

September 16, 2019

**REPORT TO THE GOVERNOR
ON THE
EFFECTIVENESS OF THE CAPACITY DEVELOPMENT STRATEGIC PLAN
TO IMPROVE PUBLIC WATER SYSTEMS IN THE STATE OF HAWAII**

The capacity development provisions in the 1996 Amendments to the Federal Safe Drinking Water Act (SDWA) Sections 1452 and 1420 mandate a report to the Governor every three (3) years. This report addresses the efficacy of the strategy and the progress made towards improving the technical, managerial, and financial (TMF) capacity of public water systems in the State. This report covers the period July 1, 2016 through June 30, 2019. Future reports will be submitted every third state fiscal year in the month of September.

History of the Capacity Development Program

The Safe Drinking Water Branch (SDWB) in the Department of Health (DOH), Environmental Management Division, has primacy responsibility to implement the Federal SDWA requirements in Hawaii. The capacity development provisions in the SDWA introduced the following new terms into the drinking water regulations nomenclature:

- Capacity means the overall capability of a water system to consistently produce and deliver water meeting all national and state primary drinking water regulations in effect, or likely to be in effect, when new or modified operations begin. Capacity includes the technical, managerial, and financial capacities of the water system to plan for, achieve, and maintain compliance with applicable national and state primary drinking water regulations.
- Technical capacity refers to the physical infrastructure of the water system, including but not limited to the adequacy of the water source(s), treatment, storage, and distribution systems; and the ability of the water system personnel to adequately operate and maintain the system; and to otherwise implement technical knowledge.
- Managerial capacity refers to the ability of the water system to manage itself, including clear ownership, organization, communications, and accountability; adequate management, staffing, policies, training and information management; and effective relationships with customers, and regulatory agencies.
- Financial capacity refers to the financial resources of the water system, including maintaining an adequate budget, adequate fiscal controls, and credit worthiness.

The original capacity development provisions in the SDWA required the following:

- The States are to implement regulations that new water systems starting operations after October 1, 2000 must demonstrate adequate TMF capacity;
- The States must create and implement a strategic plan to improve the TMF capacity of existing public water systems; and
- The EPA Administrator is required to withhold twenty percent (20%) of each capitalization grant made under the Drinking Water State Revolving Fund (DWSRF) to a State, unless the State has met the capacity requirements of the SDWA.

The TMF capacity attributes for Hawaii were developed with a stakeholder group which included the American Water Works Association Hawaii Section, Maui Land and Pineapple Company, West Hawaii Water Company, Hawaii Association of Realtors, Rural Community Assistance Corporation, Campbell Estates, and American Savings Bank. Comments from County and privately-owned public water systems and the public were also solicited. In 1999, the TMF capacity attributes were codified in the Hawaii Administrative Rules (HAR), Title 11, Chapter 20, entitled “Rules Relating to Potable Water Systems.” As of November 28, 2011, HAR, Chapter 11-20 is now entitled “Rules Relating to Public Water Systems.”

1. STATE REGULATIONS FOR NEW WATER SYSTEMS TO DEMONSTRATE TMF CAPACITY

- a. In 1999, the DOH revised the HAR, Chapter 11-20 to require new water systems to demonstrate adequate TMF capacity before authorization is granted for a new water system to begin operation.
 - (1) Prior to starting work on the new water system’s infrastructure (excluding wells), the new water system must: (a) first obtain a satisfactory review by the DOH that the proposed raw water source can be approved as a new potable water source; (b) obtain DOH approval on the new water system construction plans; and (c) demonstrate that pre-construction TMF capacity attributes have been met.
 - (2) After the new water system’s infrastructure is constructed, the water system must: obtain DOH approval to use the raw water source to serve a public water system; provide a licensed professional engineer’s certification that the water system has been constructed in accordance with the approved plans and specifications; and demonstrate that all TMF capacity attributes are met. After satisfactorily meeting these requirements, DOH approval to operate the new water system is granted.

- b. To assist in developers demonstrating TMF capacity for their project, developers may incorporate into the covenants for their project that ownership of the water system will be transferred to the community association, and that the association will:
- (1) Contract a private water system operations company to manage and operate (includes providing certified operators) the new water system; and
 - (2) Contract with a private financial management company to bill customers, collect the money owed, pay the water system's bills, and provide the financial records for the water system.

The developer must also demonstrate that the financial structure of the water system will generate sufficient funds to maintain and operate the water system, provide for end-of-life replacement of components, and perform emergency repairs as needed.

- c. Under the Rules and procedures described in Sections 1.a. and 1.b. above, the following regulated public water systems have been reviewed and approved through the capacity process in the three-year period of this report and, **if activated**, are operating in full compliance with State and Federal drinking water regulations. Projects which have been through the capacity process from prior report periods are listed in previous reports available online at <http://health.hawaii.gov/sdwb/newsletters/>.

PROJECT NAME	ISLAND	STATUS (year)
Haiku Town Water Association	Maui	Active (01/01/2019)
Pulehunui Industrial Subdivision	Maui	Not Activated (01/08/2019)

The following capacity projects have been constructed or are currently under construction.

PROJECT NAME	ISLAND	STATUS (year)
Omaopio Ridge	Maui	Approved for construction (2006)
Kealanani	Kauai	Approved for construction (2008)
Kahu`aina Plantations	Kauai	Approved for construction (2009)
Pulehu Farms/Kula `I`o Subdivision	Maui	Approved for construction (2010)
Maui Business Park Phase II	Maui	Approved for construction (2011)
Brydeswood Ranch	Kauai	Approved for construction (2014)

PROJECT NAME	ISLAND	STATUS (year)
Haiku Town Water Association	Maui	Approved for construction (2016)
Baldwin Ranch Estates	Maui	Approved for construction (2016)
Pulehunui Industrial Subdivision	Maui	Approved for construction (2016)
Consolidated Baseyards (Waiko Light Industrial Subdivision)	Maui	Approved for construction (2018)

The State's TMF capacity regulations are considered satisfactory on the basis that: the State's TMF capacity regulations were evaluated as satisfactory by the EPA; all capitalization grants made to Hawaii under the DWSRF program were fully funded; and since the inception of the capacity rules, all regulated water systems approved through this process meet all State and Federal drinking water standards.

2. CAPACITY DEVELOPMENT STRATEGIC PLAN TO IMPROVE THE CAPACITY OF EXISTING WATER SYSTEMS

The SDWA capacity regulations require States to develop a strategic plan to identify and prioritize the *existing* public water systems most in need of assistance and to provide assistance to those systems as needed. However, the SDWA capacity regulations do not provide States with the authority to mandate that these deficient water systems take actions to improve their TMF capacity.

- a. The State's Initial Capacity Development Strategic Plan in 2001 incorporated the following actions during the first three (3) years:
 - (1) Identified the five public water systems that were most in need of improvement in the State and provided assistance to improve the TMF capacity of these water systems. The SDWB personnel identified the five (5) water systems most in need of improvement in the State as:

- Kauai – Gay & Robinson
- Oahu – Dillingham Ranch (formerly known as Mokuleia Land Company)
- Maui – Hana Water Company
- Molokai – Kualapuu
- Hawaii – Hawaiian Shores

The SDWB provided assistance to improve capacity to these systems through a two-year contract paid by the DWSRF set-aside grant from the EPA. The provided assistance started in July 2001 and the assistance did result in a gradual improvement in

performance over the two (2) years, which continued after the contract ended. These systems are considered satisfactory at this time.

This one-time effort to address those water systems most in need of improvement indicated that improvements to water system performance can be realized through gradual changes over time. In October 2004, the SDWB instituted a Circuit Rider Program to have an experienced water system operator go to the water systems and provide hands-on assistance to the operators and managers as needed. This program replaced the specific assistance to five (5) water systems most in need of improvement and is explained in more detail in the following sections of this report.

- (2) Provided training to certify public water system distribution system operators. The SDWA requires States to certify all public water system distribution system operators. To obtain certification in Hawaii, the distribution system operators need to pass a written examination prepared and graded by the Association of Boards of Certification (ABC), an independent and nationally recognized organization used by most states for the certification of operators.

In 1999, the SDWB administered a contract to provide statewide training to prepare the distribution system operators for the certification examination. A non-profit contractor provided the training at no cost to the operators, and initially, 280 operators (75%) passed the certification examinations on the first try. The training contract was funded by the DWSRF set-aside grant funds from the EPA. The one-time training contract resulted in almost all water systems in the State reaching the goal of having certified distribution system operators (four (4) water systems out of 131 systems did not attain the goal).

- (3) Providing a three-year continuing education training program for water system operators to improve knowledge levels and provide continuing education credits. The State regulations require water treatment plant and distribution system operators to re-certify every two (2) years by obtaining continuing education credits (CEUs). In May 2001, the SDWB initiated a continuing education training program over a three-year period through a contract paid for by DWSRF set-aside funds from the EPA. This program provided low cost continuing education training courses on all islands. This training contract expired on June 30, 2004 and was replaced by a self-sustaining training program administered by the University of Hawaii's Outreach College as explained below.

b. The Capacity Development Strategic Plan was revised in 2004 and again in 2008, to include the following:

- (1) Provide a self-sustaining training program for water system operators. In 2003, the SDWB approached the University of Hawaii's Outreach College on whether a long-term self-sustaining operator training program could be developed for operators on all islands. The University agreed to provide the continuing education training for operators and in 2004, through an EPA grant, began developing and implementing a self-sustaining water system operator training program.

The University's Outreach College encountered problems with having to offer courses only during the summer when University facilities are available and tuition charges were higher than the subsidized courses offered in the past. Consequently, operator attendance was below expected levels.

As a response to the low operator attendance, all of the County water systems agreed to begin coordinating their own in-house training needs with the University. The County water systems also offered the use of their training rooms at no cost, which allowed the University to offer courses at any time during the year. The DOH offices on Oahu, Maui, Hawaii, and Kauai also offered to provide their conference rooms to the Outreach College at no cost.

The self-sustaining operator training program succeeded through FY2008 with the support from the County water systems. In 2008, the National Rural Water Association (NRWA) began providing water system operator training classes at no cost to the operators, which led to low operator attendance at the fee-based Outreach College's classes. In 2009, the Outreach College's operator training classes were discontinued. A Hawaii branch of NRWA was established in late-2010 as the Hawaii Rural Water Association (HRWA), which continued to offer operator training classes at no cost on Kauai, Oahu, Maui, Molokai and the Island of Hawaii through September 2011.

In 2012, the SDWB contracted with HRWA to develop a self-sustaining operator training program. Through an EPA grant, the SDWB would subsidize the course fees until a self-sustaining fee could be reached in the third year of the program. HRWA solicited feedback from all interested parties on course content, duration, fees, and presentations to modify the program as necessary to ensure its longevity. However, the SDWB terminated the contract

five (5) months before it was scheduled to conclude in February 2016 because of substandard performance by HRWA. Presentation content and communication were poor, and there was no clear plan for the long-term success of a self-sustaining program. HRWA continues to provide SDWB-approved operator training classes on their own and advertisements are posted in “The Water Spot” through SFY2019.

- (2) Provided free training to certify public water system distribution system operators. At present, all water systems have certified distribution system and water treatment plant operators of the appropriate grade. There are 482 certified distribution system operators and 213 certified water treatment plant operators in the State. The total number of certified operators fluctuates as new operators are certified and other operators retire and allow their certifications to lapse.

In SFY2009-SFY2011 and SFY2013-SFY2019, the SDWB has worked with HRWA to provide free state-wide training in certification examination preparation. Up until SFY2018, the trainings concentrated on topics which operators have historically performed poorly. Overall pass rates improved from 30% to 58% when the free training was provided. In SFY2019, the certification examinations were updated, and the examination preparation training was adjusted accordingly by utilizing the recommended reference books.

- (3) Circuit Rider Program. In October 2004, the State instituted a Circuit Rider Program to provide hands-on technical, managerial, and financial capacity assistance to the water system operators and managers. This program is used by several states on the mainland with excellent results in improving water system performance, and thereby improving the water system’s TMF capacity. The Circuit Rider Program identifies the TMF problems noted at the systems and provides training and hands-on assistance to resolve problems. The circuit rider’s function is to train the managers and operators and not do the work for them.

The Circuit Rider Program initially resulted in operational improvements in the Hawaiian Beaches, Puuwaawaa, Hawaiian Shores, and Wood Valley water systems on Hawaii; the Hana Water Resources, Hana Water Company, and West Kuiaha Meadows water systems on Maui; and the Lanai City and Manele Bay water systems on Lanai.

In October 2006, the SDWB revised the Circuit Rider Program to expand the program to provide assistance to all small public water systems serving 10,000 or less people in the State, which includes privately-owned, State, County and Federal (national parks and military) water systems. The original contract limited the circuit riders to only private water systems serving 3,300 people or less. The Circuit Rider Program was paid by the DWSRF 2% set-aside grant funds for small water systems.

On September 30, 2009, the original five-year Circuit Rider Program came to its conclusion. Based on the positive results the Circuit Rider Program had generated, the SDWB continues to renew the Circuit Rider contract. The most recent three-year contract with the Rural Community Assistance Corporation (RCAC) is effective February 1, 2019 through January 31, 2022.

More recently, the Circuit Rider Program has focused on raising the technical abilities of water system operators, provided managerial training to board members, brought awareness to the importance of emergency preparations due to climate change, and has assisted water system managers in understanding the many facets of the financial capacity arena. The circuit riders are also utilizing different outreach formats, like peer group sessions to discuss topics common to several water systems and a small systems roundtable at the annual Pacific Water Conference, both of which allow the water systems the opportunity to network.

The following water systems' capacity improved with the assistance of the circuit rider program:

PWS #	PWS Name	Circuit Rider Assistance Provided
115	Mauna Loa Macadamia Nut (currently inactive)	Assisted MLMN with follow-up activities after a contamination incident. Helped with planning for short- and long-term water needs, review of external proposals.
117	Hawaiian Beaches	Addressed staffing changes (loss) and imminent second failure of newer source water well pump.
168	Keopu Water Association	Mock sanitary survey assistance done, Board training provided. Assistance with storage tank evaluation. Jointly developed, develop emergency response plan.
222	Haleakala National Park	Assisted with filter media replacement.

PWS #	PWS Name	Circuit Rider Assistance Provided
230	Hoolehua (Department of Hawaiian Home Lands)	Hydrant maintenance/system flushing instruction. Worked on basic Standard Operating Procedures for system operation. Assisted in data collection and completion of State required Water Audit.
248	Kawela Plantation	Operational TA. Board Training.
249	Kahakuloa	Assisted booster pump station/pressure reducing valve station and storage tank operation to optimize pumping/and significantly reduce electrical costs.
303	Kunia Village	Mock sanitary survey/recommendations for sanitary improvements. Assistance developing and reviewing engineering plans for infrastructure improvements.
312	Queens Medical Center	Technical assistance after Legionella outbreak - chlorination/disinfection system operational advice; review and comments on other water system improvements suggested by outside consultants.
314	St. Stephen's Diocesan Center	Assisted with chlorination/disinfection system assessment and correction. Started new O&M procedures for new well and disinfection equipment.
320	Mililani Memorial Park	Operations & Maintenance Manual/Standard Operating Procedures development following new membranes change out.
348	Waiawa Correctional Facility	Assisted in developing Emergency Response Plan for storage tank potential failure.
437	Moloaa Irrigation Cooperative (MIC)	Assisted with U.S. Department of Agriculture loan process. Assisted with DWSRF initial contact to DOH. Provided detailed peer review of engineering consultant reports for needed improvements. Assisted with tank overflow and low chlorine incidents

The Circuit Riders continue to meet with water systems to identify TMF capacity issues and provide hands-on assistance to resolve the issues.

- (4) Sanitary survey program. The SDWB's sanitary survey program periodically inspects all water systems in the State for pathways

where insects, rain run-off water, or other contaminants can affect the safety of the drinking water. The sanitary surveys are a key part of assuring that the water systems maintain adequate technical capacity.

Sanitary surveys are conducted once every three (3) to five (5) years. The SDWB’s goal is to conduct an average of at least 26-27 sanitary surveys on a calendar year basis. A total of 24 surveys are expected to be completed before the end of calendar year 2019.

Sanitary Surveys of Drinking Water Systems (CY 2007-19)

Calendar Year	Target Number of Systems Surveyed in a year	Surveys Actually Completed Annually	Target Cumulative Number of Systems Surveyed*	Actual Cumulative Number of Systems Surveyed
2007	26	23	26	23
2008	26	31	52	54
2009	26	28	78	82
2010	26	27	104	109
2011	26	41	130	150
2012	26	43	156	193
2013	26	20	182	213
2014	26	28	208	241
2015	26	28	234	269
2016	26	29	260	298
2017	26	35	286	333
2018	26	25	312	358
2019	26	14 *	338	372 *

* Note that surveys conducted in the second half of calendar year 2019 are not included.

During each sanitary survey, the SDWB staff also evaluates the TMF capacity of the water system to identify those systems, whose performance may have deteriorated and are now in need of attention. Any water system deemed in need of attention is encouraged to utilize the Circuit Rider Program to improve TMF capacity.

c. **Efficacy of the Capacity Development Strategic Plan**

Since the State of Hawaii’s adoption of the EPA-mandated capacity requirements in 1999, the SDWB has been successful at: integrating those requirements into HAR, Chapter 11-20; developing robust and

consistent evaluative procedures for new PWSs; enhancing existing PWS capacity by offering a diversity of operator training opportunities; making no-cost, confidential circuit rider assistance available to small water systems Statewide; and maintaining a strict sanitary survey program.

These accomplishments are summarized herein:

- (1) Implementing a self-sustaining water system operator training program on all islands. Clearly, this strategic initiative has faced the most challenges, whether it be funding options, maintaining competitive pricing for the training sessions, geographical challenges present on the neighbor islands, or ensuring quality instruction. However, the SDWB's focus remains steadfast on ensuring that the State's operators are provided with adequate training opportunities to: meet their regular certification requirements and enhance their technical and working knowledge of the water systems that they operate.

Update: Although the SDWB terminated its contract with HRWA in developing a self-sustaining operator training program in 2015, HRWA has continued its own efforts through SFY 2019. In addition to classroom and onsite courses available throughout the state, HRWA has also incorporated online courses for CEU credit. HRWA continues to solicit feedback from all interested parties, including the SDWB, on course content, duration, fees, and presentation to modify their program as necessary to ensure its longevity.

- (2) Circuit Rider Program. Since 2004, the Circuit Rider Program has improved the TMF capacity of water systems using the diversity of technical, hands-on, IT-based, management and financial consulting services offered by the circuit rider staff. Expanding the program to also reach County, State and Federal small water systems has, over the years, resulted in a gradual improvement in small water system performance statewide in the area of technical, managerial, and financial capacity. This program will be continued into the future with a new three-year contract in 2019.
- (3) Sanitary survey program. The sanitary survey program has been strengthened by the EPA's 2006 promulgation of the Ground Water Rule, which requires water systems to correct identified significant deficiencies or be faced with a SDWA violation and appropriate fines. In the past, the SDWB could only offer recommendations, which were not enforceable. The Groundwater Rule was included in HAR, Chapter 11-20 in 2011.

Moreover, the satisfactory implementation of the State's capacity development plan's strategies has translated into benefits of the utmost importance to the health and welfare of this State's consumers of drinking water:

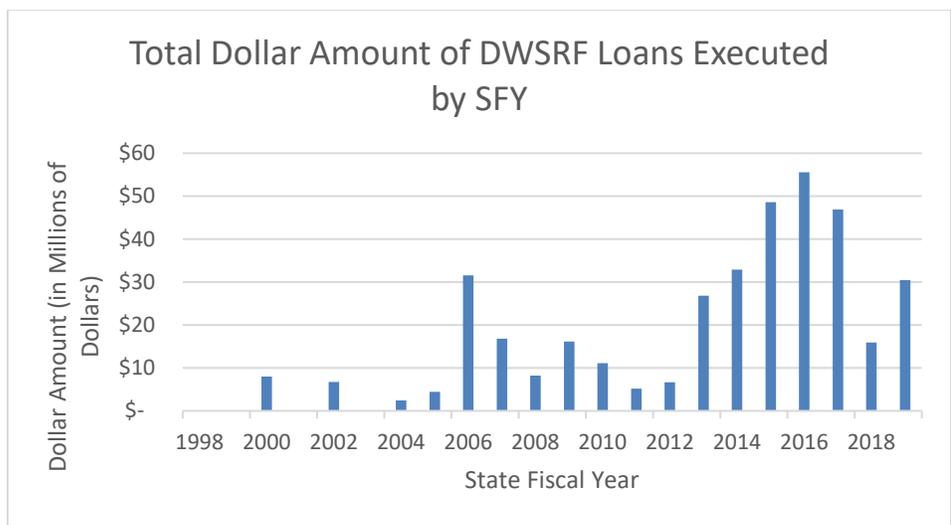
- Compliance with microbiological monitoring requirements. All water systems in Hawaii are currently in compliance with the microbiological monitoring requirements.
- Compliance with chemical monitoring requirements. All water systems (136 out of 136) in Hawaii are currently in compliance with chemical monitoring requirements.
- Compliance with lead and copper regulations. 135 out of 135 (100%) of the water systems in Hawaii are currently in compliance with the lead and copper regulations.
- Compliance with surface water regulations. All surface water systems in Hawaii are in compliance with surface water regulations.
- Compliance with community reporting requirements. 119 out of 119 (100%) of the water systems in Hawaii are in compliance with the community reporting requirements for water systems to provide customers with an annual report on the quality of drinking water.
- Certified operator regulations. All water systems in Hawaii have certified distribution system and water treatment plant operators as required by regulations.
- Sanitary survey program. The sanitary survey program is currently up-to-date with EPA targets for frequency of sanitary survey performance.
- Compliance orders. There is one active compliance order against a public water system in the State. A Notice of Violation and Order (NOVO) No. 2019-SDW-EO-01 was issued to Waiawa Correctional Facility (PWS 348), dated May 13, 2019. The owner, Hawaii Department of Public Safety, has been working diligently with SDWB to correct the violations.

d. Areas for Improvement

There is still much work to do in maintaining the technical, managerial and financial capacity of regulated water systems in the State. The following items focus on improvements in the managerial and financial capacity areas:

- (1) Changing small water system management attitudes. Improving the capacity of some small privately-owned water systems continues to be a challenge. The managers of these systems do not feel there is an incentive to invest resources in their systems to improve capacity if there are no compliance orders to force them to do so. There are also water systems that refuse to take advantage of the free assistance to improve performance provided by the Circuit Rider Program. The SDWB will continue to stress the advantages of the Circuit Rider Program and the need for improvements in water system performance with appropriate managers during sanitary surveys.

- (2) Provide low-interest DWSRF loans to water systems. The SDWA includes a Drinking Water State Revolving Fund (DWSRF) program to assist public water systems in improving or upgrading their facilities by providing low-interest loans. This program is administered by the SDWB. After many years of substandard performance of the loan program, the program underwent significant changes and beginning in 2013 the DWSRF program had four (4) consecutive record-breaking years of executing new loans to county water systems. The amount in loan executions in the last seven years (from 2013 through 2019) accounts for 69% (\$257.3M) of the total loan commitments since the program was established 21 years ago.



The SDWB expanded the DWSRF program in 2019 to offer loans to non-county public water systems, including small, privately-owned systems. So far, nine private systems have expressed interest in the program. The first private loan will be executed in August 2019.