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Californians Without Safe Water and Sanitation Update 2013

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1. Executive Summary

PLACEHOLDER – To be developed later

2. Introduction

While most Californians enjoy access to safe drinking water and adequate sanitation, there are some residents that live in communities or areas that do not have access to safe drinking water and/or adequate sanitation facilities. There are also some homeowners that may be unaware of the quality of their drinking water, since they are not required to test the water quality of their drinking water.

In 2005, the Department of Water Resources (DWR) released a report titled *Californian's 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 need and challenges facing many small communities, especially disadvantaged communities and tribal communities.

Similar to the 2005 report, the *Californian's 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. The report has a similar layout to the 2005 report and was prepared with the assistance from other State agencies, members of the Tribal Advisory Committee, and public stakeholders.

The report begins with an assessment of those without safe water or adequate sanitation facilities, however additional statewide data is needed to complete the assessment. There is discussion on challenges facing small communities and tribal communities. A chapter on progress over the past ten years that highlights 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 Assembly Bill No. 685 (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). The report finishes with conclusions and recommendations that should be implemented to further the progress to achieve safe drinking water and adequate sanitation for all Californians. The report will also serve as a technical reference to the *California Water Plan Update 2013* (Update 2013).

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 of the area served by the system.

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

Small Wastewater System
A wastewater system with a permitted flow of less than 1 million gallons per day as reported in SWRCB's California Integrated Water Quality System (CIWQS) 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)

3. Population without Safe Water or Sanitation

In order 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, there are various types and sizes of water and wastewater systems that may serve a home. For example, people living in rural areas often use private domestic wells to supply drinking water to their home, or a small number of homes may share one or two wells and be considered a state small water system or small community water system (CWS). In urban areas, drinking water is usually provided by medium and large CWS that utilize groundwater and/or surface water supplies. This report attempts to estimate the population that lacks safe drinking water and/or adequate sanitation at their place of residence.

3.1 Californians Without Safe Water

Safe drinking, for purposes of this report, is defined as water that meets all federal and State primary drinking water standards (maximum contaminant levels). In order 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. The type of water systems were grouped into the following four categories:

individual homeowners, state small water systems, tribal water systems, and CWSs. Based on these categories, an estimate of the population without safe water is shown on Table 1. These estimates were compiled using information from various reports and data sources. Currently, there is no statewide data available to estimate the number of people without safe water that are part of a state small water system or individual homeowner water system.

Table 1 Estimate of Californians without Safe Drinking Water

Type of System	Total No. of Systems	Total Population	No. of Systems without Safe Water	Population without Safe Water
Systems supplying individual homeowners (1 – 4 Service Conn.)	200,000 – 600,000[1]	600,000 to 2,000,000[1]	Data Not Available	Data Not Available
State Small Water Systems	Data Not Available	Data Not Available	Data Not Available	Data Not Available
Tribal Water Systems	125[2]	Data Not Available	(10,934 homes)[3]	36,000[3]
Small Community Water Systems	2,267[4]	930,000[4]	164[5]	60,000[5]
Medium Community Water Systems	232[4]	1,400,000[4]	Data Not Available	<660,000[6]
Large Community Water Systems	421[4]	35,000,000[4]		

Notes:

1. From SWRCB's 2013 report, *Communities that Rely on a Contaminated Groundwater Source for Drinking Water*. This is a total of the number of private domestic wells and does not include individual homeowners using surface water.
2. This is the number of tribal public water systems in California that are regulated by USEPA. This total does not include federally non-recognized tribes or small systems supplying less than 14 homes that are not regulated by USEPA.
3. The number of systems/homes and population estimate without safe water was determined using information from the Indian Health Services Sanitation Deficiency Construction Program. For 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 household.
4. Data is from CDPH's Permits, Inspection, Compliance, Monitoring and Enforcement (PICME) database from 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 on *Communities that Rely on a Contaminated Groundwater Source for Drinking Water*.
5. The number of small community water systems and population estimate without safe water is from the CDPH's *Small Water Program Plan*. Additional information is available at: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Smallwatersystems.aspx
6. This estimate was based on SWRCB's *Communities that Rely on a Contaminated Groundwater Source for Drinking Water* report that stated that over 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.

Individual Homeowners and Unregulated Small Systems without Safe Drinking Water

Some Californians receive drinking water from a very small system that uses a single water source to supply only their residence or up to 4 homes. These systems are usually not regulated outside of the initial construction permit that may be required at the local level. Therefore, very limited and often no data is available on the quality of drinking water, and there is no statewide estimate for this group on the number of people without safe drinking water.

Some data is available from the State Water Resources Control Board (SWRCB) that estimates the number of people who use groundwater from private domestic wells at between 600,000 to 2 million (SWRCB 2013a). In addition, the SWRCB Groundwater Ambient Monitoring and Assessment (GAMA) program has completed sampling of 1,146 private domestic wells in 6 counties (Yuba, El Dorado, Tehama, Tulare, San Diego, and Monterey) and those results are available at: http://www.waterboards.ca.gov/gama/domestic_well.shtml.

Additional data is needed to assess the number of homes or people that are supplied with surface water from these very small systems, and number of people that do not receive safe drinking water from these very small systems

State Small Water Systems without Safe Drinking Water

Some 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 and have less stringent requirements then community water systems.

Currently, there is no statewide database available that may be used to assess how these systems are doing. Therefore, there is no statewide data on the total number of state small water systems, the population served by state small water systems, or the number of people that do not receive safe drinking water from state small water systems.

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. For 2012, the IHS estimated that in California 1,207 homes did not have a drinking water supply, and 2,336 homes lack safe drinking water and were ranked with an IHS deficiency level of 4 or 5. (Levels 1 to 5; where Level 1 = fully adequate water supply, sewage disposal, and solid waste disposal facilities, and Level 5 = no safe water supply and no sewage disposal system). In addition, there were 7,391 homes with a partial or inadequate water system and 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 over 2,200 small CWS and over 900,000 people that are served by small CWSs. Small CWSs are regulated by the State, however many local counties have been delegated as the local primacy agency to regulate small CWSs serving 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 amongst these systems and focusing additional attention on these systems. In their plan, CDPH identified 183 small CWS statewide that serve approximately 60,000 people, that did not meet one or more health-based primary maximum contaminant level (MCL) or drinking water

standard. As of September 2013, 20 of 183 small CWS have resolved their problem and are now in compliance with primary drinking water standards and provide safe drinking water. Construction projects are also underway for 21 of the remaining 163 small CWS to correct their problem. Additional information on the CDPH's *Small Water System Program Plan* is available at the following website: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Smallwatersystems.aspx

Medium and Large Community Water Systems without Safe Drinking Water

Statewide there are over 650 medium and large CWS that serve over 35 million people with the majority of these systems providing safe water. Medium and large CWSs are regulated by the State, and it is estimated that less than 660,000 people do not receive safe drinking water from these systems. At the present time, data is not readily available that identifies which systems do not provide safe drinking water and the associated population that is affected.

The above estimate on 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 that are served by a CWS and over 98% of these people receive safe drinking water. Therefore, less than 2% or less than 720,000 people that receive water from a CWS are without safe drinking water. Using this total number, if the 60,000 people do not receive safe water from Small CWSs is subtracted, this leaves less than 660,000 people that do not receive safe water from medium and large CWSs.

3.2 Californians Without Adequate Sanitation

The wastewater system types were grouped into the following three categories: onsite wastewater treatment system or septic system, tribal wastewater systems, and centralized wastewater treatment with sewer collection system. Based on these categories, an estimate of the population without adequate sanitation is shown on Table 2. These estimates were compiled using information from various reports and data sources. Currently, there is no statewide data available to estimate the number of people without adequate sanitation that utilize either an onsite or centralized wastewater treatment system. Data is available for tribal communities that use either onsite or centralized wastewater treatment.

Table 2 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 Systems (Septic Systems)	>1,200,000[1]	>3,960,000[1]	Data Not Available	Data Not Available
Tribal Wastewater Systems	Data Not Available	Data Not Available	9,499 homes[2]	31,000[2]
Small Wastewater Systems	577[3]	Data Not Available	Data Not Available	Data Not Available
Medium & Large Wastewater Systems	317[3]	Data Not Available	Data Not Available	Data Not Available

Notes:

1. Estimate from 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. These numbers were determined using information from the Indian Health Services (IHS) Sanitation Deficiency Construction Program. For 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. Based on data 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 roughly approximated by totaling 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 roughly approximated by totaling the number of systems with a permitted flow of more than 1 MGD.

Individual Homeowners without Adequate Sanitation that Rely on Septic Systems

Similar to homeowners that utilize private domestic wells, some homeowners use onsite wastewater treatment systems or septic systems to treat and dispose of wastewater generated at their home. These systems are usually not regulated outside of the initial construction permit that may be required at the local level. Therefore, very limited and often no data is available to assess how these systems are working. Therefore, there is no statewide estimate for this group on the number of people without adequate sanitation.

Some data that is available provides a statewide estimate of more than 1.2 million septic systems with the majority of these systems functioning properly (SWRCB 2012). Additional data is needed on these systems to assess the number of homes and people without adequate sanitation facilities.

Tribal Communities without Adequate Sanitation

Some tribal communities and homes continue to lack access to adequate sanitation services. The IHS Sanitation Facilities Construction Program reviews requests from tribes regarding their water and sanitation system problems. For 2012, the IHS estimated that in California 1,721 homes lack a basic sewage disposal system and were ranked with an IHS deficiency level of 4 or 5. 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 that either lack a basic sewage disposal system or operate a sewage disposal system that does not meet current water quality standards.

Communities with Centralized Wastewater Treatment Without Adequate Sanitation

Currently, there is no statewide estimate on the number of people without adequate sanitation whose homes are connected to a sewer system and centralized wastewater treatment plant. Additional discussion is needed among State agencies and stakeholders to develop the definition of adequate sanitation especially as it pertains to centralized wastewater systems. A centralized wastewater treatment system receives wastewater from a sewer collection system which significantly reduces sanitation and public health issues at one's home. However a centralized wastewater treatment system may violate a discharge requirement that does not pose a public health threat. One question is if these types of violations should be included in the report. A suggestion may be to limit the definition of inadequate sanitation in this report to include only wastewater systems that are potentially exposing residents to public health risks. A possible data source for this information could be SWRCB's data on sewer system overflows, identifying those systems with consistent overflows of untreated wastewater. As noted earlier, additional discussion is needed on the definition of adequate sanitation to determine which data sources should be assessed.

4. Challenges Faced by Small Communities

Small communities face many challenges to ensure residents have safe, clean, affordable, and accessible water. Some of the challenges are common between drinking water and wastewater systems, some are unique to either drinking water or wastewater, and others are interconnected where action or inaction by the drinking water or wastewater system may affect the other system. These challenges are further compounded if a community is disadvantaged.

4.1 Common Challenges

Some of the common challenges that small communities face include being located in remote rural areas, aging infrastructure, more stringent water quality standards, financial capacity, affordability, and accessing government funding.

Rural Areas

Small communities are often located in rural, sparsely-populated areas with larger lot sizes than those of urban communities. These larger lot sizes require greater pipeline length for the drinking water distribution system and wastewater sewer collection system that increases the cost to provide these services. Poor land use planning decisions also contribute to the problem. Many of these communities were formed more than 40 years ago before the development of general plans, and some newer developments are also inappropriately sited without adequate infrastructure or beneficial economics to sustain their water infrastructure.

In addition, 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 factures in the rock that contain groundwater. Newly drilled “hard rock” wells may provide a suitable initial supply, but often begin to decline in production due to insufficient recharge rates. Many “hard rock” wells also decline in production from the wet season (Winter and Spring) to the dry season (Summer and Fall) as recharge rates decline. These small water systems may be too far away from a more economical 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

Another common challenge faced by both water and wastewater systems is aging infrastructure and changes to regulatory requirements to better protect public health and the environment. Water system infrastructure that was installed 20 to 30 years ago or longer may not be adequate to meet current water quality standards. This aging infrastructure is also more prone to failure that poses risks to public health and the environment.

For drinking water systems, arsenic regulations were enacted that lowered the drinking water MCL from 50 parts per billion (ppb) to 10 ppb. This meant that many small systems whose groundwater wells had arsenic between 10 – 50 ppb needed to either install an arsenic treatment system that is expensive to operate and maintain or find an alternate water supply. Currently there are an estimated 100 small water systems that do not meet the new arsenic standard. Most of these systems are pursuing government funding to develop and construct a long term affordable solution.

Ultimately, small communities will need to replace or install new infrastructure to address challenges with aging infrastructure and 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 its customers to fund daily operation and maintenance (O&M) activities. These O&M 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 capital and O&M costs due to the smaller rate payer base, which results in higher, sometimes prohibitive, water and sewer rates. Since many small communities are considered as financially disadvantaged or severely 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 (SWRCB 2008). In some small communities, systems are forced to only collect enough revenue to fund daily operation and maintenance costs to keep rates affordable. This leaves no readily available funds to cover the cost for emergencies or future infrastructure improvement projects.

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 O&M activities because of the philosophy that successful water projects must be sustained by their communities. Raising water or wastewater rates to cover the O&M costs associated with a new project is a major issue, and can 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 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, US Department of Agriculture (USDA), and US 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 the following:

- Meeting technical, managerial, and financial (TMF) requirements, such as showing how the small community can afford the additional, new O&M 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 individual septic systems.
- Addressing Proposition 218 challenges on increasing water rates.
- Hiring an attorney to address all legal issues that may arise, such as ownership, service boundaries, lack of legal entity, lack of adequate water rights, etc.

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 address many of the funding related items.

One of the major challenges to obtain government funding is to meet TMF capacity. Satisfying these 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 to satisfy one or more of 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 (CDPH 2012a).

Lastly, many of the government funded grant programs are only available to publicly owned systems. Therefore, privately owned systems (e.g. mobile home parks) do not qualify for grants under some of the programs and have to take out a loan.

4.2 Drinking Water Challenges

In order for small communities to provide safe drinking water, they must develop adequate water supplies, and overcome any water quality challenges with the source of supply. One of the options for a small system that is unable to provide safe drinking water is to consolidate their system with a neighboring system which has its own challenges.

Groundwater Contaminants

Many small communities utilize groundwater as a source of drinking water which typically requires no treatment outside of adding chlorine to ensure that the drinking water remains safe within water distribution system. However some small systems are affected by groundwater contaminant(s) that are due to contamination or are naturally occurring. In order to provide safe water these systems must install expensive treatment systems to remove the contaminant(s) or locate an alternate water supply. If a treatment system is installed, the water system must also develop a plan to properly dispose of the drinking water treatment residuals or concentrated contaminants.

A review of CDPH's *Small Water System Program Plan*, that lists the small CWSs that are unable to provide safe water, found that groundwater contaminants affect an estimated 174 of the 183 identified small CWS. The primary groundwater contaminants are arsenic and nitrate. Statewide, there are an estimated 107 small water systems that exceed the arsenic MCL, and an estimated 61 small water systems that exceed the nitrate MCL. All ten hydrologic regions in the state currently have at least one small water system 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 Basin, 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 Basin, 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 anthropogenic or human caused sources of contamination.

Rural communities with shallow drinking water wells are also at higher risk for nitrate contamination due to the application of agricultural fertilizers and manure to nearby farmland and the local use of septic systems. Shallow wells are particularly susceptible because of the relatively short travel time from nitrate contamination sources to the well. One solution is to drill a deeper well to avoid the nitrate contamination, however some systems have encountered naturally occurring contaminants such as arsenic when drilling a deeper well.

Chromium-6 is another groundwater contaminant that is expected to affect both large and small CWSs when a state MCL is adopted. In August 2013, CDPH released a proposed Chromium-6 MCL of 10 ppb and the final MCL is anticipated to be adopted in 2014. Chromium-6 is found to occur naturally in the environmental at low levels, and there are also areas of contamination in the state due to historic industrial use such as manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion coatings (CDPH 2013a).

Inadequate Surface Water Treatment

Communities that use surface water supplies are required to treat their water to meet all surface water treatment 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. Currently there are 9 small water systems statewide that inadequately treat their surface water supply and are unable to provide safe drinking water for their communities (CDPH 2013). These 9 small water systems are located in the Central Coast, Tulare Lake Basin, and Sacramento River hydrologic regions.

Maintaining Adequate Water Supply and Pressure

All water systems must maintain an adequate water supply and system pressure to ensure that safe drinking water is delivered to their customers. When a water system fails to maintain adequate water system pressure, quality of the drinking water may be jeopardized due to microbial contaminants entering the water distribution system through a cracked or leaking pipe.

For small water systems maintaining an adequate water supply and system pressure can be a challenge, especially since some small water systems may only have a single groundwater well with no backup supply and other small water systems may be located in foothill and mountain areas and rely on “hard rock” wells which often decline in production during the late Summer and Fall months.

Consolidation of a Small Water System

Consolidation of a small water system with a neighboring larger water system is a viewed as an ideal solution to assist small water systems that are having difficulty providing safe water. However there are many challenges that must be overcome for a successful consolidation project. Some of these challenges include local politics and expensive project construction cost. In addition, some of the concerns that are 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 small water system not paying their water bill.
- Liability issues.

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

4.3 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 public health threat to the residents of these systems and local drinking water supplies.

Failing Septic Systems

Residents living in rural areas typically use onsite wastewater treatment systems or septic systems at locations that are removed from centralized wastewater treatment systems. The SWRCB estimates the number of active septic systems in the state is greater than 1.2 million. When properly sited, designed, operated, and maintained; septic systems treat domestic wastewater to reduce its polluting impact on the environment and most importantly protect public health. The vast majority of these are functioning in a satisfactory manner and meeting their intended purpose.

However there have been occasions in the state where septic systems did not satisfactorily protect either water quality or public health. 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. Others have occurred where the systems are operating as designed but their densities are such that the combined effluent resulting from multiple systems is more than can be assimilated into the environment which may impact drinking water supplies.

As California's population continues to grow, and we see both increased rural housing densities and the building of residences and other structures in more varied terrain than we ever have before, we increase the risks of causing environmental damage and creating public health risks 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. So necessarily more scrutiny of our installation of septic systems is demanded of all those involved, while maintaining an appropriate balance of only the necessary requirements so that the use of septic systems remains viable (SWRCB 2012).

Box 2 Case Study 1: City of Beaumont 6th Street Sewer Project, Helping a Disadvantaged Community

Since 2002, the City of Beaumont has eliminated over 100 septic systems by connecting these homes to the municipal sewer system to improve water quality in the region. The 6th Street/Maple Avenue Sewer project will continue this trend by eliminating approximately 100 additional septic systems and connect these homes, all of them in a disadvantaged community, to the municipal sewer system as well.

For many years, the residents of this area in downtown Beaumont have suffered from failing septic systems which spew raw sewage onto their streets. The downtown area of Beaumont has trailer parks which were originally built for overnight stays. But as time went on, families moved into the trailer parks in search of affordable housing and transformed the trailer parks into year round housing.

The trailers parks rely on communal septic systems which are old and often times fail. The residents who live in the trailers are hard pressed to use their showers as too much water entering the system can cause failure of the septic system. The residents have told the city's outreach consultant that they cannot have washers and dryers in their trailers because of the negative impact on the septic systems. This forces the residents to take their clothes to the laundry mats, many of which are several miles from the trailer parks. Some of the residents don't have cars and must walk, often with young children, to the laundry mat to wash their clothes. The climate in Beaumont can be harsh; frigid winter temperatures and stifling heat in the summertime. There are other problems facing the residents because of the failing septic systems. After a rainfall, it is not uncommon to see the children playing in water which may be tainted with sewage.

The City of Beaumont is seeking assistance from the from the SWRCB's Clean Water State Revolving Fund program to abandon the septic systems and connect the mobile homes to the municipal sewer

system. The City of Beaumont is especially interested in assisting this disadvantaged community and improving water quality. SWRCB staff completed an initial review of the project area and deemed the area was not a disadvantaged community. In order to show that the residents of the proposed 6th Street Sewer project are a disadvantaged community, the city hired the Rural Communities Assistance Corporation to conduct an income survey. Sensitive to the fact that oftentimes residents are hesitant to respond to mail from someone they do not know, the city's outreach consultant spent time with the residents before the survey was mailed. The consultant spent time with the residents; talking to them on a daily basis so they would understand the need for the survey.

Initially the residents were very leery of filling out the income survey but the consultant explained the process to them in Spanish so they were aware of the need to respond to the survey. In spite of the initial outreach, it took time for the residents to trust the process and fill out the form. Once the trust was established and the residents saw that the city had their interest at heart, they responded enthusiastically. It is not unusual to see them walking with the consultant through the community distributing flyers so that their neighbors would be informed of the need for the survey.

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. These same children explained the need for the project to their Spanish speaking parents.

When the residents of the Enchanted Heights Sewer project, which was partially funded by the SWRCB, learned about the hesitation by the residents to fill out the income survey, they came to talk to the residents to encourage them to fill out the survey. The residents are hopeful that the Clean Water State Revolving Fund program will help them solve a complex problem that poses a public health threat to them and their children.

Source: Kennedy Communications

Outdated/Undersized Centralized Wastewater Treatment Systems

There are estimated 577 small centralized wastewater treatment systems in the state, 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, these wastewater systems often require major upgrades that increases wastewater treatment costs and may create affordability issues among resident of these small communities.

Sewer Consolidation of Individual Homeowners Using Septic Systems

Consolidation of individual homeowners using septic systems to establish a community sewer system is viewed as a desirable 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 consolidation of small water systems there are many challenges that must be overcome for a successful sewer consolidation project. Some of these challenges include:

- Cost to install a new sewer system.
- Cost to install a sewer lateral from each home to the new sewer system.
- Overcoming Local politics
- Residents not paying their bill for wastewater services.

- Liability issues.

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

5. A Focus on California's Native American Population

Understanding tribal sovereignty is essential in appreciating the complex framework that interplay 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 sovereigns.

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 concern 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. There are also indigenous communities which, although they existed prior to the formation of the United States, are not currently recognized as sovereigns by the federal government. As of 2013, 81 tribes in California are petitioning for federal recognition (BIA 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 based on the diversity of the tribal communities.

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 United States Environmental Protection Agency (USEPA) to establish safe drinking water standards and regulate public water systems to protect human health from contaminants in drinking water. The USEPA 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."[1] The SDWA authorizes the USEPA 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 to undertake regulatory authority under the SDWA, the USEPA 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."[2] 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.[3] Coupled with this is also the authority to review and certify (or not certify) certain permits written by the EPA, States, and the Army Corps of Engineers that may adversely affect the waters over which the Tribe has authority.[4] Currently, five tribes in California have obtained primary enforcement authority over water quality standards.[5]

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 USEPA in accordance with the requirements of the SDWA. Two-thirds of these systems are very small, serving 500 people or less and one-third serve 100 people or less. 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 installed drinking water treatment plants in order to comply with requirements of the SDWA.

[1] 42 U.S.C. § 300j-11(b)(1)(B). The regulations implementing this provision are contained at 40 C.F.R. §§ 145.52 – 145.58.
[2] 33 U.S.C. § 1251(a) (2006).
[3] CWA Section 303
[4] CWA Section 401
[5] http://water.epa.gov/scitech/swguidance/standards/wqslibrary/approvtable.cfm

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.[6] Based on a population percentage, tribal water systems in California are more likely to be issued a drinking water violation (health based and monitoring & 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 waste disposal systems or septic systems for their wastewater treatment. 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 the capability and significant resources, among other things for Tribes to provide industry standard 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 not include industry standard waste collection and treatment facilities. Building infrastructure to treat and convey wastewater can be a huge financial burden on tribal communities. In most cases, tribal communities are spread over a large area, thus reducing the ability to afford a system, but also may be impractical from an engineering standpoint. If a tribal community did construct and operate a waste treatment facility it would be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit which may include discharge limits based on tribal water quality standards that are established under the Clean Water Act (CWA). 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 the USEPA NPDES permits.

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 USEPA, IHS, USDA-Rural Development and HUD. Recent increases to the USEPA CWA and SDWA Tribal Set Asides to 2%, along with the 2009 American Reinvestment and Recovery Act funding, 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 President's 2013 fiscal year budget. Similarly, the President's 2013 fiscal year budget for the USEPA 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 to share the costs. To ensure an adequate level of the USEPA 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.

The State 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 USEPA, are

[6] http://www.epa.gov/compliance/resources/reports/accomplishments/sdwa/sdwacom2010.pdf

thus not eligible for California SRF funds. Similarly, the few tribal wastewater systems regulated by the USEPA under a NPDES permit are not eligible for California SRF funding

Operation and maintenance funding is also critical to ensure delivery of safe drinking water and the sanitary operation of wastewater disposal facilities, as well as to protect 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. Since there is insufficient federal funding to support operation and maintenance costs for tribal facilities, this represents a significant gap in resources necessary to ensure that new and existing treatment facilities and infrastructure is properly operated and maintained to protect public health.

In addition, some tribal homes are not connected to a public water system, and these homeowners often use domestic wells that have drinking water needs that are not well understood due to a lack of information about water quality and quantity. Homes not connected to public water systems are ineligible for the USEPA Drinking Water Tribal Set-Aside funds, unless the project will connect these homes to a public water system. Also, due to funding limitations, the IHS does not normally fund individual domestic wells.

Box 3 Case Study 2: Affordability of Drinking Water and Wastewater Treatment, Kashia Band of Pomo Indians

Kashia Band of Pomo Indians of the Stewarts Point Rancheria is located on a ridge top area on the Sonoma County Coast. This community receives its drinking water from the Wheatfield Fork of the Gualala River, and water sources available within the Rancheria do not produce enough water to support the current community. Previously, the drinking water was treated through a surface water treatment plant that included a sand filtration system, disinfection system, and 32,000 gallon storage tank. However the water system was continually out of compliance since the filtration system could not remove sufficient amount of turbidity to meet drinking water treatment standards.

In 2007 a micro-filtration system and a 67,000 storage tank were installed to replace the inadequate filtration system and storage tank. This current system works very well and the tribe has been in compliance since the installation except for one violation in October 2010 due to insufficient chlorine contact time. The treatment system is computerized and requires a level of knowledge that is not available with some of the tribal water operators. Any troubleshooting regarding the computer requires the assistance of an outside consultant. The Kashaya Utility District (KUD) works with the Rural Community Assistance Corporation (RCAC) on some system troubleshooting, but RCAC lacks support staff who fully understand how a micro-filtration system works. The IHS and EPA both do not have staff adequately versed in this system, at least not to the tribe's knowledge. The water system serves 16 homes and approximately 118 people depending on the time of year. The community has a high unemployment rate, ranging from 75% to 95% depending on the time of year, and the households do pay for water service to their homes. On average, the water system collects about $9,000 a year, which is not enough to support a utility operator, even at half-time.

In January 2010, the treatment system experienced a brown-out which compromised the computer system and stopped the micro-filtration system from running. The utility was unable to pump water for 96 hours, and an outside consultant came from Colorado to repair and reset the system at a cost of $5,100. This cost was over 50% of the amount the water system collects for the entire year. A larger system could probably absorb this cost, but this is nearly impossible for a small system. KUD has been fortunate to not have any further breakdowns.

Understand, the tribe agreed to have this system based on the recommendation of the agencies involved and it fixed the problem of compliance, but it appears the expected future costs were not adequately considered. The technical experience needed for the water operator was not considered and when the system is unable to pay an operator, the costs must come from somewhere else. KUD's current operator is paid only half-time because the tribe is unable to cover the cost of a full-time operator. The current operator works closer to 40 hours per week, but only reports 20 hours.

On the wastewater side, the IHS 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. The response was to empty and crush the individual septic tanks and connect the households to a Fast Wastewater Septic System. The system, ideally works well, but when it was installed it proved to be inefficient in energy usage and as a result, electricity bills were routinely over $600 per month. This cost, added to the cost of electricity to pump water from the river (which runs between $200-300 per month) resulted in the KUD shutting off the Fast Wastewater Septic System, causing an aerobic system to turn anaerobic. This coupled with hard-pan under the leach field less than three feet down leaves an effluent that is high in bacteria that ponds and emits an unpleasant smell.

Source: Nina Hapner, Kashia Band of Pomo Indians

6. Progress and Accomplishments Over the Past Ten Years

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

6.1 Progress to Provide Safe Drinking Water

Changes to Funding Programs to Benefit Small Communities

On the drinking water side a number of changes have been made to the funding programs administered by CDPH to benefit small communities. CDPH is implementing its *Small Water System Program Plan* with a goal of increasing the compliance rate amongst small water systems from 92% to 95% by the end of 2014. The current compliance rate amongst large water systems is 95%.

In the Drinking Water SRF program, the maximum amount of grant funding for disadvantaged communities was increased from $1 million to $3 million per project. In addition, the percentage of grant funding was increased so disadvantaged communities may receive up to 100% grant funding (previously was capped at 80%). These changes have allowed projects to be more affordable for the residents of these systems.

CDPH's Proposition 84 and Drinking Water SRF funding programs now accept applications for planning studies to provide upfront funding for items such as project plans, specifications, environmental documents, treatment plant pilot studies, and drilling test wells. This was a major barrier for small systems since they usually could not cover the upfront costs of these items, which put them at a disadvantage when applying for construction funding.

CDPH's Proposition 84 and Drinking Water SRF funding programs now provide some incentives to large water systems to consolidate small water systems. In the Proposition 84 funding program, a consolidation project can include upgrading the distribution system of the small water system so that the distribution system meets the same standard as that of the large water system. This incentive is only allowed in a consolidation project. In the Drinking Water SRF program, a large water system that consolidates a small water system 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 water system. This incentive is only for consolidation projects, and usually translates into the large water system's project being funded when it previously would not have been funded.

CDPH contracts with third party assistance providers who assist small water systems. CDPH has greatly increased funding to third party assistance providers and 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 small, rural communities to meet drinking water standards. 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 water systems serving fewer than 200 connections and who demonstrate that a centralized treatment system is not economically feasible to apply to CDPH for project approval. In 2013, CDPH released a guidance document on POU compliance to assist small water systems that are considering POU treatment. Additional details regarding the POU compliance document are available at the following website:
http://www.cdph.ca.gov/certlic/drinkingwater/Documents/POU/CaPOUCompliance-Final-03-2013.pdf

6.2 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 which includes the following improvements to the Clean Water SRF program: providing funding to third party assistance providers, providing financial incentives to encourage large wastewater system support, and evaluating opportunities to reduce the cost of compliance.

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

Box 4 Case Study 4: Enchanted Heights Sewer Project

Enchanted Heights Sewer Project is a $15 million project, which will bring a lasting remedy to a serious problem in a disadvantaged community. For years the residents of Enchanted Heights faced failing septic tanks which often overflowed into the streets. It was not unusual for children to pick their way through raw sewage on their way to school during rain events.

The City of Perris partnered with the County of Riverside and Eastern Municipal Water District to apply for a $10 million grant from CDPH. In addition to this funding, a $5 million grant was secured from the SWRCB for the connection fees. With the money for the construction of the sewer secured, the city 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 sewer construction is well underway, and the City's hard work in the outreach has paid off. The residents are extremely happy with the project and are looking forward to a new sewer system.

Source: City of Perris

6.3 Progress to Provide Safe Water and Sanitation to Tribal Communities

Progress at the State Level

For California tribes, recent progress towards ensuring adequate sanitation was SWRCB's revised operator certification regulations that became effective on April 1, 2013. These revised regulations now recognize the experience obtained at tribal wastewater treatment facilities in the wastewater operator certification program. This previously was a major barrier to hire and retain state certified wastewater treatment plant operators, since operators did not previously receive operator certification credit for working at tribal wastewater facilities.

Progress at the Federal Level

Through the USEPA Region 9 Tribal Operations Committee (RTOC), California Tribes are active participants in numerous efforts to address drinking water and wastewater issues. 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 RTOC 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 O&M needs led to the development of criteria for funding O&M pilot projects.
- Facilitation and hosting of Regional Multi-Agency Workgroup, which has resulted in creation of a drinking water and wastewater resource matrix.
- Support for collaborative projects to address tribal operational and maintenance needs.

Progress at the International Level

In addition, the United States committed at the Johannesburg Summit on Sustainable Development to reduce by 2015 the population that lack access to safe drinking water and basic sanitation by one-half (Access Goal). This Goal is incorporated into USEPA's Strategic Plan as a specific commitment in Indian Country, and represents one step toward Congressional policy of ensuring all Tribal homes have access to safe drinking water and basic sanitation as soon as possible (25 USC §1632(a)(5)). USEPA'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 meet 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).

7. Conclusions

Over the past ten years significant progress has been made to ensure that all Californians have access to safe water and sanitation, especially in identifying and recognizing the needs of the small and disadvantaged communities. This is evidenced by 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.

Included in these plans and reports are a number of recommendations and actions that should be implemented to further the progress towards ensuring that all Californians have access to safe drinking water and adequate sanitation.

In addition, there have been a myriad of legislative proposals on improving the drinking water funding program, and a number of projects have been funded by CDPH, SWRCB, DWR, USEPA, USDA, IHS, and US HUD all with the goal of providing safe drinking water and adequate sanitation. Despite these improvements and efforts, there is still a long way to go if the AB685 goal of safe, affordable water is to be achieved.

<u>One key challenge is finding a solution on how to fund O&M costs associated with new treatment facilities, especially for residents in small communities and disadvantaged communities.</u> In order to meet more stringent water quality requirements, drinking water and wastewater systems often must install new treatment facilities. In addition, some drinking water systems must install new treatment facilities to reduce human-caused sources of contamination such as nitrate. These new treatment facilities can be expensive to operate and maintain, which is a substantial financial burden for small and disadvantaged communities. Small communities generally lack economies of scale to reduce each customer's O&M cost, and disadvantaged communities lack the financial resources to cover O&M costs. If the O&M cost for a new treatment facility is not adequately covered, the system runs the risk of not operating properly and eventually leads to the delivery of unsafe drinking water or inadequate wastewater treatment which both pose a public health threat.

An assessment of the number of Californians without safe drinking water was attempted, however only a partial estimate can be made. Currently there is no statewide data available on the population without safe water that is part of either a state small water system or individual homeowner water system. State agencies should coordinate with local counties to estimate the total number of state small and individual water systems in each county and the population served by these systems. They should also identify each system and affected population without safe drinking water that are served by these systems.

An assessment of the number of Californians without adequate sanitation was attempted, however only a partial estimate can be made. Currently there is no statewide data on the population without adequate sanitation that use an onsite wastewater treatment system or septic system. Additional discussion is also needed to determine how to assess those without adequate sanitation that are part of a centralized wastewater treatment system.

8. Recommendations to Achieve Safe Drinking Water and Sanitation

These recommendations have been developed with input from State agencies and outside stakeholders and should be implemented to continue the progress towards ensuring safe water and sanitation for all Californians.

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 agencies and voting bodies that can implement them.

1. 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.

2. State, county, and local governments along with interested stakeholders should coordinate to develop performance metrics and track the progress to achieve safe drinking water and sanitation

for all Californians. Periodic Progress Reports should be prepared that show what progress has been made and what additional action is needed.

3. 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 to provide funding to assist small disadvantaged communities with operation and maintenance costs.

4. SWRCB and other State agencies that provide funding to third-party technical assistance providers to assist small water and wastewater systems, should consider allowing tribal water and wastewater systems to be eligible to receive this technical assistance.

5. SWRCB and other State agencies should submit an endorsement letter to the USEPA and Congress that the funding allocation should be increased (currently at 2%) for the SDWA Drinking Water Infrastructure Tribal Set-Aside and CWA Indian Set-Aside Programs.

6. 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.

7. DWR, SWRCB, CDPH, other State agencies and tribal governments should establish a workgroup to build relationships and collaboration to identify and address challenges to ensure 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.

8. State, county, and local governments should coordinate to estimate the statewide total of state small water systems and individual water systems, and identify each system and the affected population without safe drinking water that are served by a state small water system or individual water system.

9. State, county, and local governments should coordinate to identify those communities, unincorporated areas, and population that rely on inadequate septic systems. In addition, the SWRCB should coordinate with interested stakeholders to determine how to assess the population without adequate sanitation that are part of a centralized wastewater treatment system.

10. CDPH, DWR, SWRCB, and other State agencies should ensure that the AB 685 policy goal of safe, clean, affordable and accessible water adequate for domestic use is reflected in agency planning and actions.

11. CDPH, DWR, and SWRCB should continue and expand the engagement of diverse stakeholders and appropriate State agencies to provide input on existing funding programs and develop recommendation on new programs to support sustainable solutions to the drinking water and wastewater challenges in disadvantaged communities.

12. CDPH, DWR, and SWRCB should initiate more data collection, study, and analysis to develop options, recommendations, strategies, and programs to assist local agencies with private domestic

wells and very small systems, those with less than 14 service connections. This may include additional sampling and reporting on source water quality.

13. CDPH, DWR, and SWRCB, should continue and expand efforts to make existing funding sources more accessible to disadvantaged communities. This includes technical assistance, simplification of procedures, and expedited review and processing of applications.

14. CDPH and DWR through the IRWM planning process, 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.

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