment system experienced a brown-out, which compromised the computer system and shut down the microfiltration system. The utility was unable to pump water for 96 hours, and had to hire a consultant from Colorado to repair and reset the system at a cost of \$5,100. This cost was more than 50% of the amount the water system collects annually. A larger system could absorb this cost, but this is nearly impossible for a small system. KUD has been fortunate to not have any further breakdowns.

On the wastewater side, the Indian Health Services assisted the Rancheria in 1999 with an imminent threat situation involving sewage leaking from individual septic tanks. The geology of the landscape where the Rancheria is located does not allow for good percolation; in many areas hard-pan (clay substrate) is three feet or less below the surface. Due to the failing individual septic systems, a Fast Wastewater Septic System was installed to replace the failing septic systems. The Fast Wastewater Septic System worked well initially, but it required a large amount of power and the resulting electricity bills were routinely more than \$600 per month. Ultimately, the high electricity cost resulted in the KUD shutting off the Fast Wastewater Septic System. This caused the aerobic system to turn anaerobic, leaving an unpleasant smell. Similar to the drinking water microfiltration system, the affordability of the operation and maintenance costs associated with the Fast Wastewater Septic System does not appear to have been adequately considered.

*Source: Nina Hapner, Kashia Band of Pomo Indians*

costs. To ensure an adequate level of the EPA funds is provided for tribal water infrastructure, tribes are advocating for a tribal SRF funding floor at 2010 fiscal year levels with adjustments for inflation.

California recently awarded its first SRF loan to a tribe. However, significant legislative barriers exist for tribes interested in applying for California SRF funds, because the State requires that



only State regulated facilities are eligible for funding. Tribal drinking water systems, which are regulated by the EPA, are thus not eligible for California SRF funds. Similarly, the few tribal wastewater systems regulated by the EPA under a NPDES permit are not eligible for California SRF funding.

Operation and maintenance funding is also critical in ensuring delivery of safe drinking water and the sanitary operation of wastewater disposal facilities, as well as protecting the federal investment in infrastructure over long term. Before tribal communities receive funding for infrastructure projects, they must have the ability to operate and maintain these facilities or risk losing funding for critical projects. For many tribal communities, it is not possible to cover these new operation and maintenance costs through increased water rates, since tribal water systems are small, have high poverty levels, and lack income sources. Insufficient federal funding to support operation and maintenance costs for tribal facilities represents a significant funding gap necessary to ensure that new and existing treatment facilities and infrastructure are properly operated and maintained to protect public health.

In addition, some tribal homes are not connected to a public water system. These homeowners typically use private domestic wells with unknown drinking water quality due to a lack of information on private domestic wells. Homes not connected to a public water system are ineligible for the EPA Drinking Water Tribal Set-Aside funds, unless a proposed project seeks funding to connect these homes to a public water system. Also, due to funding limitations, the IHS does not normally fund private domestic wells.

## Progress over the Past Ten Years

The following section takes a look at what progress has been made in the past ten years, primarily at the state level, to assist small communities and tribal communities to provide safe drinking water and sanitation. Without this progress, many more residents in the state would lack safe water and sanitation.

### Progress to Provide Safe Drinking Water

#### Human Right to Water Bill (AB 685)

On September 25, 2012, Governor Brown signed AB 685, known as the Human Right to Water Bill, which added Section 106.3 to the California Water Code, becoming one of the first states in the United States to recognize the human right to water. AB 685 expresses that it is the “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.” AB 685 establishes a framework for decision-making to improve access to safe, affordable domestic water throughout California. AB 685 requires relevant State agencies, including DWR, SWRCB, and CDPH, to consider the human right to water, such as safety, affordability, and accessibility, when revising, adopting, or establishing policies, regulations, and grant criteria related to domestic water use.

Under AB 685, State agencies should ensure that the goals established by the policy — safe, clean, affordable, and accessible water adequate for domestic uses — are reflected in agency planning. State agencies should give preference to actions that advance the policy and strive

to avoid taking actions that adversely affect the human right to water. State agencies should also identify those populations including vulnerable and marginalized individuals, groups, and communities in rural, tribal, and urban areas that do not currently have access or are at risk of losing access to safe water. AB 685 is one of the most recent articulations of the State's commitment to safe and affordable water without discrimination, prioritizing water for personal and domestic use, and delineating the responsibilities of public officials at the State level.

### Changes to CDPH Funding Program to Benefit Small Community Water Systems

A number of changes have been made to the funding program administered by CDPH to benefit small community water systems. In addition, CDPH implemented a *Small Water System Program Plan* with a goal of increasing the compliance rate among small community water systems from 92% to 95% (the current compliance rate for large community water systems).

The CDPH funding program has made the following changes to make projects more affordable and shovel ready. In the Drinking Water SRF, the maximum amount of grant funding for a project in a disadvantaged community has increased from \$1 million to \$3 million. In addition, the percentage of grant funding available for a project in a disadvantaged community has increased up to 100%. It was previously capped at 80%, for Drinking Water SRF projects. CDPH's Proposition 84 and Drinking Water SRF funding programs now accept applications for planning studies to provide upfront funding for preliminary items such as project plans, specifications, environmental documents, treatment plant pilot studies, and drilling test wells. This was previously a major barrier for many small water systems, since they generally do not have sufficient reserves to cover these preliminary costs. When a water system completes the preliminary items in a planning study, it generally makes their project "shovel ready" or ready for construction.

CDPH's Proposition 84 and Drinking Water SRF funding programs now provide the following incentives for consolidation projects.

- **Proposition 84 funding program:** A consolidation project can include replacing the existing distribution system of the small CWS so it meets the same standard as that of the resulting water system.
- **Drinking Water SRF program:** A water system that consolidates a small CWS may request that one of its own projects (with a lower ranking) be re-ranked to the same level (significantly higher ranking) as that of the small CWS. This incentive generally allows the larger resulting water system project to be funded when it previously would not.

In addition, CDPH contracts with technical assistance providers who help small CWSs. The amount of funding for technical assistance providers has increased, and they are now funded at \$3.2 million per year, collectively, which is significantly more than in the past.

### Adoption of Point-of-Use and Point-of-Entry Regulations to Benefit Small, Rural Communities

Point-of-use (POU) or point-of-entry (POE) treatment may provide an affordable solution for some small, rural communities to meet drinking water standards. A POU treatment device treats only the water intended for direct consumption and is typically installed at a single tap such as the

kitchen sink. A POE treatment device treats all the water entering a house or building, excluding the water used for outside irrigation. In certain applications, POU or POE treatment devices may be more affordable than constructing, operating, and maintaining a centralized water treatment plant. In 2010 and 2011, CDPH adopted emergency regulations governing the permitted use of POU and POE treatment by public water systems, as required by Health and Safety Code section 116380. These emergency regulations allow community water systems to seek project approval from CDPH, if they serve fewer than 200 connections and can demonstrate that a centralized water treatment plant is not economically feasible. In 2013, CDPH released a *Point of Use Compliance* guidance document to assist small community water systems that are considering POU treatment. Additional information regarding the guidance document is available at <http://www.cdph.ca.gov/certlic/drinkingwater/Documents/POU/CaPOUCompliance-Final-03-2013.pdf>.

### Progress to Provide Adequate Sanitation

On the wastewater and sanitation side, the SWRCB has prepared a “Small Community Wastewater Strategy” to promote strategies to assist small and/or disadvantaged communities with wastewater needs. The SWRCB provides annual updates on their efforts to implement this strategy, and over the years the SWRCB has implemented the following improvements to the Clean Water SRF program to assist small communities:

- Allowing for refinancing of existing local wastewater debts, if eligible, and when necessary to make Clean Water SRF financing for a new wastewater project affordable.
- Providing extended term financing and/or reduced interest rates for eligible small, disadvantaged communities.

#### Box 6 The Enchanted Heights Sewer Project, A Success Story

The construction of the Enchanted Heights sewer system will bring a lasting remedy to a serious problem in a disadvantaged community. For many years the residents of Enchanted Heights in Riverside County have contended with failing septic systems that often overflowed raw sewage into the streets. It was not unusual after rain events for children to pick their way through the raw sewage on their way to school.

In 2010, the opportunity arose to pursue grant funding from the California Department of Public Health to construct a sewer system. The City of Perris then partnered with the County of Riverside and Eastern Municipal Water District to pursue the opportunity. The partners applied for funding to the California Department of Public Health and were awarded a grant for \$10 million for the project. The partners then sought and were awarded a \$5 million grant from the State Water Resources Control Board to cover the remaining project costs.

With the funding for the construction of a sewer system secured, the City of Perris then launched an innovative and successful outreach program to ensure that the residents were aware of the project benefits. The outreach program proved to be highly successful, and the residents became active participants. The construction of the sewer system is now complete, and the City’s hard work in its community outreach has paid off. The residents are extremely happy with the project.

Additional project information is available at: <http://www.cityofperris.org/enchantedheights/>.

*Source: City of Perris*

- Offering planning financing agreements at zero percent interest during a draw period of up to three years, with the option to refinance the planning financing as part of a Clean Water SRF construction financing agreement.
- Providing principal forgiveness and grant funds to eligible communities.
- Following procedures to process and disburse payments within 30 days of a complete payment request submittal.

In 2012, the SWRCB adopted the “Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems.” The policy uses a tiered, risk-based management approach based on the potential of onsite wastewater treatment systems to impact surface water. The policy allows continued management of onsite wastewater treatment systems by local agencies and relies on their knowledge and expertise to ensure that water quality and public health are protected. Additional information on this policy is available at [http://www.swrcb.ca.gov/water\\_issues/programs/owts/index.shtml](http://www.swrcb.ca.gov/water_issues/programs/owts/index.shtml).

## Progress to Provide Safe Water and Sanitation to Tribal Communities

### Progress at the State Level

The SWRCB revised the wastewater treatment operator certification regulations in April 2013, to assist California tribes with retaining qualified operators at tribal wastewater treatment plants. The revised regulations now recognize the experience obtained at a tribal wastewater treatment plant in the State’s wastewater treatment plant operator certification program. This was previously a major barrier to hiring and retaining State certified wastewater treatment plant operators, since under the previous regulations operators did not receive operator certification credit when they worked at a tribal wastewater treatment plant.

### Progress at the Federal Level

Through the EPA Region 9 Tribal Operations Committee (ROTC), California tribes are active participants in numerous efforts to address drinking water and wastewater issues. Some of the key past activities and accomplishments include:

- Advocacy with supporting briefings led to reinvigoration of national level multi-agency task force to address tribal drinking water and sanitation needs.
- Participation by ROTC Representatives on the National Infrastructure Task Force ensured Tribal priorities and interests were included.
- Facilitation and support for development and completion of Region 9 Tribal Baseline Needs Assessment.
- Advocacy regarding tribal operation and maintenance needs led to the development of criteria for funding operation and maintenance pilot projects.
- Facilitation and hosting of Regional Multi-Agency Workgroup, which resulted in the creation of a drinking water and wastewater resource matrix.
- Support for collaborative projects to address tribal operational and maintenance needs.

In addition, the United States committed at the Johannesburg Summit on Sustainable Development to reduce, by 2015, the number of people who lack access to safe drinking water and basic sanitation by one-half (Access Goal). This goal is incorporated into EPA's Strategic Plan as a specific commitment in Indian country, and represents one step toward the Congressional policy of ensuring all Tribal homes have access to safe drinking water and basic sanitation as soon as possible (25 United States Code Section 1632(a)(5)). EPA's National Water Program Guidance, which supports its Strategic Plan, contains the following measures:

- Increase number of American Indian and Alaskan Native homes provided access to safe drinking water, in coordination with other federal agencies, to 119,000 (SDW-18.N11).
- Increase percent of population in Indian country served by community water systems that receive drinking water meeting all applicable health-based drinking water standards (SDW-SP3.N11).
- Increase number of American Indian and Alaskan Native homes provided access to basic sanitation, in coordination with other federal agencies, to 67,600 (WQ-24.N11).

## Conclusions

Over the past five years, significant progress has been made in heightening the awareness of drinking water and sanitation problems facing small and disadvantaged communities in California as evidenced by the numerous plans and reports on the issue. These plans and reports include recommendations and actions that must be implemented to continue the progress towards ensuring that all Californians have access to safe drinking water and adequate sanitation.

### List of recent drinking water and sanitation plans and reports

- [Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater](#) (2012), UC Davis, Report to the Legislature.
- [Agreements and Legislative Recommendations](#) (2012), Governor's Drinking Water Stakeholder Group, Final Report to the Governor's Office.
- [Communities that Rely on a Contaminated Groundwater Source for Drinking Water](#) (2013), SWRCB, Report to the Legislature.
- [Recommendations Addressing Nitrate in Groundwater](#) (2013), SWRCB, Report to the Legislature.
- [Report on New and Expanded Funding Sources to Address the Needs of Disadvantaged Communities in Unincorporated Areas that Do Not Have Safe Drinking Water](#) (2013), Governor's Drinking Water Stakeholder Group, Final Report to the Governor's Office.
- [Small Community Wastewater Strategy](#) (2008) and [Annual Updates](#), SWRCB.
- [Small Water System Program Plan](#) (2013) and [Monthly Updates](#), CDPH.

The following are a list of findings from the project:

A comprehensive assessment of the number of Californians without safe drinking water cannot be made due to significant data gaps. Currently, no statewide data is available on the total population and the population without safe water who reside in areas that are served by a state small water system, local small water system, or private domestic well. State agencies should coordinate

with local counties so that a statewide assessment of state small water systems, local small water systems, and private domestic wells can be made.

A comprehensive assessment of the number of Californians without adequate sanitation cannot be made due to significant data gaps. Currently, no statewide data is available on the population without adequate sanitation who use onsite wastewater treatment systems or septic systems. Additional discussion is needed to determine how to assess the population without adequate sanitation who are part of a centralized wastewater treatment system.

Small communities, especially those that are economically disadvantaged, face a number of obstacles in accessing and providing safe and affordable drinking water and sanitation. A major obstacle is funding operation and maintenance costs associated with a new water or wastewater treatment plant. These additional costs often make water and wastewater rates unaffordable in disadvantaged communities.

State government will need to invest and provide incentives, in order to identify and address the drinking water and sanitation needs of all communities. The administration recently consolidated the drinking water and water quality programs into a single agency to achieve broader program efficiencies and synergies that will best position the State to respond to existing and future challenges. This initiative will more effectively restore and protect water quality and public health in disadvantaged communities.

## **Recommendations to Achieve Safe Drinking Water and Sanitation**

The following recommendations have been developed with input from State agencies and public stakeholders, and if implemented, will continue the progress towards ensuring safe water and sanitation for all Californians. In addition, Governor Brown's California Water Action Plan released in 2014 includes ten actions that address the most pressing water issues that the State faces. Action 7 is titled, Providing safe water for all communities (see Box 7).

Due to limited funding resources at the State, county, and local level, policy-makers and lawmakers must take definitive steps to authorize the following recommendations and appropriate the funding needed for their implementation. At the same time, these recommendations must be embraced by State, regional and local agencies, and voting bodies that can implement them.

1. State, regional, and local governments should coordinate to estimate the statewide total population without safe water including those residing in areas served by a state small water system, local small water system, or private domestic well.
2. State, regional, and local governments should coordinate to identify communities, unincorporated areas, and populations that rely on inadequate onsite wastewater treatment systems or septic systems. In addition, the State Water Resources Control Board (SWRCB) should coordinate with interested stakeholders to determine how to estimate the population without adequate sanitation who are part of a centralized wastewater treatment system.
3. State, regional, and local governments, along with interested stakeholders, should coordinate to develop performance metrics and track the progress of achieving safe drinking water and sanitation for all Californians. Periodic progress reports should be prepared that show what improvements have been made and what additional actions are needed.

**Box 7 California Water Action Plan**

**Provide Safe Water for All Communities (Action 7)**

All Californians have a right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. Disadvantaged communities, in particular, often struggle to provide an adequate supply of safe, affordable drinking water. The reasons for this are numerous: changes in drinking water quality standards, pollution, aging infrastructure, lack of funding for basic infrastructure, lack of funding for ongoing operation and maintenance, and unreliable supplies resulting in service interruptions are among the most common. Programs designed to protect the quality of our waters for drinking and other uses are housed in multiple agencies, reducing their effectiveness and ability to meet communities' needs.

**Consolidate Water Quality Programs**

The administration is pursuing consolidation of the drinking water and surface and groundwater quality programs into a single agency to achieve broader program efficiencies and synergies that will best position the State to respond to existing and future challenges. This initiative will also better restore and protect water quality and public health for disadvantaged communities.

**Provide Funding Assistance for Vulnerable Communities**

The administration will work with the legislature to establish a stable, long-term funding source for provision of safe drinking water and secure wastewater systems for disadvantaged communities. The funding will be made available through a framework of statutory authorities for the state, tribes, regional organizations, and county agencies that will assess alternatives for providing safe drinking water and wastewater, including regional consolidation, as well as develop, design, implement, operate, and manage these systems for small disadvantaged communities impacted by contaminated drinking water and lack of sanitary wastewater infrastructure.

**Manage the Supply Status of Community Water Systems**

The state will identify drought-vulnerable public water systems and monitor the status of these systems to help prevent or mitigate any anticipated shortfalls in supply and to also secure alternative sources of water for the communities when needed. The state will also work with local governments and agencies to identify drought-vulnerable areas served by domestic wells and collaborate to prevent or mitigate any anticipated shortfalls.

*Source: California Water Action Plan 2014.  
Available at: [http://resources.ca.gov/california\\_water\\_action\\_plan/](http://resources.ca.gov/california_water_action_plan/)*

4. Ensure implementation of the policy goals within California Water Code Section 106.3 (AB 685), which states that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.
  - 4.1. State agencies should ensure that the goals established by the policy — safe, clean, affordable, and accessible water adequate for domestic uses — are reflected in agency planning.
  - 4.2. State agencies should give preference to actions that advance the policy and strive to avoid taking actions that adversely affect the human right to water.
  - 4.3. State agencies should track actions undertaken to promote the policy and make information relevant to the human right to water available to the public.
  - 4.4. Governor’s Office of Planning and Research (OPR) should provide access to resources defining public participation best practices to State agencies, through

- its local government roundtable and the OPR website. State agencies should implement best practices, within available resources, for public participation in agency decision-making by California's diverse population.
- 4.5. State agencies should facilitate access by rural and urban disadvantaged communities and California Native American tribes to state funds for water infrastructure improvements.
  - 4.6. State agencies should ensure the effectiveness of accountability mechanisms protecting access to clean and affordable water.
  - 4.7. In consultation with State agencies, OPR should provide guidance and/or guidelines to inform and assist State agencies in implementing California Water Code Section 106.3 (AB 685).
  - 4.8. State agencies are encouraged to review their policies, regulations, and funding criteria for consistency with California Water Code 106.3 (AB 685).
5. The California Department of Water Resources (DWR), SWRCB, California Department of Public Health (CDPH), other State agencies, and tribal governments should establish a workgroup to build relationships and collaboration to identify and address the challenges of ensuring safe water and sanitation for all tribes in California. This would allow the State to receive direct advice from the tribal community on issues pertaining to safe water and sanitation and would allow tribes to participate in the planning, development, and implementation of water projects, services, and policies of State agencies. It also provides an opportunity to further government-to-government relationships. However, this work group would not be considered government-to-government consultation.
  6. State government should remove barriers to local and regional funding for water projects conducted to support disadvantaged and environmental justice communities.
    - 6.1. The SWRCB, CDPH, DWR, and other State agencies should work with disadvantaged communities and vulnerable populations and their advocates to review State government funding programs and develop or revise guidelines that make funding programs more accessible to disadvantaged and environmental justice communities.
    - 6.2. The SWRCB, CDPH, DWR, and other State agencies should implement and expand technical assistance programs developed in collaboration with disadvantaged and environmental justice communities and their advocates to provide resources, expertise, and information leading to more successful access to funding.
  7. State government should provide incentives for the consolidation, acquisition, or improved management of small water systems.
    - 7.1. CDPH should establish incentives for large water systems to consolidate with small water systems or others without access to safe drinking water.
    - 7.2. CDPH should encourage drinking water providers and other governmental and non-governmental entities to conduct outreach and education for customers and shareholders regarding proposed consolidations.
    - 7.3. CDPH should support efforts to improve licensing and training options for small water system operators.



- 7.4. State agencies through the Integrated Regional Water Management (IRWM) program, should work together to foster regional and shared solutions for drinking water systems serving small communities and disadvantaged communities. This includes providing incentives for consolidation, acquisition, or interties among systems. In addition, with State agency support, IRWM groups should support building technical, managerial, and financial (TMF) capacity at small water systems to ensure that these systems are able to provide safe, reliable water.
8. Support financial mechanisms to facilitate improved and sustainable wastewater removal systems.
  - 8.1. The SWRCB and DWR should establish incentives for substandard septic or small wastewater systems to connect with municipal, regional, or other upgraded wastewater systems.
  - 8.2. Local and regional agencies should be encouraged to establish introductory, then graduated, wastewater rates to allow a period of adjustment for new and affordable rates.
  - 8.3. DWR, CDPH, SWRCB, the California Public Utilities Commission, and other State agencies should evaluate and create a consistent metric for water affordability.
9. SWRCB and other State agencies that provide funding to third-party technical assistance providers to assist small water and wastewater systems should allow tribal water and wastewater systems to be eligible to receive this technical assistance.
10. SWRCB and other State agencies should submit an endorsement letter to the U.S. Environmental Protection Agency and Congress supporting an increase in the funding allocation (currently at 2%) for the Safe Drinking Water Act Drinking Water Infrastructure Tribal Set-Aside and Clean Water Act Indian Set-Aside Programs.
11. SWRCB and other State agencies should endorse and provide incentives for a job share program that allows tribal drinking water and wastewater operators an opportunity to gain experience at municipal drinking water or wastewater systems.
12. The Legislature, in keeping with the goal of AB 685 that drinking water be safe, clean, affordable, and accessible, should identify a long term source of funding to replace the Proposition 50 and Proposition 84 grant monies and provide funding to assist small disadvantaged communities with operation and maintenance costs.
13. The Governor’s Office of Planning and Research should include in its update of the General Plan Guidelines a recommendation to city and county governments that prior to approval of new developments or facilities, an evaluation should be conducted to determine if the new development or facility can be connected to an existing public water system or if the new development or facility can be operated by an existing permitted public water system. This evaluation could be included in a Water Supply Assessment created to comply with the California Environmental Quality Act or Subdivision Map Act.
14. State government should begin and continue to implement the recommendations and actions identified in the following reports to the governor, reports to the Legislature, strategic plans, and program plans:

- *Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater* (2012), UC Davis, Report to the Legislature.
- *Agreements and Legislative Recommendations* (2012), Governor's Drinking Water Stakeholder Group, Final Report to the Governor's Office.
- *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* (2013), SWRCB, Report to the Legislature
- *Recommendations Addressing Nitrate in Groundwater* (2013), SWRCB, Report to the Legislature.
- *Report on New and Expanded Funding Sources to Address the Needs of Disadvantaged Communities in Unincorporated Areas that Do Not Have Safe Drinking Water* (2013), Governor's Drinking Water Stakeholder Group, Final Report to the Governor's Office.
- *Small Community Wastewater Strategy* (2008) and Annual Updates, SWRCB.
- *Small Water System Program Plan* (2013) and Monthly Updates, CDPH.

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