



# STANDARDS ALLIANCE: PHASE 2 AWWA FINAL REPORT

## I. PROGRAM OVERVIEW/SUMMARY

<b>Program Name:</b>	Standards Alliance: Phase 2
<b>Activity Start Date and End Date:</b>	April 1, 2021 – June 30, 2023
<b>Name of Prime Implementing Partner:</b>	American National Standards Institute (ANSI)
<b>Agreement Number:</b>	#7200AA19CA00012
<b>Name of Subcontractor/Sub awardee:</b>	American Water Works Association
<b>Geographic Coverage (cities and or countries)</b>	India; Lesotho, Malawi, and Zambia

### I.1 Program Introduction

American Water Works Association (AWWA), as part of the Standards Alliance: Phase 2 (SA2) implemented the “Utility Management Standards Training For Water Sector Utilities” project in India and the African nations of Lesotho, Malawi, and Zambia. The workshop effort provided an introduction to the benefits of the use of standards and shared best practices for the implementation of 15 AWWA Utility Management Standards to participating water utilities. Workshops were developed and conducted through a collaboration of AWWA staff, water utility Subject Matter Experts (SMEs) and local partners AWWA India in India and ROCKBlue in Africa to tailor content for the specific regional audiences.

## 2. ACTIVITY FINAL REPORT

### 2.1 Project Narrative

The goals of this project in India and Africa were to promote awareness and implementation of standards, with workshop participants forming the core of a longer-term, sustainable effort to continue to expand the implementation of standards in each region and enhance utility management practices by using AWWA Utility

Management Standards. To leverage the support from SA2 and ANSI's expertise in Africa, AWWA initiated the project in India first, aiming to understand the Water, Sanitation, and Hygiene (WASH) sector gaps as it relates to Utility Management standards. This strategic approach proved beneficial as stakeholders in both India and Africa, particularly from water and wastewater utility plants, expressed interest in the same series of AWWA standards. AWWA utilized the experience gained in India to engage with the WASH sector in Lesotho, Zambia, and Malawi.

For WASH stakeholders in India, the project proved instrumental in addressing gaps in utility management knowledge and practices. The workshops, tailored to the specific needs highlighted in the needs assessment survey, equipped participants with enhanced understanding and implementation strategies from AWWA Utility Management Standards. This facilitated conversations for improvements in operational efficiency and service delivery to ultimately benefit communities across India. In Lesotho, Malawi, and Zambia, the project provided a similar opportunity. Through virtual workshops and in-person training sessions, participants gained insights into industry best practices and strategies for sustainable service provision. Additionally, the project fostered collaboration and knowledge-sharing among utilities, contributing to capacity building and improved WASH outcomes in the region.

## India

AWWA established its presence in India in 2015 with the creation of AWWA India. AWWA India serves AWWA members and water professionals in India by providing educational resources. It also hosts an Annual India Conference and Exposition. The initial concept for this project emerged from a recognized gap highlighted during a previous AWWA India Conference, where speakers emphasized the urgent need for a focus on management issues within the water industry.

AWWA staff and water sector experts supported efforts in India through three virtual workshops and a final in-person workshop in Varanasi, Uttar Pradesh, coinciding with AWWA India's annual conference. Throughout this project, AWWA gained valuable insights into the Indian water sector and regulatory landscape. The utilities demonstrated sustained interest in AWWA Utility Management Standards and workshops due to their need for technical assistance in developing optimization strategies. This highlights the relevance and necessity of the project's initiatives.

### Needs Assessment Results

To initiate the project a needs assessment survey was developed and distributed to utilities and other WASH related organizations in India. The survey received 93 responses (83 from utilities, 10 from other water sector professionals).

The utilities responding were 2/3 from Drinking Water utilities and 1/3 Wastewater utilities, which was the expected mix based on outreach and the water sector proportions in India. The population covered by the utilities ranged from 5,000 people to over 20,000,000 people, with 100,000 as the median population served, which provided a good representative sample relative to India demographics for population covered by municipal water and wastewater service. Most respondents reported their job function as Engineering Manager/Engineering or General Manager/Executive, matching the targeted workshop participant job functions. Forty-two used standards as part of their work, 51 did not. Thirty-nine were aware of the AWWA Utility Management Standards, 54 were not.

These numbers were informative as no prior data was available regarding standards usage and awareness. Among the AWWA Utility Management Standards, utilities were interested in 4 primary standards (core standards for treatment and distribution/collection):

- ANSI/AWWA G100 Water Treatment Plant Operation and Management
- ANSI/AWWA G200 Distribution System Operation and Management
- ANSI/AWWA G510 Wastewater Treatment Plant Operations and Management
- ANSI/AWWA G520 Wastewater Collection Systems Operations and Management

The main reason for utilities' interest in AWWA's workshops was their need for technical assistance in developing optimization strategies, as was expected. The additional information gained through the needs assessment was vital to target, develop, and customize the workshop content, which included multiple PowerPoint presentations for each of the standards covered. Activities for the workshops, along with homework assignments following each workshop, were also developed.

## **Workshops**

Virtual workshops were conducted in April, July, and October 2022, with monthly follow-up/check-in calls in months without a workshop. The April workshop covered ANSI/AWWA G400 and G200. The July 2022 workshop covered ANSI/AWWA G100 and ANSI/AWWA G520. The October 2022 workshop covered ANSI/AWWA G510. The goal of these workshops was to introduce the standards to attendees, provide them with an overview of how to use them, and engage the attendees in specific activities to help them adapt the management practices in the standards to be applicable to usage at their utilities. The follow-up calls allowed for less formal engagement and provided additional time for learning to maximize virtual engagement, which also fit cultural preferences.

The fourth and final workshop was delivered in-person in Varanasi on December 5-6, 2022. This training provided a recap of the 5 management standards covered in the virtual workshops. The in-person workshop not only provided the best opportunity for dialogue and participant engagement, but also facilitated more opportunities for sharing practices and connecting on common needs. Attendees received hard copies of all 15 of the ANSI/AWWA Utility Management Standards and received a framed certificate for attending. During the in-person workshop, generalized steps for understanding and utilizing the additional utility management standards, which were not covered in previous workshops, were also presented, ensuring comprehensive understanding and application of all AWWA Utility Management Standards.

In India, AWWA was able to connect with the government Ministry of Housing and Urban Affairs that maintains the overall water and wastewater guidance manual ("Manual of Water Supply & Treatment") followed by India utilities and is now participating with the government to update the guidance manual. This connection was facilitated by the USAID India Mission's interest and participation in the project. AWWA participation in the update of this important manual will help provide expertise from AWWA for improvements to the manual that will support public health and the local economy by providing expertise from AWWA's membership to modernize and optimize the requirements and guidance in the manual. Improvements to the manual will help Indian utilities move closer to their goals of 24/7 water service and customer coverage. Additionally, AWWA will better understand the key drivers of Indian water and wastewater utilities and the India regulatory situation. This insight will be valuable for AWWA member companies that have interests in India water and wastewater activities and facilitate future partnerships between the members and locals, favoring trade flow.

## **Africa**

Through collaborations with ANSI, USAID, and RockBlue, AWWA leveraged its expertise to create a lasting impact on water utilities in Africa. By promoting AWWA Utility Management standards that support sustainable practices and empower utilities with valuable resources and training, the project contributes to the long-term improvement of water services and infrastructure in the region. Workshop participants were engaged throughout the needs assessment and trainings phases. AWWA staff, WASH experts, and local partner ROCKBlue delivered two virtual workshops for Malawi, Zambia, and Lesotho, and then hosted an in-person training in Livingstone, Zambia for a culminating workshop and graduation event. Additionally, monthly one-hour engagement calls with participants between the workshops were held to provide logistical updates, engage attendees on what they had done to implement concepts, and answer questions about the standards.

## **Needs Assessment Results**

The project commenced with a comprehensive needs assessment survey distributed across water and wastewater utilities and related WASH organizations in Zambia, Malawi, and Lesotho, resulting in 22 responses

(2 from Lesotho, 9 from Malawi, and 11 from Zambia). These responses provided valuable insights into operational contexts and population demographics to facilitate the tailored training initiatives in Africa. Twenty responses were from water/wastewater utilities, 1 was from a governmental agency, and 1 from an academic/educational organization. Responses were primarily from management and engineering sectors (7 from Directors/General Managers and 12 from Engineer or Operations Managers) with a few other responders (1 finance, 1 HR manager, 1 Commercial Operations, and 1 Lecturer).

All 22 respondents indicated they work in drinking water. Fifteen additionally noted working with wastewater, 4 noted working with water reuse, and 1 indicated involvement with stormwater. The populations served by the utilities responding ranged from a minimum of 16,603 up to a maximum of 1,800,000. The median population served was 500,000 and the average population 619,247. The relatively large size of the utilities was a helpful data point to customize the training.

Twenty-one out of 22 responded they currently use some standards in their organization. A majority noted use of national standards from their country (Zambia Bureau of Standards and Malawi Bureau of Standards for drinking water). The World Health Organization (WHO) standards and guidelines for water were mentioned by 13 respondents, and 6 mentioned ISO standards. AWWA standards were not mentioned as currently being used, and only 3 respondents were aware of the availability of Utility Management Standards from AWWA.

In ranking their interest in the different groups of AWWA Utility Management Standards, the group on drinking water management (G100, G200, G300, G480) was a clear first place with 16 of 22 ranking this group as their highest interest. A tie for second highest interest was noted with the wastewater management standards (G510, G520) and the general utility management/business practices standards (G400, G410, G420). Security related standards were a distant fourth with water reuse standards just behind in fifth. Although water reuse was fifth, several respondents include a comment about interest in this topic. Other comments by respondents emphasized the relation of the standards to their core activities, and to providing sustainable water and sanitation services to the customers for the enhancement of public health. These rankings were similar to what was received for India's Needs Assessment which was conducted first and confirmed the selection of standards for focus in the workshops.

Respondents noted a strong interest in expanding their utility management knowledge to enhance their operations. Many noted financial challenges to continuing improvement efforts as an interest in participating, and many noted ongoing or planned engagement in continuing improvement as reasons for participating.

All training materials and agendas were completed based on the results of the needs assessment survey and based on lessons learned from the first India workshop. The order of standards addressed was adjusted for the Africa workshops, and additional activities added to the agendas. The experience and feedback from India virtual workshops noted that the umbrella standard G400 would be understood better as the last standard introduced rather than as the first standard. Having specific examples of the topic standards aided in understanding how to apply the overarching concepts of G400 and connect various management practices together effectively.

Additionally, the order of the four specific topic management standards were adjusted to coincide with the logical flow of water from drinking water treatment to distribution to wastewater collection and then finally to wastewater treatment.

## **Workshops**

Virtual workshops were conducted in September 2022 and January 2023, with monthly follow-up/check-in calls in October 2022, November 2022, February 2023, and March 2023. The monthly follow-up calls provided opportunity for participants to ask open ended questions and get feedback on homework questions. This proved to be a valuable supplement to the virtual trainings and adding to participant engagement and understanding. The homework activity included checklists of self-assessment of their utility regarding one specific aspect of the management practices covered in the prior virtual workshop. This opportunity to review individual utility checklist work and get real time feedback from the expert instructors was directly helpful to all follow-up call participants. Follow-up calls generally included 70% to 85% percent of the participants from

the virtual workshops.

A final in-person workshop took place April 25-26, 2023 in Livingstone, Zambia. The workshop included a full day of classroom instruction on the 25<sup>th</sup> by ROCKBlue and experts, a tour of the nearby Southern Water and Sanitation Company utility’s treatment plant on the morning of the 26<sup>th</sup>, and final classroom training and recognition of participants in the afternoon of the 26<sup>th</sup>. The classroom instruction covered implementation plans for turning the training into action plans, discussing additional resources from AWWA and others, and putting in plans for further engagement between the attendees and AWWA. Twenty-two participants from water and wastewater utilities from Lesotho, Zambia, and Malawi, participated in the event. All attendees were provided with certificates of completion along with training materials.

AWWA's initiative in Africa represents a significant step toward empowering water utilities and promoting sustainable water management practices internationally. By delivering effective utility management training workshops, AWWA enhanced the operations and management of water utilities in Lesotho, Malawi, and Zambia. Through this collaboration with ANSI, USAID and RockBlue, AWWA has leveraged its expertise to create a lasting impact and play a role in shaping the sustainable future of water utilities in Africa. The success of engagement with the utilities is being seen by the amount of follow up requests from participants to the AWWA instructors for further information and guidance.

## 2.2 Activities

### **Activity #8 – Utility Management Standards Training for water sector utilities (Also appears in Africa section)**

*AWWA’s activity completion dates are included below.*

#### **India**

<b>Activity</b>	<b>Activity Description</b>	<b>Completion Quarter</b>
Activity #8.1	AWWA to conduct a needs assessment survey to identify specific utility management standards of greatest interest to water sector utilities in India and recruit a cohort of gender-diverse training participants from 15+ utilities	Quarter 2 2022
Activity #8.2	Develop training materials and agenda by AWWA staff and subject matter experts (SMEs)	Quarter 2 2022
Activity #8.3	Conduct training with participants from 15+ Indian water utilities in Mumbai and Hyderabad	Quarter 4 2022

#### **Africa**

##### **Malawi, Lesotho, and Zambia**

<b>Activity</b>	<b>Activity Description</b>	<b>Completion Quarter</b>
Activity #8.1	AWWA to conduct a needs assessment survey to identify specific utility management standards of greatest interest to	Quarter 2 2022

	water sector utilities in Zambia, Malawi, and Lesotho and recruit a cohort of gender-diverse training participants from 15+ utilities	
Activity #8.2	Develop training materials and agenda by AWWA staff and subject matter experts (SMEs)	Quarter 1 2023
Activity #8.3	Conduct training with participants from Lesotho, Malawi, and Zambia water utilities	Quarter 3 2023

### 3. IMPLEMENTATION CHALLENGES

#### India

The participants from India noted challenges with available resources (both financial and time/available personnel) for implementing large changes. Many were optimistic about using the ANSI/AWWA management standards in a limited manner to address specific obstacles and in a gradual implementation. Several participants noted that the cultural challenges of local government in India were a key obstacle to implementing long term improvements. The appointment and frequent change of local government results in a short-term focus on funding projects, which can be challenging for longer term planning and implementation for the utilities. A cooperative effort with the utility participants could be implemented to learn more about how this challenge effects the utility participants ability to implement improvements. With additional discussion and investigation, longer term solutions could be developed for capital planning and long-term strategic planning that could be adopted at utilities and endure through the shorter-term political environment changes.

#### Africa

The utility participants noted a number of challenges to their day-to-day operations that may have limited full implementation of the use of AWWA standards, although they remain optimistic about the opportunity for management improvements. Available resources were noted as the biggest challenge, including both financial resources for any capital improvements and limited time and personnel to effectively implement new practices. They were optimistic about gradual and incremental improvements. Additional unexpected challenges included different local conditions – for example, many wastewater utilities noted that one of their most recurring challenges in effective and sustainable management of wastewater collection systems was the frequent and recurring theft of manhole covers. With continued implementation of practices described in the management standards and reference to additional product standards on things such as locking devices and non-metallic materials for manhole covers (and thus less desirable as an item for theft), these types of local challenges can be addressed and mitigated to a certain extent. This was an unexpected challenge and not one directly covered in AWWA management standards, although the instructors were able to apply the concepts of the ANSI/AWWA G520 standard to provide some support for this local challenge.

### 4. WORKSHOPS AND TRAININGS CONDUCTED

Activity #	Sub Activity #	Country	Training/ Workshop	Date	Number of Participants	In person/ Virtual/ Hybrid
8	8.3	Lesotho, Malawi, Zambia	Utility Management Standards Training Workshop #3 Final	April 25 and 26, 2023	22	In-person (Livingstone, Zambia)
8	8.3	Lesotho, Malawi, Zambia	Utility Management Standards Training Workshop #2	January 10 and 11, 2023	40	Virtual
8	8.3	India	Utility Management Standards Training Workshop #4 Final	December 5-6, 2022	17	In-Person (Varanasi, Utter Pradesh)
8	8.3	India	Utility Management Standards Training Workshop #3	October 18, 2022	15	virtual
8	8.3	Lesotho, Malawi, Zambia	Utility Management Standards Training Workshop #1	September 7-8, 2022	39	Virtual
8	8.3	India	Utility Management Standards Training Workshop #2	July 20-21, 2022	26	Virtual
8	8.3	India	Utility Management Standards Training Workshop #1	April 27-28, 2022	51	Virtual

## 5. PERFORMANCE INDICATORS

	Indicator	FY 2023 Target	FY 2023 Result
IR 1.1: Countries have knowledge about the value of using their national quality infrastructure.			
2	Number of trainings conducted about the value of using their national quality infrastructure.	Q3 2022 Africa- 1 Q3 2022 India- 1  Q4 2022 Africa- 0 Q4 2022 India- 2  Q1 2023 Africa- 1 Q1 2023 India- 0  Q2 2023 Africa- 1 Q2 2023 India- 0	Q3 2022 Africa- 1 Q3 2022 India- 1  Q4 2022 Africa- 0 Q4 2022 India- 2  Q1 2023 Africa- 1 Q1 2023 India- 0  Q2 2023 Africa- 1 Q2 2023 India- 0
4	Number of international standards adopted or referenced by partner country.	3 (ACTIVITY #8 AWWA-Africa) Target 3  3 (ACTIVITY #8 AWWA-India) Target 3	Africa- Achieved at least 3 utilities began referencing at least 1 of the ANSI/AWWA Utility Management Standards and adopting them into their utility's use  India- Achieved at least 3 utilities began referencing at least 1 of

			the ANSI/AWWA Utility Management Standards and adopting them into their utility's use
IR 1.2: Countries have an enabling environment			
5	Countries have an enabling environment for a national quality infrastructure.	0 (ACTIVITY #8 AWWA-Africa) 0 (ACTIVITY #8 AWWA-India) Africa + India: Year 5 Expected Progress: 1	Africa- Progress expected in year 5 and beyond. India- Progress expected in year 5 and beyond.
9	Number of workshop/reserve trade mission participants	Q3 2022 Africa-0 Q3 2022 India-25 Q4 2022 Africa- 0 Q4 2022 India- 16 (Oct 18- 10; Dec 5-6- 6) Q1 2023 Africa- 28 Q1 2023 India- 0 Q2 2023 Africa- 30 Q2 2023 India	Q3 2022 Africa-39 Q3 2022 India- 26 Q4 2022 Africa- 0 Q4 2022 India- 32 (Oct 18- 15; Dec 5-6- 17) Q1 2023 Africa- 40 Q1 2023 India- 0 Q2 2023 Africa- 22 Q2 2023 India- 0
DO 4: Countries have COVID-19 plans that incorporate GRP			
CCIR 2.1: Gender incorporated into NQI			
16	Number of measures implemented to promote gender equality	5 (ACTIVITY #8 AWWA-Africa) Target 14 5 (ACTIVITY #8 AWWA-India) Target 9	Africa- 14 female participants Achieved India- 9 female participants Achieved

## 6. CONTRACTUAL & ADMINISTRATIVE UPDATE

All contractual obligations have been met. Please refer to the Budget Expenditures by Program Year for a full accounting of AWWA's expense. Quarterly charges differ than invoices sent to ANSI due to the distribution of fringe and overhead rates over the course of the program and well as the correction of allocations between federal and non-federal funds. The fringe and overhead rates of 46% and 48.59%, respectively were updated in July 2021 upon approval of 2020's NICRA proposal. Additionally, AWWA had several discrepancies in their invoices that were later corrected in Q4 2021, Q1 2023, and Q2 2023.