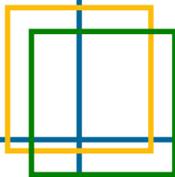




United States
Environmental
Protection Agency

Office of Policy
(1807T)

March 2011
EPA-100-R-11-006



Evaluation of the Drinking Water and Clean Water Infrastructure Tribal Set- Aside Grant Programs

Final Report

Promoting Environmental Results
←————→
Through Evaluation

ACKNOWLEDGEMENTS

Ross & Associates Environmental Consulting, Ltd. (Ross & Associates) and Industrial Economics, Incorporated (IEc) conducted this evaluation under Contract EP-W-07-028 between IEc and EPA's Office of Policy (OP). The evaluation team consisted of Anna Williams, Amy Wheelless, and Darcy Peth of Ross & Associates and Angela Helman and Lindsay Ludwig of IEc. Planetary Engineers, staffed by Crispin Kinney, a former IHS manager who assisted with the development of the IHS STARS database, also provided assistance in this evaluation.

The Evaluation Advisory Team that supported this evaluation included David Harvey and Kyle Carey of EPA's Office Ground Water and Drinking Water (OGWDW), Matthew Richardson of EPA's Office of Wastewater Management (OWM), and Michelle Mandolia of EPA's OP's Evaluation Support Division. An Evaluation Review Group held two calls to provide feedback on evaluation products: this group included the Evaluation Advisory Group members, Michael Mason (OWM), Gerald McKenna (Region 2), Brian Smith (Region 4), Stephen Poloncsik (Region 5), Minnie Adams (Region 8), Erskine Benjamin (Region 9), Linda Reeves (Region 9), Loretta Vanegas (Region 9), and Dennis Wagner (Region 10).

EPA's Program Evaluation Competition, sponsored by OP, provided support for this evaluation. To access copies of this or other EPA program evaluations, please visit EPA's Evaluation Support Division's website at <http://www.epa.gov/evaluate>.

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ACRONYMS

ACS	Annual Commitment System
AI/AN	American Indian and Alaska Native
ARRA	American Recovery and Reinvestment Act of 2009
CDP	Community Deficiency Profile (a component of STARS)
CWA	Clean Water Act
CWISA	Clean Water Infrastructure Set-Aside
CWS	Community Water System
CY	Calendar Year
DG	Direct Grant
DL	Deficiency Level (a STARS designation)
DWIG-TSA	Drinking Water Infrastructure Grant Tribal Set-Aside
DWINS	Drinking Water Infrastructure Needs Survey
EPA	United States Environmental Protection Agency
FDL	Final Deficiency Level
FTE	Full Time Equivalent
FY	Fiscal Year
HUD	United States Department of Housing and Urban Development
IA	Interagency Agreement
IDL	Initial Deficiency Level
IHS	United States Department of Health and Human Services, Indian Health Service
NPDWR	National Primary Drinking Water Regulation
NPM	National Program Manager
O&M	Operations and Maintenance
OGWDW	EPA Office of Ground Water & Drinking Water (part of the EPA Office of Water)
OP	EPA Office of Policy
OW	EPA Office of Water
OWM	EPA Office of Wastewater Management (part of the EPA Office of Water)
PDS	Project Data System (a component of STARS)
PWS	Public Water System
PWSID	Public Water System Identification Number
SDS	Sanitary Deficiency System (a component of STARS)
SDWA	Safe Drinking Water Act of 1974, amended in 1986 and 1996
SDWIS	Safe Drinking Water Information System
SFC	IHS Division of Sanitation Facilities Construction
STARS	Sanitation Tracking and Reporting System
USDA	United States Department of Agriculture

EXECUTIVE SUMMARY

The Environmental Protection Agency (EPA) Clean Water Indian Set-Aside (CWISA) Grant Program and the Drinking Water Infrastructure Grant Tribal Set-Aside (DWIG-TSA) Program provide funding for wastewater infrastructure and drinking water infrastructure to American Indian tribes and Alaska Native (AI/AN) Villages. EPA coordinates with Indian Health Service (IHS) on these programs.

Through this program evaluation, EPA sought to determine the extent to which the combined efforts of the EPA DWIG-TSA program and the EPA CWISA program have resulted in increased access to safe drinking water and sanitation facilities and in increased compliance with the Safe Drinking Water Act (SDWA) in Indian country. EPA also sought to better understand and explain how these programs are implemented, how implementation influences program performance toward their goals, as tracked by each program's strategic measures, and whether these measures are accurate indicators of each program's progress. In addition, because IHS often oversees and directly implements the infrastructure projects, EPA hoped to gain a deeper understanding of its own scope of influence and if and how EPA could better demonstrate program results. The evaluation looked at DWIG-TSA and CWISA program activities and influence since 2003. The evaluation team did not focus on IHS implementation of the programs, except as it relates to EPA program implementation and accomplishments.

Ross & Associates Environmental Consulting, Ltd. (Ross & Associates) and Industrial Economics, Incorporated (IEc) conducted this evaluation with support through the EPA Program Evaluation Competition, sponsored by the EPA Office of Policy (OP).

The evaluation focused on responding to the following questions:

- I. How does EPA implement the DWIG-TSA and CWISA programs at headquarters and in the regions?
- II. To what extent are the DWIG-TSA and CWISA programs achieving their stated goals?
- III. What factors influence whether the programs achieve their stated goals?
- IV. Are the current DWIG-TSA and CWISA program performance measures accurate indicators of EPA's progress?
- V. What implementation improvements or innovations could be made by EPA to make the DWIG-TSA and CWISA programs more effective in meeting the water and wastewater infrastructure needs of tribes?

To answer these questions, the evaluators collected and reviewed documents, conducted interviews with 39 people, and analyzed data on over 650 DWIG-TSA and CWISA projects that EPA contributed funding to between 2003 and 2009.

EPA tracks progress made by the DWIG-TSA and CWISA programs toward the EPA Strategic Plan Goal 2—protecting America's waters—according to performance on three Strategic Plan measures.

- › Compliance Strategic Measure: By 2015, 88 percent of the population in Indian country served by community water systems will receive drinking water that meets all applicable health-based drinking water standards. (2005 baseline: 86 percent. Status as of FY 2009: 81 percent.)¹

¹ In the *FY2011-2015 EPA Strategic Plan*, this measure is under Goal 2: Protecting America's Waters, Objective 2.1: Protect Human Health

- › Drinking Water Access Strategic Measure: By 2015, in coordination with other federal agencies, provide access to safe drinking water for 136,100 American Indian and Alaska Native homes. (FY 2009 baseline: 80,900 homes. Universe: 360,000 homes.)²
- › Sanitation Access Strategic Measure: By 2015, in coordination with other federal agencies, provide access to basic sanitation for 67,900 American Indian and Alaska Native homes. (FY 2009 baseline: 43,600 homes. Universe: 360,000 homes.)³

The access strategic measures relate to a US commitment made in 2002 at the United Nations World Summit on Sustainable Development, held in Johannesburg, South Africa.⁴ Specifically, the US committed to reducing by half the proportion of people that did not have access to safe drinking water or basic sanitation.⁵

Conclusions

- › **The goals and priorities for these programs could be clearer and more focused.** The goals and priorities for both programs lack precision and clarity: EPA staff have different ideas of what the term “goal” means for these programs and how the drinking water program priorities of compliance and access relate to each other. EPA has the opportunity to more clearly articulate and focus the goals of both programs, and then to focus program design and implementation accordingly in a set of “cascading” decisions and actions that would follow clearer goals and priorities.
- › **Funding allocation for both programs could be improved to be more in line with EPA’s priorities.** The method used to allocate funds for each program has an understandable basis and history; however, neither allocation process is an ideal match for the current program priorities and strategic measures.
- › **For both programs, project selection could be more clearly and consistently tied to EPA’s priorities, while still maintaining regional discretion and flexibility.** Project selection under the DWIG-TSA program differs from region to region, and for both programs the relationship between project selection and EPA’s priorities and scope of influence is not as clear or consistent as it could be. For the CWISA program, using the IHS Sanitary Deficiency System (SDS) list is not ideal for CWISA’s priorities and ability to fund projects.
- › **Despite improvement in recent years, communication within EPA and between EPA and IHS is inconsistent and not optimal for strategic program management or strategic learning and improvement.**
- › **IHS is a vital partner for EPA to implement these programs.** IHS has the in-house expertise, field presence, and relationships with tribes necessary to do much of the work of these grant programs. In addition, the STARS database is also generally considered to be the best source of information on tribal water infrastructure information and is thus an invaluable tool for these EPA programs. The STARS database is an inventory of wastewater and water infrastructure need and ongoing projects in Indian country, as tracked by IHS.
- › **There are opportunities for improved communication with tribes about these programs.** EPA could strengthen its direct communication with the tribes to enhance knowledge of tribal contexts and needs, more consistently provide tribes with information about funding options, understand program accomplishments, and identify areas for program improvements.

² *Ibid.*

³ In the *FY2011-2015 EPA Strategic Plan*, this measure is under Goal 2: Protecting America’s Waters, Objective 2.1: Protect and Restore Watersheds and Aquatic Ecosystems.

⁴ United Nations. Plan of Implementation of the World Summit on Sustainable Development. Section II. September 4, 2002. Available: <http://un-documents.net/iburgpln.htm#II>.

⁵ Specific commitment language was as follows: “The provision of clean drinking water and adequate sanitation is necessary to protect human health and the environment. In this respect, we agree to halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation...”

- › **EPA has limited ability to make progress on the current strategic measures focused on providing access to drinking water and clean water to tribal homes.** EPA’s limitations include:
 - Lower program funding relative to the funding needed to provide for all identified access needs;
 - A history of funding a substantial proportion of projects that do not provide access (as defined by moving from a higher deficiency level (DL) to a lower one) due to project selection processes;
 - Restrictions on EPA’s authority to fund some projects that would provide access, such as funding individual drinking water wells or providing sanitation infrastructure services to homes that are not on reservation land;
 - Reliance on a metric which assumes *changes* in DLs (from a DL4-5 to a lower DL) that are immediate and permanent, when in reality, DLs may not change in this manner as a result of funding (e.g., because a DL-4 project only partially funds the infrastructure needed to change the associated homes to a DL-3 or lower) and there is sometimes “backsliding” of DL designations due to compliance violations, lack of infrastructure maintenance, or other reasons;
 - Substantial reliance on other federal agencies, particularly IHS, to contribute toward progress on the access measure; and
 - Disconnects between reported progress on providing access (reported to be immediate upon project funding) and actual progress on the ground, which typically occurs years later, after construction is completed and the new or upgraded infrastructure is operating.

- › **EPA appears to be quite limited in its ability to make progress toward the current compliance strategic measure, though the extent of the limitations is not clear due to a lack of measurable data.** The drivers of some if not most compliance problems may related to operations and maintenance (O&M) at tribal systems or the introduction of new drinking water rules, rather than to infrastructure problems that the DWIG-TSA program can address. In addition, the allocation of DWIG-TSA funding has not been directly tied to compliance needs or opportunities, nor has project selection clearly and consistently been linked to compliance support on a national scale.

- › **EPA’s meaningful contributions to meeting tribal infrastructure needs are not well reflected by the reported program performance.** Despite the identified challenges surrounding making progress toward the current strategic measures, both programs have made significant contributions over the years to Indian country through these programs by providing funding for vital water infrastructure needs. These contributions—and the public and environmental health benefits they have provided—have not been clearly recognized in a public or formal way. As one EPA regional coordinator said, “I don’t think we hear enough about what the achievements are—we know what the goals are, but I don’t know what the achievements have been.”

Recommendations

In response to the evaluation question about possible program improvements (evaluation question V), we offer eight recommendations and three additional items for consideration. We consider the first four recommendations to be policy recommendations as they would require approval from senior EPA management and, in the case of at least recommendations 1-3, approval from the US Office of Management and Budget as well. Recommendations 5-8 are more program-oriented and could be considered and implemented at the program level. Additional discussion on each recommendation is provided in the main body of the report (beginning on page 45).

1. Clarify the goals and priorities of both programs.

To reduce confusion and increase program focus and management, we recommend that EPA identify clear, specific, and measurable goals and priorities for both the DWIG-TSA and CWISA programs. A set of cascading changes to both programs' processes (e.g., allocation of funds, project selection) and performance measures could then logically follow as described in the following recommendations.

2. Consider changing the access strategic measures by which EPA tracks its performance to measures that more directly reflect EPA's mandate, authority, and scope of influence; take into consideration data availability and quality; and reflect changes or clarifications to the programmatic goals made in response to recommendation 1.

In the Recommendations section of the full report, we offer several options for EPA's consideration regarding the current access strategic measures, which we do not think serve EPA or reflect progress toward meeting tribal needs as well as other options would.

3. Consider changing the DWIG-TSA compliance strategic measure to a measure that more directly reflects the drivers of compliance problems and EPA's scope of influence over these problems.

A revised compliance measure targeted specifically to infrastructure-solvable compliance problems that EPA has the ability to address would more directly and clearly reflect the influence of the DWIG-TSA program on compliance. In the Recommendations section of the full report, we offer three options for such a measure.

4. Reassess the national annual budget allocation for both programs to be more clearly tied to EPA's goals and priorities.

Once EPA has determined whether and how to update each program's goals, priorities, and measures, deciding whether and how to update the allocation formulas for one or both programs will be easier. However, we recommend updating the allocation formulas to more directly and clearly support EPA's current strategic measures even if EPA makes no changes in response to recommendations 1-3.

5. For both programs, update and clarify expectations for project selection to be more clearly in line with the program priorities, allow for regional flexibility and discretion, and promote increased consistency and transparency.

The project selection processes for both programs have their bases and merits, but neither process is ideal. For the DWIG-TSA program, consideration of both compliance needs and provision of access varies from region to region; regions often choose projects based on other considerations, making it difficult for EPA to make progress on its strategic measures. For the CWISA program, exclusive use of the SDS list is limiting and does not recognize EPA's distinct mission, authority to fund, or priorities, including provision of access. Updating the project selection guidances to focus on a simple set of core program elements while allowing for regional flexibility and discretion would provide more coherence across the regions, particularly for the DWIG-TSA program, and more direct linkage to program priorities for both programs.

6. For both programs, routinely collect and analyze data to enhance transparency and strategic coordination and improve EPA's ability to report on, advocate, and improve both programs through learning and adaptation.

Improved information availability will enable EPA to better understand its contributions through these programs and support learning over time to improve program effectiveness. Given there is currently very little information collected by EPA nationally other than basic funding statistics, even a modest increase in data collection would provide a markedly improved ability to understand, explain, and advocate for these infrastructure programs at the regional and national levels. The type of information that could be beneficial would not be complicated or extensive.

7. Update the national guidelines for both programs.

Following the consideration of the above recommendations and any resulting changes, we recommend that EPA headquarters work with EPA regions to update the guidelines for both programs. In addition, EPA headquarters should work with the EPA regions to update any communication materials about these programs.

8. Continue to enhance and improve communication within EPA, between EPA and IHS, and between EPA and the tribes.

Communication between EPA headquarters and EPA regions, between EPA and IHS, and between EPA and the tribes is important to effectively implement and measure the impact that these programs have on tribal communities. Although the evaluators heard from interviewees many positive reflections on communication, we also heard that communication improvements in several areas would be useful.

Additional Considerations

We offer three additional considerations which reflect our support for efforts that are already underway or, in one case, previous work done to reflect on many of the same issues that this evaluation has covered:

1. Continue to focus on the critical issues surrounding infrastructure sustainability, including tribal O&M capacity issues;
2. Continue to communicate about interagency agreement (IA) requirements, expectations, and inter-agency roles between EPA and IHS; and
3. Reflect on other reports and recommendations prepared by other workgroups that pertain to these programs.

INTRODUCTION

The Environmental Protection Agency (EPA) Clean Water Indian Set-Aside (CWISA) Grant Program and the Drinking Water Infrastructure Grant Tribal Set-Aside (DWIG-TSA) Program contributes funding for wastewater infrastructure and drinking water infrastructure to American Indian tribes and Alaska Native (AI/AN) Villages. EPA coordinates with Indian Health Service (IHS) on these programs. This evaluation is intended to assess these tribal set-aside programs, including their implementation, program measures and outcomes, and identify opportunities for program improvements.

Evaluation Purpose and Audience

Through this program evaluation, EPA sought to determine the extent to which the combined efforts of the DWIG-TSA and CWISA programs have resulted in the provision of access to safe drinking water and sanitary facilities in Indian country, and in increased compliance with the Safe Drinking Water Act (SDWA) in Indian country. EPA also sought to better understand and explain how these programs are implemented, how implementation influences program performance toward their goals, as tracked by each program's strategic measures, and whether these measures are accurate indicators of each program's progress. In addition, because IHS often oversees and directly implements the infrastructure projects, EPA hoped to better understand its own scope of influence and, in so doing, better understand if and how EPA could better demonstrate program results. The evaluation looked at DWIG-TSA and CWISA program activities and influence since 2003. The evaluation team did not focus on IHS implementation of the programs, except as it relates to EPA program implementation and accomplishments.

The primary audiences for this evaluation are the EPA managers and staff who oversee and implement these programs in the Office of Ground Water and Drinking Water (OGWDW), Office of Wastewater Management (OWM), and EPA regions. IHS managers and staff may also be interested in the results of this evaluation, as may AI/AN representatives who are eligible for funding from the CWISA or DWIG-TSA programs.

DWIG-TSA AND CWISA PROGRAM BACKGROUND

Historically, as compared non-tribal populations, those living in Indian country and in Alaska Native Villages have had disproportionately lower access to safe drinking water and sanitary facilities, which indicates that there is a lack of a safe water supply and/or a system for sewage disposal. For example, in 2009, 43,437 or 12.1 percent of the tribal homes tracked by IHS lacked access to safe drinking water in 2009, compared to the 0.6 percent of non-tribal homes that lacked such infrastructure (as measured by the US Census Bureau in 2005).⁶

The CWISA and DWIG-TSA programs are intended to provide funding to infrastructure projects that will help overcome these AI/AN access challenges. The EPA regions, often through federal interagency agreements (IAs) with the IHS Division of Sanitation Facilities Construction (SFC)⁷, administer the programs. Grants are available to any federally recognized Indian Tribe, as well as to Alaska Native Villages working with the State of Alaska. Funding recipients can receive funds either through a direct grant from EPA or through IHS, which administers an IA with EPA to receive and disperse the funds.

History and Funding

The DWIG-TSA Program was established under section 1452(i) of the 1996 amendments to the Safe Drinking Water Act (SDWA) and is administered under the EPA Office of Ground Water and Drinking Water (OGWDW). Through the 2009 federal fiscal year (FY2009), this program was funded from a 1.5 percent set-aside from the annual Drinking Water State Revolving Fund (DWSRF); as of FY2010, this set-aside amount increased to 2.0 percent. DWIG-TSA funds are allocated to the EPA regions based on a combination of: (1) drinking water needs identified in the IHS Sanitary Deficiency Survey (SDS) list, an annual inventory of water infrastructure need in Indian country, and (2) the tribal portion of the EPA Drinking Water Infrastructure Needs Survey (DWINS), a survey of drinking water infrastructure need undertaken approximately every four years. Annual funding since the program's inception until FY2010 has ranged from \$10.9 million to \$27.7 million. Funding fluctuations have been a function of variances in DWSRF funding amounts and, in FY2010, the increased funding percentage from the DWSRF.

The CWISA Program was established in 1987 under section 518(c) of the Clean Water Act (CWA) and is administered under the EPA Office of Wastewater Management (OWM). From FY2001 to FY2009, this program was funded from a 1.5 percent set-aside from the annual Clean Water State Revolving Fund (CWSRF); as of FY2010, this set-aside amount increased to 2.0 percent.⁸ These funds are allocated to the EPA regions based on the level of wastewater needs indicated in the IHS area SDS lists. Annual funding since the program's inception until FY2010 has ranged from \$4.7 million to \$42 million, due to different set-aside percent allocations and CWSRF funding amounts.

The American Recovery and Reinvestment Act (ARRA) of 2009 provided the CWISA and DWIG-TSA programs with significant additional funding (\$60 million for CWISA and \$30 million for DWIG-TSA, or two percent of the

⁶ US EPA. *FY2011 National Water Program Guidance* (April 2010). Available:

http://www.epa.gov/ocfo/npmguidance/2011/owater/nwp_program_guidance508_050510.pdf.

⁷ IHS is a Federal agency under the US Department of Health and Human Services.

⁸ Between FY1987 and FY1990, CWISA was funded by a 0.5 percent set-aside from the Construction Grants Program. In FY1991, no funding was appropriated. In FY1992, Congress gave EPA the authority to take a 0.5 percent set-aside from the CW State Revolving Fund. In FY2001, the set-aside was increased to 1.5 percent.

respective State Revolving Fund). Guidance associated with the ARRA funding directed that funds be allocated to projects in a similar manner as the annual allocations, with a few management changes; these are described in the section of this report that discusses ARRA implementation.

EPA Infrastructure Grant Program Goals and Measures

The DWIG-TSA and CWISA programs are guided by the EPA Strategic Plan. In September 2010, EPA issued its *FY2011-2015 EPA Strategic Plan*, which includes strategic *Goal 2: Protecting America's Waters*. The Strategic Plan defines Goal 2 as, "Protect and restore our waters to ensure that drinking water is safe, and that aquatic ecosystems sustain fish, plants and wildlife, and economic, recreational, and subsistence activities."⁹

The DWIG-TSA and CWISA programs provide funding for water infrastructure in Indian country and are aimed at realizing Goal 2 specifically through the Strategic Plan's *Objective 2.1: Protect Human Health* and *Objective 2.2: Protect and Restore Aquatic Watersheds and Ecosystems*.¹⁰ Infrastructure funded by the DWIG-TSA program protects public health through exposure reduction by helping systems in tribal communities provide water in compliance with the SDWA National Primary Drinking Water Regulations (NPDWRs). Infrastructure funded by the CWISA program protects aquatic watershed and ecosystems by helping tribal communities ensure that wastewater introduced to aquatic environments has been properly treated and in compliance with CWA regulations. With these and other programs and regulations within the Office of Water, EPA works with other federal agencies and state, local, and tribal governments to make progress on this high-level strategic goal.

EPA tracks progress made by the DWIG-TSA and CWISA programs toward the Strategic Plan's Goal 2 and related Objectives according to performance on three Strategic Plan "measures." These measures are reiterated as strategic annual commitment measures in the Office of Water National Program Manager (NPM) Guidances. We list these strategic measures below with the EPA annualized measure designation from the Annual Commitment System (ACS).

- › By 2015, 88 percent of the population in Indian country served by community water systems will receive drinking water that meets all applicable health-based drinking water standards. (2005 baseline: 86 percent. Status as of FY 2009: 81 percent.) (ACS Measure SP-3)¹¹
- › By 2015, in coordination with other federal agencies, provide access to safe drinking water for 136,100 American Indian and Alaska Native homes. (FY 2009 baseline: 80,900 homes. Universe: 360,000 homes.) (ACS Measure SDW-18)¹²
- › By 2015, in coordination with other federal agencies, provide access to basic sanitation for 67,900 American Indian and Alaska Native homes. (FY 2009 baseline: 43,600 homes. Universe: 360,000 homes.) (ACS Measure WQ-24)¹³

These FY2011-2015 EPA strategic measures are updates from the *FY2006-2011 EPA Strategic Plan*, which listed three similar "strategic targets" related to the DWIG-TSA and CWISA programs.^{14, 15}

⁹ US EPA. *FY2011-2015 EPA Strategic Plan*. Page 46. Available: <http://www.epa.gov/planandbudget/strategicplan.html>.

¹⁰ *Ibid.*

¹¹ In the *FY2011-2015 EPA Strategic Plan*, this measure is under Goal 2: Protecting America's Waters, Objective 2.1: Protect Human Health

¹² *Ibid.*

¹³ In the *FY2011-2015 EPA Strategic Plan*, this measure is under Goal 2: Protecting America's Waters, Objective 2.1: Protect and Restore Watersheds and Aquatic Ecosystems

¹⁴ US EPA. *FY2006-2011 EPA Strategic Plan*. Available: <http://www.epa.gov/planandbudget/archive.html>.

- › By 2011, 86 percent of the population in Indian country served by community water systems will receive drinking water that meets all applicable health-based drinking water standards. (2005 Baseline: 86 percent) (ACS Measure: SP-3)¹⁶
- › By 2015, in coordination with other federal agencies, reduce by 50 percent the number of homes on tribal lands lacking access to safe drinking water. (2003 baseline: Indian Health Service data indicate that 12 percent of homes on tribal lands lack access to safe drinking water (38,637 homes lack access).) (ACS Measure: SP-5)¹⁷
- › By 2015, in coordination with other federal partners, reduce by 50 percent the number of homes on tribal lands lacking access to basic sanitation (cumulative). (2003 baseline: Indian Health Service data indicate that 8.4 percent of homes on tribal lands lack access to basic sanitation (26,777 homes of an estimated 319,070 homes).) (ACS Measure: SP-15)¹⁸

This evaluation has focused on the progress made toward the three *FY2011-2015 EPA Strategic Plan DWIG-TSA and CWISA strategic “measures”* listed above. Where we refer to the higher-level Strategic Plan Goal 2, “Protecting America’s Waters,” we note so explicitly in the text.

Throughout the course of the evaluation, when discussing the DWIG-TSA and CWISA programs, EPA and IHS staff also discussed four related “goals”:

1. A long-term drinking water program compliance “goal” of having all public water systems in compliance with the Safe Drinking Water Act. Although the current Strategic Plan does not specifically reference this goal, EPA program managers routinely consider this programmatic goal when assessing progress on its programs. **In this report, we refer to this as the “long-term drinking water compliance goal.”**
2. The CWISA program has a long-term access “goal” of all serviceable tribal homes having access to basic sanitation. **In this report, we refer to this as the “long-term clean water access goal.”**
3. The US government commitment to the Plan of Implementation of the 2002 United Nations World Summit on Sustainable Development, held in Johannesburg, South Africa.¹⁹ Specifically, the US committed to reducing by half the proportion of people that did not have access to safe drinking water or basic sanitation.²⁰ In 2007, a group of federal agencies assembled an Infrastructure Task Force to help achieve this commitment as it relates to tribal homes. This Infrastructure Task Force is comprised of EPA, IHS, the US Department of Agriculture (USDA), and the US Department of Housing and Urban

¹⁵ SP-5 and SP-15, the former access strategic targets, were kept as “indicators” in the FY2011 Office of Water NPM Guidance, meaning that EPA will continue to report on the number of tribal homes lacking access to safe drinking water and basic sanitation, but not against an annual or long-term target.

¹⁶ In the *FY2006-2011 EPA Strategic Plan*, this target is under Goal 2: Clean and Safe Water, Objective 2.1: Protect Human Health, Sub-objective 2.1.1: Water Safe to Drink.

¹⁷ *Ibid.*

¹⁸ In the *FY2006-2011 EPA Strategic Plan*, this target is under Goal 2: Clean and Safe Water, Objective 2.2: Protect Water Quality, Sub-objective 2.2.1: Improve Water Quality on a Watershed Basis.

¹⁹ United Nations. Plan of Implementation of the World Summit on Sustainable Development. Section II. September 4, 2002. Available: <http://un-documents.net/iburgpln.htm#II>.

²⁰ Specific commitment language was as follows: “The provision of clean drinking water and adequate sanitation is necessary to protect human health and the environment. In this respect, we agree to halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation...”

Development (HUD).²¹ Stakeholders often refer to this cross-agency federal goal as the “access goal.” **In this report, we refer to this commitment as the “US access goal.”**

4. The logic model developed at the beginning of the evaluation (Appendix A) identified a general “goal” for both the DWIG-TSA and CWISA programs: To improve access to drinking water and basic sanitation in Indian country and to improve compliance of community water systems with applicable health-based standards. In this report, unless noted otherwise, we are not referring to this more generalized goal, which supports and reiterates all of the aforementioned goals and measures.

Projects Eligible for DWIG-TSA and CWISA Funding

The DWIG-TSA and CWISA programs fund infrastructure projects in tribal communities. For the DWIG-TSA program, most projects that improve a tribal drinking water system are eligible for funding. For example, eligible projects could be those that rehabilitate or develop sources of drinking water; install treatment or storage facilities; and replace aging water system infrastructure. CWISA funding can be used for the planning, design, and construction of wastewater collection and treatment systems. For example, on-site septic systems and major sewer rehabilitation are projects that are eligible for funding. However, there are some limitations in what each program is able to fund, based the statutes that established the programs and interpretations of their respective guidances.

The DWIG-TSA program cannot fund the following kinds of projects (per the DWIG-TSA national guidance, except where footnoted):

- › Projects that are not primarily or exclusively serving a tribal population;
- › Individual home plumbing except when retrofitting for water efficiency;²²
- › New systems, except when an existing water source for a population is contaminated or a public health concern, and a new system is a cost effective solution for addressing the public health risk;
- › Individual home wells;
- › Projects for systems that are for-profit non-community water systems; and
- › Other ineligible projects listed in DWIG-TSA national guidance (e.g., reservoirs, dams, new growth, O&M).

The CWISA program cannot fund the following kinds of projects (per the CWISA national guidance, except where footnoted):

- › Indoor plumbing in individual homes;²³
- › Connection of individual homes to laterals (i.e., the connection from the home to the property line where a lateral connection exists);²⁴

²¹ For more information, see <http://www.epa.gov/indian/triprograms/infra-water.htm>.

²² Mehan, G. Tracy. US EPA. Memorandum: “Use of Drinking Water State Revolving Fund (DWSRF) Program Funds for Water Efficiency Measures.” July 25, 2003. Available: http://www.epa.gov/ogwdw/dwsrf/pdfs/memo_dwsrf_policy_2003-07-25.pdf.

²³ US EPA Office of Water. Clean Water Infrastructure Set-Aside Grant Program: Answers to Frequently Asked Questions. March 2007. Available: <http://water.epa.gov/type/watersheds/wastewater/upload/CWISA-tribal-faq-highres.pdf>.

²⁴ Frace, Sheila, US EPA. Memorandum: Eligibility of Lateral Connections under the Clean Water Indian Set-Aside Grant Program. September 18, 2007.

- › Projects not located within the jurisdiction of the tribal recipient (i.e., tribal reservation land) with the exception of Alaska Native Villages and tribes in Oklahoma on former reservations;
- › Land purchases other than land used for the integral part of the wastewater treatment processes or used for the ultimate disposal of treatment residues; and
- › Other ineligible projects listed in CWISA national guidance (e.g., new growth, economic development, O&M, industrial wastewater treatment systems, asset management).

Role of IHS in EPA Infrastructure Grant Programs

To implement these infrastructure grant programs, EPA works in conjunction with IHS's Division of Sanitation Facilities Construction (SFC). The mission of the IHS is to work with AI/AN peoples to raise their health status to the highest possible level. To support IHS's mission, IHS SFC works with tribal governments to eliminate sanitation facilities deficiencies. Through SFC, IHS provides the following services related to the EPA tribal infrastructure programs.

- › **Sanitation Deficiency System (SDS) List.** IHS develops and maintains an inventory of sanitation deficiencies in tribal communities, also called the SDS List, which is a part of the Sanitation Tracking and Reporting System (STARS). EPA uses this list to make funding allocation decisions for both the DWIG-TSA and CWISA programs. This list also guides project selection for the CWISA program and is used by some EPA regions for DWIG-TSA project selection. Exhibit 2 provides definitions for deficiency level designations that IHS uses.
- › **Interagency Agreements (IAs).** In cases where a tribe chooses to have funds awarded through an interagency agreement (IA), EPA works with IHS to set up the IA, and then IHS establishes a Memoranda of Agreement (MOA) with the tribal grant recipients. Under the ARRA funding of 2009, all projects were funded through two national-level IAs with IHS: one for the DWIG-TSA program, and one for the CWISA program.
- › **Coordinated Project Funding.** Often, IHS provides a proportion of funding for projects that EPA chooses to fund.
- › **Project Implementation.** Whether or not IHS administers the project funds through an IA, the tribes can use IHS to implement projects. IHS has staff with technical expertise for sanitation and drinking water systems, and can provide assistance with feasibility studies, design, and construction of infrastructure projects.
- › **Program Reporting.** IHS annually provides data from the STARS system to EPA on progress made for EPA to report on its strategic measures. IHS also responds to ad hoc requests for additional information from STARS to answer questions on performance and implementation that arise.

Exhibit 2. IHS Deficiency Level Designations

A home that lacks access to safe drinking water or basic sanitation is one that is defined as having a deficiency level (DL) ranking of 4 or 5 (on a 1-5 scale) by IHS in the STARS system. Deficiency levels have the following general definitions:

- › DL-5: An Indian tribe or community that lacks a safe water supply and a sewage disposal systems.
- › DL-4: An Indian tribe or community with a sanitation system that lacks either a safe water supply or a sewage disposal system.
- › DL-3: An Indian tribe or community with a sanitation system which has an inadequate or partial water supply and sewage disposal facility that does not comply with all applicable water supply and pollution control laws, or has no solid waste disposal facility.
- › DL-2: An Indian tribe or community with a sanitation system which complies with all applicable water supply and pollution control laws, and in which the deficiencies relate to capital improvements that are necessary to improve the facilities in order to meet the needs of such tribe or community for domestic sanitation facilities.
- › DL-1: An Indian tribe or community with a sanitation system which complies with all applicable water supply and pollution control laws, and in which the deficiencies relate to routine replacement, repair, or maintenance needs. A minimum level of technical assistance is required from the IHS.
- › DL-0: No deficiencies to correct.

METHODS

Evaluation Approach

As a first step in the evaluation, the evaluation team refined the initial evaluation questions that had been submitted as a part of OP's evaluation competition, identified the information needed to answer the refined questions, and updated the draft program logic model (Appendix A) that had been previously developed by EPA.

Identification of Evaluation Questions

The evaluation team, with input from a small EPA evaluation advisory group, decided to focus on the following five core evaluation questions:

Exhibit 1. Core Evaluation Questions	
I.	How does EPA implement the DWIG-TSA and CWISA programs at headquarters and in the regions?
II.	To what extent are the DWIG-TSA and CWISA programs achieving their stated goals?
III.	What factors influence whether the programs achieve their stated goals?
IV.	Are the current DWIG-TSA and CWISA program performance measures accurate indicators of EPA's progress?
V.	What implementation improvements or innovations could be made by EPA to make the DWIG-TSA and CWISA programs more effective in meeting the water and wastewater infrastructure needs of tribes?

The core questions focused on how the EPA headquarters and regions implement the programs, whether the programs were and are meeting their stated goals as articulated through the program strategic measures (and if not, why not), and whether EPA could make program adjustments to maximize program effectiveness and success. These core evaluation questions informed data collection and analysis approaches.

Information Collection Approach

The evaluation team employed a mixed-method approach to information collection, including document review, interviews with stakeholders, and new data collection and synthesis.

Document Review

The evaluation team reviewed relevant EPA strategic reports and guidances, EPA OW NPM guidances, EPA regional guidances and grant requests for proposals, IHS annual reports and other documentation, and Infrastructure Task Force reports. A full list of information sources reviewed is included as Appendix F.

Interviews

Interviews were a crucial component of the qualitative data collection for the evaluation, providing information, insights, and perspectives that complemented and reinforced the other information. The evaluation team first conducted an initial set of scoping calls with 13 EPA regional contacts during the development of the evaluation methodology to inform the evaluation approach. Over the course of the evaluation, the evaluation team gathered

information from 39 people during 28 separate interviews; these interviewees were from EPA headquarters and regions, IHS headquarters and area offices, and tribal governments. The evaluation team interviewed almost all of the EPA regional coordinators across the nine regions that receive funding for these programs²⁵ and a few other regional staff members who were also familiar with these programs or had a related role in their regions. EPA headquarters staff interviewees consisted of DWIG-TSA and CWISA program managers and individuals with oversight roles or knowledge of program measures and reported performance. IHS interviewees consisted of two managers at IHS headquarters and three IHS area office staff members (IHS headquarters staff suggested who to interview from the IHS area offices). Tribal interviewees were tribal government staff familiar with these programs (EPA regional coordinators suggested the tribal interviewees).

The roles of the individuals interviewed break down as follows:

- › EPA regional staff: 20
- › EPA headquarters staff: 10
- › IHS staff: 5
- › Tribal government staff: 4

Please see Appendix B for the interview guides used to structure the interviews.

Quantitative Data Synthesis and Analyses

The evaluation team collected data from a variety of sources:

- › **Historic DWIG-TSA and CWISA data.** EPA provided historic program data in Microsoft Excel spreadsheets that contained data, where available, on EPA funding amounts, funding years, IA numbers, and in some cases, IHS Sanitation Tracking and Reporting System (STARS) database identifiers such as Sanitation Deficiency System (SDS) and Project Data System (PDS) numbers.
- › **Safe Drinking Water Information System (SDWIS) compliance data.** This data included SDWA compliance violation information for tribal public water systems (PWS) for violation years (calendar years (CY)) 2004 to 2008, in Excel spreadsheets. The evaluation team also received summary SDWIS information in Excel pivot tables that is used for EPA reporting on its strategic measures related to compliance. These pivot tables include data as far back as 1998, but do not include specific violation information at the system level.
- › **IHS STARS data.** IHS provided STARS data (in Microsoft Access format) that covered data from three areas of STARS:
 - *Community deficiency profile (CDP) ‘snapshots’ for 2004-2009:* Each community served by IHS is evaluated annually by IHS engineers. Each profile for a community includes groups of homes designated with a deficiency level for solid waste, drinking water, and sewer. This home and deficiency level data was used to report on EPA’s access strategic targets in the *FY2006-2011 EPA Strategic Plan*.
 - *SDS List ‘snapshots’ for 2004-2009:* Each year’s ‘snapshot’ shows the SDS projects listed as needs within a given IHS area, its area priority within the list in that year, the estimated initial deficiency

²⁵ EPA Region 3 has no federally recognized tribes within its boundaries and therefore does not receive funding or otherwise implement these programs.

level (IDL) of the project, the estimated final deficiency level (FDL) of the project, and the scores in eight areas that contributed to the project's priority level within the area.

- *PDS information*: This information includes data on all projects where funding is directed through IHS, including IDL and FDL of the project, number of homes served, funding amount, and milestone information (e.g., date when construction started). This is likely to be the data source for reporting on EPA's access strategic measures in the *FY2011-2015 EPA Strategic Plan*. This data was a 'snapshot' from 2009.

To best use this information, the evaluation team worked with EPA headquarters and EPA regional coordinators to review the EPA project data and fill in gaps (e.g., to add PWS identification numbers (PWSIDs) and PDS numbers), where possible. After the evaluation team completed data cleanup, IEC developed an Access database ("project database") that linked, as possible, EPA project data from both programs with IHS STARS information. The project database also linked EPA DWIG-TSA project information to the detailed SDWIS violation data, by PWSID, as possible. Once connections between the datasets were made, the evaluation team was able to conduct data analyses to help answer certain evaluation questions. The evaluation team is providing this project database to EPA at the end of this evaluation, along with a memorandum describing the database and how EPA could update the database with new project data, STARS data, and/or SDWIS data.

The evaluation team conducted a series of iterative data analyses, including statistical correlations (Appendix D) and analyses of project performance information (e.g., project duration, IDLs and FDLs of projects funded) (Appendix E). In the evaluation methodology, the evaluation team had considered a regression analysis, with the dependent variable being the STARS CDP deficiency level in a set of community homes, and the independent variables including EPA region, IHS area, project duration, project funding, available compliance information, and other factors that may influence a community's access deficiency designation. However, the correlation analyses conducted indicated a lack of evidence to suggest that a more sophisticated regression analysis would yield meaningful results. This conclusion was further supported by the evaluation team's increased understanding of the lack of available data on many of the independent variables of interest.

Data analysis spanned projects from both programs that were funded between calendar years 2003 and 2009. In this evaluation, we refer to "funding years", which we define as the calendar year when a project was funded by EPA, and except where noted, this unit is the timescale for analyses. This designation is different from when regions received funding from headquarters, which occurs on a federal fiscal year basis. It should be noted that projects funded under the American Recovery and Reinvestment Act of 2009 (ARRA) are analyzed separately from the "routine" program implementation captured in the 2003–2009 time scope.

Data Analysis Limitations

The data available for this evaluation had several gaps, and, as is typical of most quantitative analyses, the evaluation team made assumptions in order to proceed with particular data analyses. The evaluation team does not think that either the gaps in the data or and the assumptions made have undermined or weakened the findings and recommendations for this evaluation, though we do provide caveats and other explanations where needed. A few notes about data gaps and assumptions are provided below.

Lack of Linkages to STARS or SDWIS Data

- › Even though the evaluation team, EPA headquarters staff, and EPA regional coordinators reviewed the EPA DWIG-TSA and CWISA project data, some gaps still persisted in the EPA project data, such as missing PWSIDs, IA numbers, and PDS or SDS numbers that would allow linkages between the EPA and IHS STARS information or SDWIS information. In particular, 51 of the 330 DWIG-TSA projects (15 percent) provided with funding between 2003 and 2009 (including ARRA projects) either lacked a PWSID or the PWSID could not be linked to provided SDWIS data.
- › For CWISA projects, information on when funds were awarded to a tribe was not provided. Therefore the evaluation team, in consultation with EPA headquarters staff, assumed that the fiscal year in which funds were appropriated was the same as the year in which a project was funded.
- › Under both programs, projects funded by direct grant (13.5 percent of DWIG-TSA projects and 4.9 percent of CWISA projects, between 2003 and 2009) rather than through an IA with IHS often did not include PDS information available from IHS (e.g., IDL, FDL, number of homes served, milestone information), unless IHS was involved in implementation of the tribe's grant or otherwise tracking the project. The data analyses that reflect progress toward the access measures therefore did not cover all projects funded through the programs.

Limited SDWIS Data

- › The SDWIS dataset provided to the evaluators contained only violations that occurred for the first time between 2004 and 2008. It did not contain ongoing violations that occurred prior to 2004, so the data may be missing some information relevant to systems provided funding under the DWIG-TSA program. In addition, as only 2004 to 2008 violation data were included, this evaluation did not have information on pre-2004 compliance history for EPA-funded systems or more recent compliance information.
- › For analyses related to the SDWIS data, if a project was funded the same year as when a violation occurred, the analyses assumed that violation occurred before funding.

FINDINGS: PROGRAM IMPLEMENTATION

Core Evaluation Question I: How does EPA implement the DWIG-TSA and CWISA programs at headquarters and in the regions?

This section explores core evaluation question I, including how the programs allocate funds, how communication is working within EPA and with tribes and IHS, and project selection under both programs. In addition, this section highlights differences in implementation under the 2009 one-time ARRA funding.

EPA Headquarters Implementation of Tribal Infrastructure Programs

EPA headquarters administers these tribal infrastructure programs in two offices within EPA Office of Water: OGWDW for the DWIG-TSA program and OWM for the CWISA program. In addition to creating guidance for implementation, EPA headquarters is responsible for program oversight and ensuring that the programs are implemented effectively. EPA headquarters manages the allocation of annual funding to the regions, communicates with EPA regions regarding program implementation, monitors program implementation in the context of the programs' strategic measures, and coordinates with IHS headquarters as needed on program coordination and oversight. For ARRA-funded projects, EPA headquarters staff are also the project officers for the IAs with IHS, whereas for the annual appropriations, EPA regions staff are the project officers.

DWIG-TSA Allocation of Funds

Each of the nine regions with federally recognized tribes (all EPA regions except Region 3) receives a two percent base allocation from the annual DWSRF allotment, regardless of the extent of identified infrastructure needs in each region. EPA headquarters allots the remaining 82 percent of the funds to the regions based on the identified needs in the IHS area SDS lists and the EPA DWINS. The national guidance for the DWIG-TSA program describes why this allocation method was developed.

- › The two percent base allocation was provided to, "allow for at least one viable project in each Region, each year, and thus allow every Tribe to at least have the opportunity to receive a grant from the DWIG TSA funds."²⁶
- › For using both the SDS list and DWINS, the guidelines acknowledge that neither tool is perfect, but that both are used to balance out each tool's weaknesses.²⁷

Overall, the DWIG-TSA program stakeholders interviewed indicated that they understood the reasons for the design of the allocation formula, but many shared some concerns with the formula. In particular, interviewees noted that EPA has not updated the DWINS for tribal systems since 1999 and thus the allocation is not based on current need in Indian country. EPA is currently updating the tribal drinking water needs information through the 2011 DWINS, but the survey results will not be available until approximately 2013.²⁸ In addition, a few

²⁶ US EPA. *Drinking Water Infrastructure Grants, Tribal Set-Aside Program: Final Guidelines* (October 1998). Available: http://www.epa.gov/safewater/dwsrf/allotments/tribes/pdf/guidelines_dwsrf_tribal.pdf.

²⁷ *Ibid.*

²⁸ Dougherty, Cynthia, US EPA. Letter to Tribal leaders on 2011 Drinking Water Infrastructure Needs Survey, September 15, 2010.

interviewees noted that the two percent base allocation to each region means that a region may receive funds but not have any significant access needs or compliance issues to be addressed.

Interviewees also noted that the IHS updates the SDS list annually, but that it may not be a complete list of all drinking water infrastructure needs. In particular, interviewees noted that IHS does not systematically track SDWA compliance issues on the SDS list, and thus compliance issues that may contribute to public health impacts may not be captured in the SDS list. In addition, a few interviewees said that some tribes do not work with IHS to get their needs evaluated and listed, or that IHS may not be aware of all the specific needs in some tribal communities.

The IHS SDS list also contains drinking water needs that are not eligible for DWIG-TSA funding, such as individual drinking water wells. However, projects that are not eligible for DWIG-TSA funding in the SDS list still contribute to the overall drinking water need in tribal communities and thus the allocation of resources to the EPA regions. Further, the SDS list includes projects that address needs at all deficiency levels. Though EPA regions can fund projects that address lower deficiency needs (i.e., DLs 1-3), the DWIG-TSA program progress is partly measured by the number of homes provided access to safe drinking water, as defined from moving from a DL-4 or 5 designation to a lower level. If an EPA region had many projects on the SDS list addressing lower deficiency needs that resulted in a high dollar amount of need, EPA would allocate proportionally more funding to this region, though these needs do not align with meeting the DWIG-TSA strategic measure.

CWISA Allocation of Funds

EPA allocates the annual CWISA funding based on the percent of needs of individual IHS areas as they are identified in the SDS list. Each year, IHS provides the area SDS lists to EPA with all of the sewer need infrastructure costs summed in each IHS area; EPA headquarters allocates the funds based on the proportion of funding need across all IHS areas. Allocation by IHS area need means that some EPA regions may not fund any clean water projects in a given year, depending on where a region's projects fall on that year's IHS area SDS list. As some IHS areas cover multiple EPA regions, one EPA region's clean water needs might all rank higher than another region's needs within the given funding allocation, and thus all the funding allocated to an IHS area would go to projects in the one EPA region.

For the CWISA allocation formula, some regional interviewees said that the allocation formula should be by EPA region rather than IHS area so that at least one clean water project could be funded in an EPA region every year. However, other regional and EPA headquarters staff indicated that, as long as the funding is addressing the highest priority needs throughout Indian country, the allocation formula does not need to change.

Like the DWIG-TSA program, the SDS list includes projects that are not eligible for CWISA funding, such as projects for individual home plumbing or projects that are not on tribal reservation land. However, projects that are not eligible for CWISA funding in the SDS list still contribute to the overall wastewater infrastructure need and thus the allocation of funds from this program. Due to the inclusion of these non-EPA eligible projects, funding to a particular IHS area would not align well with the CWISA program if many projects in the year's list were not eligible for CWISA funding.

In addition, the SDS list includes projects that address needs at all deficiency levels. Though EPA regions can fund projects that address lower deficiency needs (i.e., DLs 1-3), the CWISA program is measured by the number of homes provided access, as defined by moving from a DL-4 or 5 designation to a lower level. If an IHS area had many projects addressing lower deficiency needs that resulted in a high dollar amount of need, EPA would allocate

proportionally more funding to this area, though these needs do not align with meeting the CWISA strategic measure on providing access to basic sanitation.

Allocation Between Programs

A few regional coordinators from both infrastructure programs and a tribal government interviewee indicated interest in being able to shift funds between the CWISA and DWIG-TSA programs to address the overall higher priority infrastructure needs that may exist in a region within a given year. For example, a region may have many drinking water projects that have pressing public health concerns that could be addressed by infrastructure funding, but not enough DWIG-TSA funding to address the issues in that year.

Language that would allow this transfer of funds is in EPA's proposed FY2011 budget, but as of this reporting writing, EPA does not yet know whether the US Congress will pass this language. If the US Congress approves the language, EPA headquarters will work with the regions to establish how this transfer could be conducted.²⁹

EPA Headquarters Communication and Coordination with EPA Regions

EPA headquarters has oversight responsibilities for the implementation of the infrastructure programs which includes summary and analysis of fund utilization and annual impact on strategic measures, and the communication of these findings to interested senior leaders within EPA and other federal managers (e.g., the White House's Office of Management and Budget (OMB)). To fulfill these duties, EPA headquarters must coordinate and communicate with EPA regional staff on project selection and implementation.

For both grant programs, interviews with EPA staff indicate that, with the exception of ARRA funding, EPA regional coordinators and EPA headquarters staff communication about project selection and progress is ad hoc and project tracking is inconsistent. As a headquarters staff member said, "communication [about project selection] is pretty superficial—we may hear about particular projects retrospectively on a case-by-case basis." A few regional coordinators said that the staff turnover at EPA headquarters had been one contributing factor to the lack of historic communication between headquarters and the regions. Some of these coordinators and others mentioned communications improvements in recent years due to more engaged and consistent headquarters staff.

Previously the DWIG-TSA Grant Tracking Tool was used for national project tracking. However, the DWIG-TSA regional coordinators said that the tool was difficult to use, requested information available in other EPA databases, and that headquarters did not seem to indicate to the regions that its use was a priority. One regional coordinator said, "Headquarters always talked about wanting updates on the projects and they developed this clunky grant tracking tool. However, they never seemed serious about wanting the information." (Headquarters staff did request that regional coordinators use the tool in annual funding memoranda to the regions.) Both CWISA and DWIG-TSA regional staff said that they provide information on which projects are selected to headquarters, but do not provide other information, unless requested.

Regional coordinators and headquarters staff said that communication and coordination around these programs has increased and improved as a result of the ARRA processes (we discuss ARRA implementation in more depth later in this report). However, with this increased communication, some regional coordinators expressed concern that EPA headquarters may want to review regions' selected projects and potentially take away the regional

²⁹ D. Harvey & M. Richardson, US EPA Office of Water. Personal communication. December 14, 2010.

autonomy in project selection. One regional coordinator said, “We think headquarters is going toward the idea that they want to decide what projects we fund and under what circumstances.” Headquarters staff, for their part, said that they want to know more about which projects EPA regions fund to better understand how EPA is meeting or could better meet its strategic measures, but that they view the programs’ regional coordinators as being in the best position to understand tribal needs and determine project selection.

EPA headquarters staff that work directly on these programs said that they are often asked for reports on program progress from the OMB, the EPA Office of the Chief Financial Officer (OCFO), the US Congress, and EPA OW management. The lack of consistent and routine tracking and communication about these programs and associated projects makes it difficult for EPA headquarters staff to respond in a timely and useful way to these ongoing requests. This dynamic also stymies the ability of headquarters staff to effectively advocate for the DWIG-TSA and CWISA programs. A headquarters manager noted, “We hear a lot of anecdotal information about what’s going on... we don’t have a lot of quantitative information to respond to specific questions about how we can best protect that investment.”

In addition to the issues described by interviewees, during the course of the evaluation, the evaluators came to recognize that there is a basic lack of information flowing between the EPA regions and headquarters, as well as between the regions. For example, headquarters DWIG-TSA staff did not have a strong understanding of how the regions select projects, and the staff with both programs did not have a clear understanding of how many staff resources the regions devote to these programs. The regions also had an inconsistent understanding of each others’ work, including where they could learn from each other’s solutions to particular challenges that have arisen in multiple regions. Moreover, for both programs, there is insufficient information for EPA at both regional and headquarters levels to learn about what is working and not working well program-wide, and to provide a basis for adapting the programs accordingly.

EPA Headquarters Communication and Coordination with IHS

As already described, IHS administers a large percentage of DWIG-TSA and CWISA projects through IAs with EPA. Further, EPA relies on the IHS STARS database to report to OMB, the US Congress, and the public on EPA’s own progress toward its strategic measures. Due to these implementation relationships and reporting dependencies, as well as EPA’s program oversight responsibilities, EPA headquarters staff periodically communicate with IHS headquarters staff to, for example, request updated performance information from STARS and to track dispersed IA funds. Finally, IHS and EPA are both part of the Interagency Task Force related to the US access goal for water infrastructure and work jointly, along with HUD and USDA, to help meet this commitment.

From discussions with EPA headquarters and IHS headquarters staff, it appears that communication and cooperation between the two agencies is working well overall. The ARRA process has led to more coordination, such as filling in funding data gaps and developing a standard template for IAs. Three IHS staff members mentioned, however, that multiple and duplicative requests for information from EPA can be frustrating and time consuming, but that this issue seems to be improving due to reduced staff turnover at EPA headquarters.

From interviews with IHS headquarters and area staff members, there appears to be ongoing questions about the expectations and requirements around who is the “lead” federal agency on IAs and which agency’s rules and guidelines apply under IAs. One tribal government interviewee who works closely with these programs said, “It would be good if EPA would accept IHS as the lead agency. One federal entity needs to follow their [own] rules—otherwise there are two sets of federal rules [to be followed].” As mentioned, a standard template with terms and

conditions for all EPA-IHS DWIG-TSA and CWISA IAs was developed as a result of the ARRA funding; the standardized IA may address these questions in the future, but it is too soon for this evaluation to say what effect it may have both functionally on the implementation of these programs. One IHS staff person also mentioned that having specific funds from EPA for IHS to administer projects through IAs would be useful. EPA had previously provided administrative funds to IHS through the CWISA program, but there are currently no funds for IA administration for either infrastructure program. These IA questions may be one area for continued discussion and coordination between EPA and IHS headquarters.

Nationally, EPA does not consistently provide data on tribal community water systems' compliance history to IHS for inclusion into the formula that IHS uses to rank projects on the SDS list. As discussed later in this report on DWIG-TSA regional implementation, at a December 2010 meeting of EPA headquarters and regional staff, the DWIG-TSA staff decided that, going forward, regions would more consistently provide compliance information to IHS area offices to better inform the SDS list.

EPA Regional Implementation: DWIG-TSA Program

The evaluators examined DWIG-TSA regional project selection from three perspectives: the processes used by each region to select projects, the role of SDWA compliance history, and provision of access to drinking water through DWIG-TSA funding. We address our findings on each of these perspectives below, following a brief review of projects funded and staffing levels in each region.

Table 1 provides the total number of DWIG-TSA projects funded by EPA between 2003 and 2009, excluding ARRA projects. Of these 267 projects funded between 2003 and 2009, EPA administered 36 projects (13.5 percent of all projects, representing 13.7 percent of funding) as direct grants to the tribes. EPA has funded the remaining projects through IAs with IHS. Additional summary information about these projects, including total and average funding amounts and number of IAs versus direct grants, is available in Appendix E (Tables 1-5).

Table 1. Number of DWIG-TSA Projects, by EPA Region and Funding Year

Region	2003	2004	2005	2006	2007	2008	2009	Total
1	0	0	4	0	4	3	0	11
2	0	1	1	0	2	0	1	5
4	1	1	1	1	1	1	1	7
5	4	2	4	8	4	3	4	29
6	2	3	2	2	3	0	2	14
7	2	4	1	3	3	3	2	18
8	2	4	6	4	8	7	4	35
9	19	16	11	13	6	7	9	81
10	16	14	10	7	8	4	8	67
Total	46	45	40	38	39	28	31	267

Note: This table includes all projects funded by EPA from 2003-2009, excluding ARRA projects, but including direct grants and IAs with IHS. Some projects are funded multiple times over multiple years under the same IHS STARS PDS number; we consider these separate projects for this table to be consistent with EPA records. There are 257 unique projects within this timeframe.

As the data above shows, regions with larger tribal populations (e.g., Regions 9 and 10) have funded a higher number of projects.

In terms of administering programs, we asked regional coordinators to estimate the level of staffing (full-time equivalent, or FTE) dedicated to coordinating the DWIG-TSA program in their regions. Table 2 provides these estimates of staffing. Overall, regions with smaller tribal populations devote fewer staff to the program. In addition regional coordinators have other responsibilities beyond the DWIG-TSA program, though no regional coordinators mentioned that having multiple responsibilities hinders their ability to implement the DWIG-TSA program. In Region 10, two regional coordinators split the DWIG-TSA responsibilities between Alaska and the rest of the Region 10 states; the one in Alaska works with the State of Alaska on compliance issues, as systems at Alaska Native Villages are state-regulated, rather than EPA-regulated.

Table 2. Estimated Level of DWIG-TSA Regional Staffing

Region	Staffing (FTE)
1	0.15
2	0.25
4	0.30
5	0.50
6	0.15
7	0.25
8	1.0
9	1.0
10	0.50

DWIG-TSA Regional Project Selection Processes

The national DWIG-TSA guidelines provide regions with flexibility in most aspects of project solicitation, ranking, and selection. However, the national DWIG-TSA guidelines do require the following of EPA regions in project solicitation and selection:³⁰

- › A method for identifying water system projects and prioritizing those projects, and providing this method to tribes and other potentially interested parties in the region for review and comment;
- › A quantifiable method of ranking all of the identified projects, with priority given to projects that address the most serious risk to human health; are necessary to ensure compliance with the requirements of the SDWA; and assist systems most in need on a per household basis;
- › Coordination with local IHS area office(s) on projects selected, even if the area SDS list is not used for project ranking and selection; and,
- › Determination of adequate capacity at a system (beginning in FY2011, any system to be assisted with DWIG-TSA funds must have a certified operator).

In practice, project solicitation and selection varies widely by region: some regions rely completely on the IHS SDS list for project selection while others use a request for proposals (RFP) process for soliciting projects from the tribes and then rank those submissions. The table in Appendix C provides a summary of the different processes used in each of the regions. Most but not all regional processes are in accordance with the requirements listed above from the national guidelines. From the information the evaluation team received, it appears that three regions are not explicit in how they quantify or consider compliance information or public health impacts in project selection.³¹ However, the extent to which the regions believe they have discretion in developing processes that fit individual regional conditions and circumstances, beyond what is outlined in the national guidance, is unclear.

³⁰ US EPA. *Drinking Water Infrastructure Grants, Tribal Set-Aside Program: Final Guidelines* (October 1998). Available: http://www.epa.gov/safewater/dwsrf/allotments/tribes/pdf/guidelines_dwsrf_tribal.pdf.

³¹ Regions 2, 4, and 7 did not provide any quantifiable guidance to the evaluators on how projects are selected and thus it is not transparent to the evaluation how compliance or public health impacts are considered in project selection. Both Region 2 and Region 7 indicated that there has not been a need to choose between projects in a given year during the program history. Region 4 uses a rotating method of awarding projects to its six eligible tribes, working with the tribes to determine which project(s) to fund in a given year.

DWIG-TSA Project Selection: Compliance History

Several EPA staff expressed a keen interest in improving compliance with the Safe Drinking Water Act (SDWA) and achieving the associated safe drinking water access performance measure through improved system compliance with health-based standards. However, the role of compliance history and prevention of new compliance problems in project selection differs from region to region. From the regional guidances reviewed, it appears that all regions consider compliance and/or public health impacts when selecting projects to some extent, though, as mentioned above, how regions without quantifiable or written guidance weight these considerations is not clear. In addition, compliance history or public health impact is not the only factor regions consider in selecting projects; other factors, such as economic feasibility and tribal engagement (e.g., interest by the tribe in the project, contributing funds) and capacity affect project selection. The table in Appendix C provides an overview of each region's project selection process, including how compliance history or public health impacts of the project are considered.

EPA does not provide data on tribal community water systems' compliance history to IHS for inclusion into the annual SDS process on a nation-wide basis, though some EPA regions may share this information with IHS area offices. Further, compliance history, even when it is considered in the generation of the SDS list, would not necessarily result in a high rank for associated projects. Other factors such economic feasibility and funding from the tribe affect the ranking of projects and can outweigh any compliance issues. Those regions that select projects based on their rank order on the SDS list may therefore not be selecting projects with the most pressing compliance needs. Moreover, information collected through this evaluation, described in more detail in the section on Program Goals and Measures, suggests that many compliance problems are not driven by infrastructure deficiencies that can be addressed with DWIG-TSA funding.

At a December 2010 meeting of EPA headquarters staff and regional coordinators, the DWIG-TSA staff decided that, going forward, regions would more consistently provide compliance information to IHS area offices to better inform the SDS list. They also agreed to more routinely and thoroughly analyze their own regional compliance data to understand the issues underlying tribal SDWA compliance violations and, based on this analysis, consider funding eligible projects that would address these issues. We support these actions for increased analysis and information sharing to help ensure that EPA and IHS are aware of pressing compliance issues that would be eligible for DWIG-TSA funding.

As described above, compliance issues at tribal water systems may not necessarily be addressed by DWIG-TSA funding, due to other weighting factors in regions' project selection. To better understand the extent to which DWIG-TSA projects addressed compliance issues, the evaluators examined funded systems' compliance versus the universe of non-funded tribal community water systems (CWSs). From an analysis of available SDWIS information, it appears that water systems associated with DWIG-TSA projects have had more compliance issues than non-funded tribal CWSs, suggesting that existing compliance issues may contribute to EPA regional project selection. As Table 3 shows, a higher percentage of EPA-funded systems had at least one health-based violation between 2004 and 2008 when compared against non-funded systems. In addition, a higher percentage of EPA-funded systems had repeat health-based violations of the same type and same rule between 2004 and 2008, when compared to non-funded systems. Note that with the data available, the evaluators cannot determine what how many of these violations are infrastructure-related. Table 12 in Appendix E provides more information about the common types of violations at EPA-funded systems.

Table 3. Compliance Information for Systems in Evaluation Universe (SDWIS: 2004-2008)³²

Universe	# of systems	# with at least 1 HB violation	# with repeat HB violations
All EPA Tribal Systems (CWSs)	733	314 (42.9%)	195 (26.6%)
EPA-funded Systems (CWSs and 12 non-CWSs)	249	116 (46.6%)	83 (33.3%)
Non-Funded Systems (CWSs)	496	198 (39.9%)	112 (22.6%)

CWSs = Community Water Systems; HB= Health-Based

A requirement for certified operators at public water systems that receive EPA DWIG-TSA funding went into effect for the FY2011 DWIG-TSA funding cycle. This requirement may have consequences for which water systems are eligible for funding, but it is not yet clear what the impacts may be on project selection and to what extent it will affect non-compliant systems from being able to receive EPA infrastructure funding.

DWIG-TSA Project Selection: Access to Safe Drinking Water

Across the regions, analysis shows that the ability of a project to provide access to safe drinking water (as defined as a change from a DL-4 or -5 to DL-3 (or lower) is one factor in determining if a project is selected, but not the primary factor. The evaluators analyzed available information from STARS to determine the extent to which DWIG-TSA funding has addressed these deficiencies to safe drinking water. From PDS information, DWIG-TSA projects addressed the needs of DL-2 and DL-3 homes more than those of DL-4 and DL-5 homes: only 36 percent of projects addressed DL-4 or DL-5 needs, representing approximately 26 percent of homes served by the programs. However, these data do not explain why EPA regions selected certain projects. For example, an EPA region may not have any DL-4 or DL-5 projects to choose from because access is not a problem in the region or the drinking water access needs that do exist are not feasible to fund. For reference, Appendix E (Tables 6-10) provides detailed data where it was available on the SDS priority level of DWIG-TSA projects funded, deficiency level information from the SDS list, and the IDL and FDL information of funded projects from PDS.³³

EPA Regional Implementation: CWISA Program

The evaluators examined CWISA regional project selection from three perspectives: the processes used by each region to select projects, the specific role of the SDS list in project selection, and whether use of the SDS list to select projects has maximized EPA's funding for projects that would provide access to basic water sanitation for tribal homes that currently do not have access. We share our findings on each of these perspectives below following a brief review of CWISA projects funded by and staffing levels in each region.

Table 4 provides the total number of CWISA projects funded by EPA between 2003 and 2009, excluding ARRA projects. Of these 429 projects funded between 2003 and 2009, EPA administered 21 projects (4.9 percent of all projects; reflecting 2.9 percent of CWISA funding in this time period) as direct grants to the tribes. EPA funded the

³² Non-funded systems analyses only looked at community water systems (CWSs) to be consistent with the EPA-reported numbers on compliance. However, EPA DWIG-TSA projects have funded three non-community water systems and nine non-transient non-community water systems between 2003 and 2009 and analyses on EPA DWIG-TSA-funded systems includes these systems. Unless otherwise specified, when referring to "systems", we are referring to only CWSs for the non-funded universe and to all funded PWSs for the funded universe. These analyses do not include the 51 DWIG-TSA projects that did not have PWSID data or had PWSIDs that could not be linked to provided SDWIS data.

³³ These analyses examine projects that could be linked to IHS STARS information. For PDS, this information includes 204 of the 257 unique EPA projects (79 percent). For SDS, this information includes 72 of the 214 projects funded between 2004 and 2009 (34 percent). SDS 'snapshots' were only available to this evaluation for 2004 to 2009.

remaining projects as IAs with IHS. Additional summary information about these projects, including total and average funding amounts and number of IAs versus direct grants, is available in Appendix E (Tables 14-19).

Table 4. Number of CWISA Projects by EPA Region and Funding Year

Region	2003	2004	2005	2006	2007	2008	2009	Total
1	2	2	1	0	1	0	1	7
2	0	1	1	1	1	0	1	5
4	9	3	0	4	1	1	3	14
5	1	5	7	2	1	3	5	24
6	5	3	3	3	5	2	3	24
7	2	1	0	1	1	1	0	4
8	7	7	6	4	4	3	6	36
9	52	23	34	20	42	26	35	224
10	17	12	9	10	9	11	5	65
Total	95	57	61	45	65	47	59	429

Note: This table includes all projects funded by EPA from 2003-2009, excluding ARRA projects, but including direct grants and IAs with IHS. Some projects are funded multiple times over multiple years under the same PDS number; we consider these as separate projects for this table to be consistent with EPA records. There are 402 unique projects in this timeframe.

By far, EPA Region 9 has funded the most CWISA projects, followed by EPA Region 10. Given that Region 9 includes four IHS area offices and that funding is allocated by needs highlighted in IHS areas, this result is not surprising.

In terms of administering programs, we asked regional coordinators during interviews to estimate the level of FTE dedicated to coordinating the CWISA program in their regions. Table 5 provides these estimated staffing levels. Overall, regions with smaller tribal populations have fewer FTE and staff generally have responsibilities beyond the CWISA program. Further, for some regions, fewer FTEs work on the CWISA program than on the DWIG-TSA program, as the staff do not need to work with tribes to select projects or there were no or very few projects funded from a region.

Table 5. Estimated Level of CWISA regional Staffing

Region	Staffing (FTE)
1	Negligible
2	<i>Unknown (did not interview)</i>
4	0.15
5	0.5
6	0.15
7	0.10
8	1.0
9	1.0
10	0.50

CWISA Regional Processes for Project Selection

When compared to the DWIG-TSA program, the national guidelines for the CWISA program provide less flexibility to regions in selecting projects. Per the guidelines, regional coordinators are expected to select projects that are on the SDS list, and fund them in priority order down the list. Regions may skip projects that have costs that exceed available funding, have funding from another source such as IHS, or are ineligible for CWISA funding (e.g., drinking water projects, solid waste projects, or projects not on tribal land). Regions may also skip over projects for other compelling reasons, but must provide an explanation to EPA headquarters for approval; according to EPA headquarters, there does not appear to have been such a request within period of time covered in the evaluation.³⁴

³⁴ Richardson, M., US EPA Office of Water. Personal Communication. February 10, 2010.

According to interviews with regional coordinators, CWISA project selection at the regions is conducted in accordance with the national guidelines, with the exception of one region. The coordinator in this region described how the weighting factors that determine ranking on the SDS list mean that projects can rank highly without having access problems, and that the region considers the EPA strategic measure on access as a compelling reason to skip projects on the SDS list. The coordinator said the his region looks for planned, economically feasible projects that will address EPA's strategic measure for access to basic sanitation infrastructure, and that, if EPA wanted the regions to rank straight down the SDS list without using judgment, then EPA should give the money directly to IHS for it to use.³⁵

Given that, with the exceptions noted above, the CWISA program uses the SDS list in rank order to select projects for funding, this evaluation looked at the DLs of funded projects to determine the extent to which funded projects would provide access as it is defined as an immediate change in DLs (from a DL-4 or DL-5 to a lower deficiency level) upon project funding. The analysis, summarized in Table 6, shows that the projects funded by CWISA range widely across IHS areas' SDS priority listing. For example, between 2004 and 2009, the CWISA program has funded projects in the Nashville Area offices with priority ranking between 1 and 13, which represents projects falling within the top 7 percent of needs in the area. In the Navajo Area office, the CWISA program has funded projects ranking between 1 and 546, with the latter falling in the bottom quartile of SDS projects ranked in that area in that year. The percentiles (listed in parentheses after the minimum and maximum ranking) are more illustrative than are the absolute ranking of the projects selected because some SDS lists are substantially longer than others. (Note that the EPA regional rankings are listed with each related IHS area office because each IHS area has its own SDS list from which the EPA regions choose from. In some cases, EPA regions are choosing from multiple IHS area SDS lists because the regional office-area office boundaries overlap.)

This analysis shows that, on average, most of the EPA regions are selecting CWISA projects from within the top quarter of the area SDS priority lists. In some cases, a few regions chose projects that were not ranked highly on the SDS lists; however, the data do not explain why the regions chose or skipped specific projects in any given IHS area. For example, an IHS area may already be funding highly ranked projects with IHS funds. Area office lists may also have a large number of projects that are drinking water-related instead of sewer-related, are too expensive to be funded with available EPA funds, or are otherwise ineligible for funding, forcing the EPA region to skip many projects on the list to find an eligible one. Appendix E (Tables 21-22) provides additional data on information from the SDS lists.³⁶

³⁵ Poloncsik, S., US EPA Region 5. Interview and personal communication. August 26, 2010 and January 11, 2011.

³⁶ These analyses examine projects that could be linked to the IHS SDS list, which is approximately 82 percent of the EPA, non-ARRA, projects funded between 2004 and 2009 (255 out of 310). SDS 'snapshots' were only available to this evaluation for 2004 to 2009.

Table 6. IHS Area Priority Ranking of CWISA Projects for Funding Years 2004-2009, excluding ARRA projects, by IHS Area and EPA Region

IHS Area/ EPA Region	# of Projects Funded	Minimum Rank/Percentile	Maximum Rank/Percentile	Average SDS Rank	Median SDS Rank
Aberdeen	9	2 (1.0%)	12 (5.7%)	6.89	7
Region 7	0	n/a	n/a	n/a	n/a
Region 8	9	2 (1.0%)	12 (5.7%)	6.89	7
Alaska (R10)	37	1 (0.2%)	152 (27.2%)	20.00	15
Albuquerque	8	2 (0.9%)	21 (9.8%)	8.75	8
Region 6	7	2 (0.9%)	21 (9.8%)	8.86	8
Region 8	1	8 (4.1%)	8 (4.1%)	8.00	8
Bemidji (R5)	19	11 (6.1%)	152 (66.4%)	79.89	79
Billings (R8)	12	1 (0.7%)	34 (24.0%)	6.92	4
California (R9)	28	1 (0.4%)	120 (40.4%)	19.36	11
Nashville	18	1 (0.5%)	13 (6.5%)	5.33	4.5
Region 1	3	2 (1.3%)	6 (3.0%)	4.00	4
Region 2	4	1 (0.6%)	9 (5.1%)	5.00	6
Region 4	9	1 (0.5%)	13 (6.5%)	6.00	5
Region 6	2	1 (0.5%)	9 (4.6%)	5.00	5
Navajo (R9)	107	1 (0.1%)	536 (76.4%)	67.35	20
Oklahoma	9	4 (1.2%)	36 (11.0%)	18.44	16
Region 6	6	4 (1.2%)	27 (8.3%)	14.83	14
Region 7	3	15 (4.6%)	36 (11.0%)	25.67	26
Phoenix	14	4 (1.6%)	109 (42.7%)	25.64	11.5
Region 8	0	n/a	n/a	n/a	n/a
Region 9	14	4 (1.6%)	109 (44.0%)	25.64	11.5
Portland (R10)	6	5 (2.5%)	92 (46.9%)	22.33	8
Tucson (R9)	10	1 (0.7%)	40 (26.0%)	10.70	2
Overall	277	1	536	40.06	14

Note: The above is the minimum, maximum, average, and median priority rankings, by area, for all EPA projects funded between 2004 and 2009, excluding ARRA. For the minimum and maximum, the percentile ranks within that year's area SDS list is in parentheses. This information is presented by area, as SDS lists are by IHS area, rather than in EPA regions. Where multiple EPA regions work with an IHS area, the region's specific information is presented. Percentiles are not provided for median and average numbers, as these are a result of multiple years of data and area SDS lists vary in length each year.

In short, choosing projects in rank order from the area office SDS lists is not a straight-forward exercise for EPA regions; and based on this analysis alone, it is not clear whether this process supports EPA's access strategic measure for basic sanitation.

CWISA Project Selection: Access to Basic Sanitation

The existing deficiency level (called "initial deficiency level" or IDL in STARS) is one of eight criteria that determines a project's SDS ranking. Given the EPA strategic measure related to providing access to basic sanitation (moving from a IDL-4 or IDL-5 to a lower final deficiency level (FDL)), the evaluators examined the IDLs and FDLs of selected projects in the SDS list to understand if access to basic sanitation as EPA currently defines it was supported in practice. Analysis of SDS data showed that a majority of EPA CWISA projects funded (60.0 percent) were "access" projects, with IDL-4 and DL-5 designations and FDL-3 or lower designations; however, the other 40.0 percent of projects addressed IDL-2 and IDL-3 needs or would not be expected to provide access (i.e., IDL and FDL of 4). No

DL-1 projects were funded.³⁷ A further analysis showed that this breakdown of IDLs is similar to the overall deficiency designations of the top ranked projects across the IHS area SDS lists, which indicates that top-ranked projects within an SDS list are not necessarily addressing DL-4 or DL-5 needs. Appendix E provides tables related to these analyses (Tables 21-22).

The Project Data System (PDS) is a part of STARS that contains information on funded and implemented projects, and when looking at EPA-funded projects in PDS, we were able to find slightly more and different information than when looking at the SDS list information. In PDS, of all homes in communities that received CWISA funding between 2003 and 2009, only 16 percent were DL-4 or DL-5 homes, even though a majority of projects (56 percent) were addressing DL-4 and DL-5 needs. This finding suggests that many CWISA projects address the needs of a small number of homes with high access needs. These analyses and related tables from PDS information are available in Appendix E (Tables 23-24).

We note that, until FY2008, the CWISA annual funding memos to the EPA regions directed the regions to consider homes lacking access to basic sanitation as those with DLs of 3, 4, or 5, rather than just DLs of 4 and 5. EPA headquarters changed this direction in FY2008 to be consistent with the FY2006-2011 EPA strategic measure on access to basic sanitation. Though regions are expected to fund in order down the SDS lists for the CWISA program, rather than by DL designation, it is possible that this change in how homes are defined as lacking access has changed project selection in terms of the deficiency levels of projects selected. However, with only two years of data since EPA changed the definition of “access” to exclude DL-3s, this evaluation cannot definitively say that there has been a change in project selection related to access due to this change.

Regional Communication with IHS, Tribes, and Other Parties

EPA regional program staff coordinates with IHS and tribes in several respects, to promote awareness of available funding, to manage project selection, and to track project implementation and progress. The evaluators explored how communication and coordination are working, and whether improvements in these areas would be helpful to better meet the needs of the tribes.

Communication with IHS Area Offices

Based on the interviews, communication between the EPA regions and IHS area offices on the whole appears to be functioning fairly well, with only a modest number of issues raised by interviewees in both agencies. None of the EPA regional coordinators from either infrastructure program mentioned major issues associated with working with their local IHS area offices when selecting projects or getting updates on projects funded. However, during both the interviews and initial evaluation scoping calls, some regional coordinators indicated that IHS is understaffed given the level of work underway and ongoing need in Indian country. Regional coordinators indicated that this understaffing can contribute to some delays, including lag time in closing out projects. During a few interviews, staff in both agencies indicated that their working relationships were better with some EPA regions/IHS area offices than others, as is typical of most working relationships between different organizations and their respective offices. For the DWIG-TSA program, EPA had not been consistently sharing data on SDWA compliance with IHS for inclusion in the SDS list, but as discussed earlier, EPA DWIG-TSA regional coordinators made a commitment in December 2010 to communicate this information going forward.

³⁷ These analyses examine projects that could be linked to the IHS PDS list, which is approximately 85% of the unique EPA, non-ARRA, projects funded between 2003 and 2009 (343 out of 402).

Communication with Tribes

For both programs, the level and type of communication with tribes varies across the regions, but is generally more limited for the CWISA program.

For the DWIG-TSA program, interviews indicate that some regions with smaller tribal populations, such as Region 2, often rely on IHS to communicate more of the information about the program, while other regions often work directly with tribes on a regular basis to communicate about this program. Region 4, for example, has a rotating process with the tribes, which necessitates regular communication with its six eligible tribes. Some regions, such as Region 6, communicate with the tribes through notifications of funding or RFPs. In some cases, regions also communicate information about the program and available funding through other tribal work or meetings within the regions (e.g., regional meetings or announcements about all EPA grant funding); regional coordinators often have other communication avenues with tribes beyond these infrastructure grant programs.

Beyond the DWIG-TSA program, EPA's Public Water System Supervision (PWSS) grant program has funded "circuit rider" positions where staff work for IHS and provide direct drinking water technical assistance to tribal systems. As of FY2010, EPA had funded ten FTEs at IHS area offices, across six EPA regions to provide this support. One regional coordinator and an IHS area staff member noted that these positions are helpful for understanding tribal drinking water needs and compliance issues, and for providing technical support to tribal communities that need it the most.

For the CWISA program, communication with the tribes is generally limited to discussions on the two available funding mechanisms, typically after projects have been selected. This difference may be due to the nature of the project selection; as CWISA projects are selected directly from the SDS list, tribes must work with IHS to get needs identified and listed on the SDS list, rather than discussing project ideas with EPA regions as they might through the DWIG-TSA program.

Interviews from across all the interview groups for this evaluation indicated that direct, in-person engagement between tribes and EPA regions (as well as EPA headquarters) is important for understanding tribal context and needs, as well as progress on projects underway and the benefits of completed projects. One tribal interviewee noted that a recent field visit by the EPA Administrator and EPA staff to a remote area showed a positive level of engagement that they had not seen in other federal agencies. An IHS area staff member said that EPA staff should be able to see the projects that they are funding to better understand progress and needs. In regions with smaller tribal populations or where the regional coordinator works on other tribal programs, the coordinators may be able to regularly visit project sites. However, with limited funding available for travel in most years, regions with larger tribal populations or those with remote project sites may not have this opportunity.

Communication with Other Parties

Overall, the regional staff have limited or no interaction with agencies or parties other than IHS and the tribes when supporting these programs. In some cases, USDA or HUD may also be contributing funding to a project, but any needed coordination happens with IHS, rather than with EPA. As discussed, the Tribal Water infrastructure Task Force is composed of four federal partners (EPA, IHS, USDA, and HUD) and some strategic coordination takes place within this group.³⁸ We do not have sufficient information upon which to base any particular findings on this topic.

³⁸ For more information, see: <http://www.epa.gov/indian/trprograms/infra-water.htm>.

Role of IHS in Program Implementation

EPA relies heavily on IHS for program implementation. EPA uses STARS data to select CWISA projects and some DWIG-TSA projects and to report on EPA's strategic access measures. In addition, much of the programs' funds have been provided to IHS through IAs to administer projects on behalf of the tribes. Implementation of both infrastructure programs is largely in IHS's realm, given that over 86 percent of DWIG-TSA projects and 95 percent of CWISA projects funded between 2003 and 2009 were implemented under IAs with IHS. In this section, we explore IHS's role and how it influences EPA's own program implementation and influence.

IHS STARS Database

As already noted, EPA uses the IHS STARS database to select CWISA projects, select DWIG-TSA projects in some EPA regions, track performance on the EPA strategic measures related to access, and track progress for projects funded through IAs. All of these functions are vital for the implementation of these programs.

STARS is considered by the Infrastructure Task Force and other stakeholders to be the best source of information on tribal needs related to access to drinking water and sanitation.³⁹ However, interviewees who participated in this evaluation and the Infrastructure Task Force have noted issues with STARS, summarized below, in terms of its use for EPA implementation of the DWIG-TSA and CWISA programs.

- › **STARS does not include all tribal homes or needs.** STARS does not include all tribal water infrastructure needs in the country; it includes needs that have been identified by tribal or IHS staff and entered into STARS. Some tribes choose not to work with IHS to have their infrastructure needs on the list or they may not know how or have the capacity to do so; the extent to which this situation occurs is not clear to the evaluators.
- › **STARS does not track SDWA compliance history.**
- › **STARS internal data linkages are limited.** There is no automatic link in STARS between information on a community's deficiency profile (CDP) and projects proposed and/or funded. Instead, IHS engineers are expected to keep the community deficiency profile up-to-date based on a holistic community-level view of identified needs and funded projects. While there may be advantages and disadvantages for this approach to data tracking in STARS, the lack of an automatic link may mean that information about a community's deficiency designation is neither current nor a good indicator of project accomplishments. For EPA, the reported progress on its previous FY2006-2011 EPA Strategic Plan access "strategic targets" was based on data from the CDP system, rather than from the Project Data System (PDS). This evaluation has shown that progress made through EPA-funded projects was not strongly related to changes in the community-level deficiencies (discussed further in the Program Goals and Measures section, and Appendix D, Correlation 6).
- › **IHS has different priorities than EPA.** STARS was developed for IHS's activities, mission, and scope. Therefore, some projects and homes within STARS are not within EPA's purview to fund or do not reflect EPA's priorities (e.g., individual wells, sanitation plumbing). This difference can skew the allocation of funds under both programs, as these ineligible projects are included when calculating total need nationally and in the IHS areas and EPA regions.

³⁹ Federal Infrastructure Task Force Access Subgroup. *Meeting the Access Goal: Strategies for Increasing Access to Safe Drinking Water and Wastewater Treatment to American Indian and Alaska Native Homes*. (March 2008)

- › **STARS does not uniquely identify homes.** Individual homes are not uniquely identified in the system for projects, which can contribute to double counting for reporting on measures when homes are associated with multiple projects.

Interviews with IHS staff indicate that IHS is in the process of updating STARS to address some of the above issues. In particular, the system will uniquely identify tribal homes, which will aim to address double counting and linkages between a community's deficiency profile and projects in the same community.

IHS Project Implementation

For the projects implemented through IAs with EPA, IHS often contributes critical design, planning, and construction management services to tribes, and in doing so, helps tribes to receive needed infrastructure in a timely manner. These and other implementation responsibilities require a substantial amount of IHS staff time; yet staff resources at IHS appear to be limited for the work underway. In 2006, IHS estimated that the current funding for program staff is less than 40 percent of what is needed to meet the US access goal (i.e., at least \$5.7 million annually for staffing).⁴⁰ (Funding increased in FY2010 and under ARRA for EPA's programs, but not enough to bridge this gap over time to meet all access needs or to meet all IHS staffing needs.) Interviewees from EPA regions, EPA headquarters, IHS, and tribal governments all noted that IHS is understaffed for the current amount of work underway. With the amount of work that there is yet to do in Indian country, this capacity issue at IHS is not likely to improve without other changes such as additional staffing and funding for the current as well as increasing responsibilities.

For EPA-funded projects, some regional coordinators indicated that understaffing at IHS can manifest in longer lag times for closing out projects. An analysis of the universe of EPA projects (i.e., including projects funded before 2003 for which we had data) found that, according to the project milestones in STARS, the final project report had been completed in only one-quarter of CWISA construction-completed projects and just over half of DWIG-TSA construction-completed projects (see Table 7). However, IHS provides a one-year warranty from the time construction is complete for projects to which IHS provides engineering services. Given that warranty expenses can affect financial information for this project, the IHS cannot complete the final close-out report for these projects at least until after the warranty expires. Not having the final report for a project prevents the associated IA between IHS and EPA from closing, but does not affect the provision of infrastructure to the tribal recipient.

Table 7 also provides project duration information for all EPA projects with available project milestone information from IHS, excluding ARRA projects. This analysis includes information on projects funded by EPA before 2003, as well as during the evaluation time scope, to reduce any skewing of the results due to more-recently funded projects that were implemented quickly. Within the IHS areas and the EPA regions, there is a wide variation of average duration times for projects in the two different programs. Level of IHS staffing, different water infrastructure needs, type of facility construction, and length of construction season are all significant factors that could account for these differences. For example, in Alaska, the construction season is very short in comparison to other areas, which may force some projects to stretch over more construction seasons. However, a correlation analyses for this evaluation found that, generally, for both programs, there is no correlation between the duration of projects being constructed and either IHS areas or EPA regions. More detailed information, including these correlations, and average, median, minimum, and maximum durations by EPA region and IHS area, is provided in Appendix D (Correlations 1-4) and Appendix E (Tables 25-30).

⁴⁰ *Ibid.*

Table 7. Project Duration Information, All EPA Project Information, excluding ARRA Projects

Duration Information	DWIG-TSA	CWISA
Number of Projects	403	457
Projects with Construction Completed	210 (52.1%)	188 (41.1%)
Projects with Final Report Completed (Percentage of Completed Projects)	109 (51.9%)	48 (25.5%)
Average Time to Complete Construction ⁴¹	3.51 years	3.22 years
Median Time to Complete Construction	3.29 years	2.86 years
Average Time to Complete Final Report after Construction Complete ⁴²	1.69 years	2.14 years
Median Time to Complete Final Report after Construction Complete	1.53 years	1.69 years

Note: this table includes project duration information for *all* unique EPA projects where data was available and that had milestone information in STARS: 403 of 462 DWIG-TSA projects (87 percent) and 457 of 554 CWISA projects (83 percent). Project data was available as far back as 1993 for some CWISA projects and 1997 for DWIG-TSA projects.

Project duration is an important factor of project implementation and progress for both EPA and IHS. Having projects completed in a timely way ensures that homes receive needed water infrastructure as soon as possible. In addition, any possible reductions in the length of time a project takes to complete yields cost savings in both construction costs and project staffing resources. One of IHS's strategic measures is to have projects constructed in an average of four years or less and IHS has programmatic strategies to help achieve this target.^{43, 44} Based on the data available for this evaluation, EPA projects are, on average, within this IHS target.

ARRA Implementation

The American Recovery and Reinvestment Act of 2009 (ARRA) provided the CWISA and DWIG-TSA Programs with significant additional one-time funding (\$60 million for CWISA and \$30 million for DWIG-TSA). Guidance associated with ARRA funding directed that funds be managed in a manner similar to routine program implementation, with three major changes.

- › Rather than enter into separate IAs with IHS for each project, EPA administered one national IA with IHS for CWISA and one IA for DWIG-TSA. In addition, the IAs were administered by EPA headquarters instead of the regions. (Tribes still had the choice of receiving a direct grant instead of funds through IHS, but EPA regions were to be the administrator of the direct grants if tribes selected that option; no tribes selected this option.)
- › To the extent that there were eligible projects, 20 percent of each allocation was to be provided to projects that, "address green infrastructure, water or energy efficiency improvements or other environmentally innovative activities."
- › Regions were asked to work with tribes and IHS to identify projects that could be under contract or construction within twelve months.^{45, 46}

⁴¹ From when an MOA is signed with the tribe to when construction is complete.

⁴² From when construction is complete to when the final report is complete.

⁴³ Indian Health Services. *Strategic Plan 2006-2011*. Available: <http://www.ihs.gov/PlanningEvaluation/documents/IHSstrategicPlan20062011.pdf>.

⁴⁴ Indian Health Services. *FY2011 Online Performance Appendix*. Available: <http://www.ihs.gov/nonmedicalprograms/budgetformulation/documents/FY%202011%20Online%20Performance%20Appendix.pdf>.

⁴⁵ Bergman, Ron, US EPA. Memorandum to Regional Drinking Water Branch Chiefs. "Drinking Water Infrastructure Grants-Tribal Set Aside (DWIG-TSA) Program Guidance for projects funded using the American Recovery and Reinvestment Act of 2009."

⁴⁶ Frace, Sheila, US EPA. Memorandum to Regional Water Division Directors. "Clean Water Indian Set-Aside (CWISA) Program Guidance for projects funded using the American Recovery and Reinvestment Act of 2009." (July 9, 2009).

For ARRA projects oversight, in EPA headquarters and the regions have held monthly calls and two in-person meetings. As a part of this process, EPA and IHS also worked together to develop standard IA terms and conditions that all regions must use going forward for routine annual implementation.

As of December 2010, all ARRA funds had been assigned to projects, with CWISA funding 96 projects and DWIG-TSA funding 64.⁴⁷

Table 8 provides a breakdown of number of ARRA projects, level of funding, and homes served by EPA regions.

Table 8. ARRA Projects Summary

Region	DWIG-TSA			CWISA		
	Funding	# of projects	Homes Served	Funding	# of Projects	Homes Served
1	\$668,800	6	2,051	\$346,670	1	50
2	\$698,000	2	1,311	\$1,343,330	1	228
4	\$1,100,000	3	2,163	\$1,700,000	3	1,170
5	\$1,692,700	6	387	\$1,590,010	6	59
6	\$2,865,600	7	1,480	\$4,430,760	8	500
7	\$765,700	5	858	\$7,160	1	125
8	\$3,139,600	6	2,916	\$6,417,660	7	1,583
9	\$8,448,500	13	5,604	\$22,300,460	46	6,178
10	\$10,620,900	16	5,588	\$21,863,950	23	2,159
Total	\$30,000,000	64	22,358	\$60,000,000	96	12,052

Note: The “homes served” value likely double counts some homes as some tribes received multiple grants from one or both programs.

Appendix E (Tables 31-37) provides funding and initial deficiency level information of ARRA projects and compares the information to other projects within the evaluation’s universe (2003-2009). On average, projects funded under ARRA had significantly higher average funding levels than projects funded under routine program implementation. In terms of the DLs of ARRA-funded projects, DWIG-TSA projects funded, on average, slightly higher DL needs with ARRA projects than under routine implementation; for CWISA projects, the ARRA-funded DLs were not significantly different than under routine implementation.

Interviewee Perspectives on ARRA Implementation

Interviewees identified the following ways in which the differences in ARRA implementation have changed or informed more routine implementation for both programs.

Coordination within EPA: Overall, interviewees were positive about the added communication and coordination within EPA, and between EPA and IHS, as a result of ARRA. They anticipated that this improved communication will continue with future routine program implementation. One regional coordinator said, “I think the added interest that headquarters has taken [as a result of ARRA] will hopefully lead to better policies and processes with the various EPA regions and IHS area offices.” In December 2010, the EPA headquarters and regional coordinators and IHS staff met to discuss these programs, and feedback from participants in this meeting were generally positive, with a number of comments asking for the in-person meetings to continue after ARRA projects are

⁴⁷ During the course of the evaluation, an additional DWIG-TSA project was funded with ARRA funding in Region 6. This project is included in Table 8, but is not included in analyses for this evaluation or in the tables in Appendix E.

completed. However, in phone interviews, when asked about communication under the ARRA processes, two regional coordinators cautioned against having meetings for the sake of meetings and to encourage discussion rather than simply updates.

National IA: Interviewees held a variety of perspectives on whether a national IA, such as was done for each program under ARRA, would be appropriate for routine program implementation. All who discussed this idea did note that the different timing of project selections within the regions could be a problem for a national IA, as funding decisions would need to be more coordinated and on the same timeline across all the regions.

Coordination with IHS: As discussed earlier in this report, the ARRA process has also spurred more coordination between EPA's and IHS's headquarters staff, such as filling funding data gaps and developing the standard terms and conditions for IAs. Many interviewees, from both IHS and EPA, indicated that the development of standard terms and conditions for IHS and EPA IAs was useful and that EPA regions will be using these in routine program implementation. These standard terms and conditions may help alleviate some questions about IA expectations noted earlier in the report.

Coordination with Tribes: Under ARRA, more travel money was available to headquarters and the regions to conduct site visits. Many interviewees from across the interview groups indicated that travel by EPA to visit project sites was useful to understand needs and track project progress, and that having these funds under routine program implementation would be useful.

Green Projects: No interviews noted the "green" project requirement under ARRA, so it is not clear to the evaluators whether this requirement caused any differences in project selection.

FINDINGS: PROGRAM GOALS AND MEASURES

Core Evaluation Questions II-IV:

To what extent are the DWIG-TSA and CWISA programs achieving their stated goals?

What factors influence whether the programs achieve their stated goals?

Are the current DWIG-TSA and CWISA program performance measures accurate indicators of EPA's progress?

The evaluators examined available information to understand how well the two programs are meeting their overall program goals as articulated through the strategic measures, what factors could be influencing progress toward the strategic measures, and whether the strategic measures are good indicators of progress for these programs. The strategic measures for these programs support the higher-level EPA strategic goal, "Protecting America's Waters", in the *FY2011-2015 EPA Strategic Plan*.

The Compliance Strategic Measure: Progress and Factors Influencing Progress

EPA uses the compliance strategic measure (SP-3) to communicate the impact of the DWIG-TSA program, as well as the general SDWA program implementation in Indian country. The compliance strategic measure is one measure that gauges progress toward EPA's long-term drinking water compliance goal of 100 percent compliance with SDWA as well as EPA's Strategic Goal 2, "Protecting America's Waters." This section discusses reported performance on the compliance strategic measure; factors influencing progress on the compliance strategic measure (and thus on the long-term drinking water compliance goal and EPA's strategic Goal 2); and whether this performance measure is an accurate indicator of program progress.

Reported Performance on Compliance Measure

EPA's current target for its compliance strategic measure is to have 88 percent of the population served by tribal community water systems in compliance with all health-based rules by 2015. (In the *EPA FY2006-2011 Strategic Plan*, the strategic target was for 86 percent of the tribal population in compliance by 2011.) Since FY2003, reported progress on this strategic measure has been mixed, with the most recently reported (FY2009) data showing the lowest percentage of population in compliance over the previous seven years (Table 9). Note that this measure includes water systems for which EPA has SDWA direct implementation responsibility. The measure, however, excludes Alaska native systems, which are administered by the State of Alaska. It also excludes non-community water systems.

Table 9. EPA Reported Performance on Tribal CWS Compliance

Fiscal Year	Total Systems	Systems out of Compliance	Total Population	Population Served by Systems out of Compliance	SP-3 Reported Result
2003	750	81	684,649	99,658	85.4%
2004	739	76	792,481	77,459	90.2%
2005	752	84	737,149	101,321	86.3%
2006	747	68	755,432	101,296	86.6%
2007	736	96	761,623	95,713	87.4%
2008	731	111	834,970	142,721	82.9%
2009	733	117	861,695	162,133	81.2%

The evaluation looked specifically at water systems that had EPA-funded DWIG-TSA projects to see if there is a difference in performance between the nationally reported data for all tribal CWSs and the systems that were the recipients of EPA DWIG-TSA funding.⁴⁸

Table 10 shows the SP-3 results for EPA-funded systems for calendar year (CY) 2008, the last year for which this evaluation had detailed violation data. The evaluators compared the SP-3 results for EPA-funded systems against the overall SP-3 results for FY2009, which, given the reporting window for this strategic measure, is the most accurate comparison for the SDWA data the evaluators have. The analysis showed that compliance at systems with EPA funding was lower than the overall universe of tribal CWSs, which is not surprising, given earlier information that more systems funded by EPA had health-based violations than non-funded CWSs. In addition, the compliance rate for systems after EPA-funded projects have been completed is not markedly improved over the average compliance rate for all CWSs, suggesting a marginal or minimal influence on compliance as a result of the new infrastructure investments. When Alaska systems are removed from the results, as it is for EPA reporting purposes on SP-3, the compliance rate for systems with completed projects is slightly lower than the overall universe of tribal CWSs. This information is, however, a ‘snapshot’ in time that does not show trends in compliance, and, importantly, does not explain the drivers of compliance problems, which may not be related to infrastructure or be solvable with funding from these programs.

Table 10. SP-3 Results for EPA-Funded Systems

EPA Funded Systems	EPA Funded Systems: Total Population	EPA Funded Systems: Population in Compliance	SP-3 Result for EPA-funded systems (2008)	SP-3 (2009) Result for Tribal CWSs
All Systems	214,686	164,093	76.4%	81.2%
All Systems, excluding Alaska	196,899	152,297	77.3%	
Systems with Completed Projects ⁴⁹	44,566	34,701	77.9%	
Systems with Completed Projects, excluding Alaska	40,002	30,683	76.7%	

The nationally reported results for SP-3 for 2009 are calculated on four quarters of data, spanning July 2008 to June 2009. To more accurately compare to this information with available detailed SDWIS data, this evaluation looked at the compliance information across the four quarters of calendar year 2008.

⁴⁸ EPA funding has been provided primarily to CWSs, but funding has been provided to 12 non-profit non-CWSs (e.g., systems that serve schools or other non-permanent populations).

⁴⁹ Completed as of the end of CY2008.

This evaluation also examined whether there was any impact on compliance after a project was completed, rather than just for systems that had received funding but had not necessarily had projects completed. From the SDWIS information available for this evaluation, it appears that, on the whole, EPA-funded systems had fewer violations after projects were completed when compared to their pre-project compliance.⁵⁰

- › 34 of 92 completed drinking water projects (36.6 percent) were at systems that had health-based violations *prior* to when construction was completed. On average, these systems had 0.11 health-based violations per year and 1.08 monitoring and reporting violations per year prior to when construction was completed.
- › 15 of 92 completed drinking water projects (16.1 percent) were at systems that had health-based violations *since* construction has been completed. On average, these systems had 0.03 health-based violations per year and 0.47 monitoring and reporting violations per year after construction was completed.

By comparison, 16.1 percent of non-funded systems had health-based violations in 2008. These systems had an average of 0.39 health-based violations for that year and 0.16 monitoring and reporting violations for that year. (The evaluation used a single year to evaluate the number of health-based violations for the non-funded systems, as there is not a similar “before” and “after” universe for these systems to use as a comparison group with funded systems.)

However, given the data available and the likely influence of other factors on system compliance (see discussion below), this evaluation cannot conclude definitively that DWIG-TSA infrastructure projects have directly contributed to improved compliance at funded systems. Even with the modest pre- and post-project compliance rates described above, different scenarios could be at play. For example, it is possible that compliance rates are typically better just after a new project is completed because new staff have just been trained and are more actively engaged in ensuring that compliance is supported.

Factors Influencing Progress on Achieving Compliance

Four factors suggested by interviewees and available data may influence the extent to which EPA has been able to improve in tribal system compliance with health-based standards through the DWIG-TSA program: operations and maintenance (O&M) at tribal systems, compliance with new drinking water rules, the selection of DWIG-TSA projects that may address existing compliance issues at a system, and the duration of projects to have an impact on compliance. Other factors may also influence progress on the compliance strategic measure, but not enough information was available to this evaluation to identify them.

O&M at Tribal Systems

Adequate O&M of tribal systems is essential to both ensure that the infrastructure funded by EPA is maintained over its projected design life, and to maintain SDWA compliance. Typically, O&M at tribal water systems has been poor, resulting in failures in infrastructure and public health protection. As part of an effort to address this issue, the Infrastructure Task Force Access Subgroup noted that, in areas with low population densities or remote geography, the technical, managerial, and financial capacity necessary for adequate system O&M can be difficult to develop and maintain. However, the Subgroup did also note that there is no data available to quantitatively understand the relationship between the quality of management at a tribal water system and the impact on

⁵⁰ As discussed previously, the SDWIS data that provides detailed violation data is only available for 2004 to 2008 and does not include ongoing violations that began before 2004. In addition, the data does not tell us whether violations were infrastructure-related or O&M related.

infrastructure resources.⁵¹ The Subgroup recommended a number of actions for the involved federal agencies, such as better coordinating technical assistance programs to build workforce capacity. EPA and other federal agencies have done some work to begin addressing these recommendations through the formation of a Tribal Technical Assistance Workgroup.⁵²

Interviews with most regional coordinators, as well with a tribal government representative, echoed that adequate capacity is essential for maintaining water system infrastructure, and that there is a general lack of tribal and federal funding available to address capacity and O&M issues at tribal water systems. Statutorily, EPA is prohibited from directly funding O&M through the DWIG-TSA program. A few regional coordinators noted that many tribal compliance problems are less related to infrastructure than to inadequate O&M at tribal systems and thus infrastructure funding would not itself improve compliance.

The regional coordinator in Alaska examined the significant non-complier (SNC) list (systems considered by EPA to be significantly out of compliance) in that state to determine the extent to which compliance issues could be addressed with DWIG-TSA funding. As of May 2010, in Alaska, 60 percent of the systems (43 out of 72) at Alaska Native Villages on this SNC list had violations solely related to operations. Of the remaining systems on the SNC list, seven had violations related to unfunded hardware needs, five did not have adequate capacity to qualify for DWIG-TSA funding, and only the remaining two systems would qualify for DWIG-TSA funding. Therefore, only three percent of the Alaska Native Village systems on the SNC list had infrastructure-related compliance problems and were eligible for DWIG-TSA funding.⁵³ This analysis covered only one state in one EPA region, and it represented a ‘snapshot’ in time, but its results are potentially significant, calling into question the assumption that DWIG-TSA funding could solve many SDWA compliance problems at tribal water systems. Similar analyses in other EPA regions could provide invaluable information about where DWIG-TSA funding could support compliance and where compliance of other systems could be better supported through other types of assistance, such as training or enforcement actions.

No source of sustained federal funding currently exists for the O&M of water infrastructure on tribal lands. Given this constraint, interviews suggested the following strategies to help address tribal O&M issues for EPA to consider or to continue to support.

- › *Appropriately-scaled infrastructure:* Some interviewees discussed the importance of building simple water infrastructure for smaller tribal systems or tribes with a history of compliance problems to enable easier maintenance and sustained compliance. A few expressed concern that DWIG-TSA projects (and also CWISA projects) have on occasion been “over built” (i.e., too technically complicated or large for the needs and capacity of the tribes that will have to maintain them) and that this alone could lead to future compliance violations.
- › *Technical assistance:* EPA and other federal agencies have technical assistance programs that include training for tribal system operators. For example, as of FY2010, EPA has funded ten positions in IHS that work directly with tribal systems in six EPA regions through the Public Water System Supervision (PWSS) program. Interviewees familiar with these positions thought that this program is a very useful way to

⁵¹ Federal Infrastructure Task Force Access Subgroup. *Meeting the Access Goal: Strategies for Increasing Access to Safe Drinking Water and Wastewater Treatment to American Indian and Alaska Native Homes* (March 2008).

⁵² Tribal Technical Assistance Workgroup, Federal Infrastructure Task Force on Tribal Access to Safe Drinking Water and Basic Sanitation. *Strategies for Improving Technical Assistance Delivery in American Indian and Alaska Native Communities* (March 2010).

⁵³ D. Wagner, US EPA Region 10. Personal Communication. December 23, 2010. Note: this analysis was performed to inform the region, but was provided to this evaluation as additional information.

support tribal system compliance, and also to keep EPA and IHS in close communication about compliance needs and issues. EPA also has a large number of on-line training programs, which interviewees noted were useful for helping enhance tribal understanding of compliance issues before violations occur.

- › *Usage fees:* Five interviewees identified usage fees as a barrier to proper O&M: tribal systems were not charging usage fees to customers, were not charging enough, or were not enforcing their collection. As a result, even systems with adequate capacity were hampered from addressing O&M needs to due to lack of funds. One regional coordinator said, “I don't necessarily advocate federal funding [for tribal O&M], because the problem is so big, but maybe the tribes need to increase their user fees so that they have the appropriate amount of funds. Right now, tribes are charging fees that are 10 years old.”
- › *Asset-Management Plans:* One EPA regional coordinator recommended that DWIG-TSA projects include funding for asset management plans at tribal systems to ensure that there is a strategy in place to manage infrastructure adequately. Asset management can help reduce operating costs by enabling water systems to anticipate and plan for both the operational and capital costs of its infrastructure. Expanded EPA support for asset management planning could potentially be another form of technical assistance.

Compliance with New Drinking Water Rules

The evaluators sought to understand whether the advent of additional or revised drinking water rules result in influence system compliance, including those systems that received infrastructure funded through the DWIG-TSA program in the past. During the 2004-2008 timeframe for which we had data on tribal compliance with SDWA, only one drinking water rule came into effect, the 2006 Arsenic Rule.⁵⁴ EPA adopted a new standard for arsenic in drinking water of ten parts per billion (ppb), replacing the old standard of 50 ppb. Systems were required to comply with this new rule by January 2006. Two other rules were promulgated during the timeframe, but have not been monitored yet by EPA for compliance.⁵⁵

Interviews with EPA regional coordinators, an IHS area staff member, and a tribal government staff member all suggest that the 2006 Arsenic Rule increased tribal system non-compliance. The tribal staff member said that, under the new Arsenic Rule, “All of the sudden, lots of systems were no longer compliant... Now, the dollar amount of needed improvements is huge.”

Data analysis supported the same conclusion. Fifteen of 113 (13.3 percent) systems that had EPA-funded projects prior to the introduction of the Arsenic Rule in 2006 had a total of 68 arsenic maximum contaminant level (MCL) violations between CY2006 and CY2008 (all of the systems with violations were CWSs). Of these systems, *none* had health-based violations associated with arsenic in CY2004 or CY2005. Looking at the broader universe of tribal CWSs, there were 24 arsenic MCL violations in FY2007, 75 in FY2008, and 92 in FY2009—there were no arsenic MCL violations from FY1998 to FY2006 for any tribal CWSs. Though this is a small universe of violations for both the EPA-funded systems and the overall universe of tribal CWSs, it does seem that the 2006 Arsenic Rule had an impact on tribal system compliance, thereby affecting reported performance on the compliance measure.

⁵⁴ Detailed SDWIS data was only available for 2004-2008 for this evaluation, as compared to the evaluation timeframe of 2003-2009.

⁵⁵ (1) The Stage 2 Disinfectants and Disinfection By-products Rule: This rule addresses risks from microbial pathogens and disinfectants/disinfection by-products, specifically total trihalomethanes (TTHM) and five haloacetic acids (HAA5). Compliance monitoring for this rule begins between 2012 and 2016, so this rule likely did not have any impact on compliance rates during the evaluation time scope. (2) The Long-Term 2 Enhanced Surface Water Treatment Rule: This rule addresses *Cryptosporidium* and other disease-causing microorganisms. Monitoring related to this rule began to be required between 2006 and 2008, but systems had three years to comply with implementing treatment techniques. As such, this rule likely did not have much impact on compliance rates during the evaluation time scope.

Project Selection

As already discussed, the DWIG-TSA compliance strategic measure assumes that DWIG-TSA projects can and will address and correct health-based compliance issues caused by infrastructure deficiencies. However, it appears that some health-based compliance issues are related to O&M capacity at tribal systems and the introduction of new drinking water rules, rather than infrastructure. In this section, we explore whether project selection and project duration may also influence SDWA compliance.

Our review of regional project selection guidances and processes indicates that the EPA regions use tribal compliance history or anticipated public health impacts of projects as one factor in determining whether to fund projects. However, other factors such as economic feasibility of the project and the availability of funding may in some cases play a more prominent role in determining project selection. These other factors limit the influence selection has on addressing system non-compliance.

Project Duration

Given the typical length of time needed for project completion, the effect on compliance at a system is likely to take years to be realized. DWIG-TSA projects have taken an average of 3.51 years to be completed, and there have been some projects that have taken eight or nine years. Therefore, the yearly compliance data as measured by SP-3 is not likely to reflect recent infrastructure investments. As discussed in the section on reported progress on the compliance measure, systems with completed projects have fewer compliance violations after a construction is completed than before the project is complete. This result supports the idea that we would not expect to see changes in compliance at a system until after a project is completed if the violations are infrastructure-related.

Compliance Measure as Indicator of Progress

Given the findings described above, it appears as if factors outside the scope or control of the DWIG-TSA program funding and implementation, such as system O&M, the introduction of new drinking water rules, project selection and subsequent duration of the project, influence compliance at systems and thus the reported performance indicated by the SP-3 compliance strategic measure.

Interviews and observations of the data additionally indicate that the SP-3 strategic measure is imperfect as an indicator of DWIG-TSA progress as the measured universe is different than the universe of potential DWIG-TSA influence. SP-3 measures the compliance of EPA-regulated tribal CWSs, rather than the universe served by EPA projects, which has included non-CWSs and state-regulated systems.

Notably, systems in Alaska serving Alaska Native Villages eligible under the DWIG-TSA program received 25 percent of DWIG-TSA funding between 2003 and 2009. SP-3 does not capture any of the compliance improvements that may have been made as a result of these projects because the State of Alaska implements the SDWA Alaska Native Village water systems. (Note that in this report we provide the data with and without Alaska for comparison purposes.)

In addition, between 2003 and 2009, DWIG-TSA projects have provided funding to tribal systems that account for approximately one quarter of the population served by CWSs.⁵⁶ However, the SP-3 strategic measure includes compliance at systems where DWIG-TSA funding has not been provided.

⁵⁶ In 2008, 214,686 were served by EPA-funded PWSs out of an overall population of 834,970 (28.7 percent). Removing Alaska-funded PWSs for a more direct comparison to reported numbers, 196,899 were served (27.2 percent).

The Access Strategic Measures: Progress and Factors Influencing Progress

Reported Performance on the Previous Access Strategic Targets

As discussed in the Background section, in the *EPA FY2006-2011 Strategic Plan*, EPA listed two “strategic targets” to indicate progress on providing access to water infrastructure in Indian country:

- › By 2015, in coordination with other federal agencies, reduce by 50 percent the number of homes on tribal lands lacking access to safe drinking water. (This target used a 2003 baseline of 38,637 homes lacking access to safe drinking water out of an estimated 319,070 tribal homes.)⁵⁷
- › By 2015, in coordination with other federal agencies, reduce by 50 percent the number of homes on tribal lands lacking access to basic sanitation. (This target used a 2003 baseline of 26,777 homes lacking access to basic sanitation out of an estimated 319,070 homes.)⁵⁸

According to reported numbers (Chart 1), the overall progress toward these targets was stagnant or trending downward. In 2003, 12.1 percent of all identified tribal homes lacked access to safe drinking water, and in 2009, 12.1 percent of all homes still lacked access, indicating that no progress has been made on this measure. In terms of clean water, the reported trend was the reverse of intended progress: In 2003, 7.9 percent of tribal homes lacked access to basic sanitation and in 2009, 10.1 percent lacked access. These trends reflected the number and percent of homes lacking access, rather than the number of homes provided access.

Chart 1. Number of Tribal Homes that Lack Access to Safe Drinking Water and Wastewater Services



Source: EPA Office of Water. “Tribal Drinking Water and Clean Water Access Measure Modification” (January 2010). Based on Community Deficiency Profile (CDP) data from IHS STARS.

⁵⁷ The Annual Commitment System code for this target was SP-5.

⁵⁸ The Annual Commitment System code for this target was SP-15.

The current (FY2011-2015) and former (FY2006-2011) access strategic measures⁵⁹ that the DWIG-TSA and CWISA programs work toward result from EPA's commitment to reduce the number of tribal homes lacking access to safe drinking water and basic sanitation as part of the broader US access goal made at the 2002 World Summit on Sustainable Development. Providing access, as defined by these measures, is moving a home from a DL-4 or -5 designation to a lower DL. These measures also provide an indication of progress toward EPA's strategic Goal 2, "Protecting America's waters." This section discusses reported performance on these strategic measures; factors influencing progress toward achieving these measures (and thus the higher-level goals); and whether these performance measures are accurate indicators of DWIG-TSA and CWISA program progress.

Over the same time period, if instead the data analyzed is the cumulative number of tribal homes provided access, the number of homes that that received access to drinking water and wastewater facilities exceeded the stated target of 50 percent of the 2003 baseline: as of 2009, 80,941 tribal homes had been provided access to drinking water, as compared to the target of 19,319 homes, and 43,562 tribal homes had been provided access to basic wastewater sanitation, as compared to the target of 13,289 homes (Chart 2).⁶⁰ According to a paper prepared by EPA OW staff on these strategic measures, these trends affecting reported numbers could be due to:

- › The addition of tribal homes to STARS (from 2003 to 2009, the number of homes in STARS increased from 319,070 to 360,000, causing the relative percentage to appear smaller due to an increasing denominator);
- › "Backsliding" of DL designations (e.g., from a DL-3 to a DL-4) due to aging infrastructure or due to water systems falling out of compliance with drinking water rules; and
- › Renewed interest by tribes in federal funding and thus tribes working with IHS to get project needs listed in STARS.⁶¹

As previously discussed, the FY2006-2011 access strategic targets were replaced during the course of this evaluation by the strategic measures in the *FY2011-2015 EPA Strategic Plan*. EPA explained that the reason for this replacement was, "the changing [number of homes] baseline distorted OW's reported performance in increasing access."⁶² EPA OW kept the previous access strategic targets as "indicators" in the EPA OW FY2011 NPM Guidance, meaning that EPA OW will continue to report on the number of tribal homes lacking access to safe drinking water and basic sanitation in annual reports in future, but not against an annual or long-term target.

In addition to the issue of the increasing number of identified homes relative to the 2003 baseline, the past access strategic measures relied on data reported in the STARS Community Deficiency Profile (CDP), which, as previously noted, is not automatically linked to project-specific data in the STARS system. Interviews with some program stakeholders indicate that the CDP is not necessarily current with all known needs and funded projects in a community.

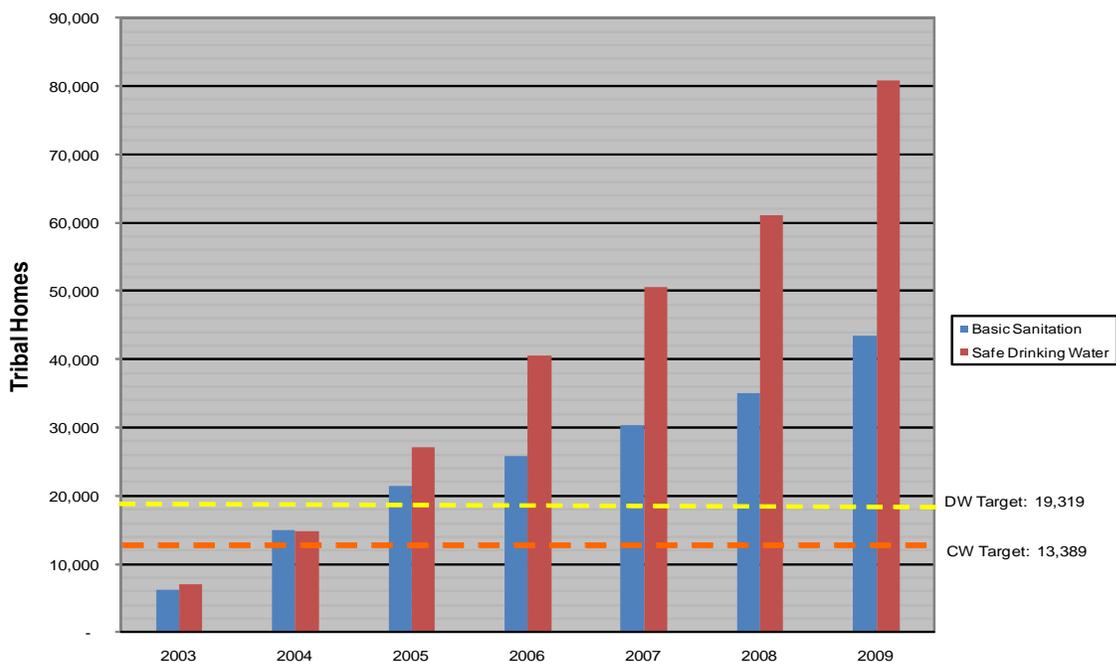
⁵⁹ In the FY2006-2011 EPA Strategic Plan, these commitments were referred to as strategic targets.

⁶⁰ US EPA Office of Water. "Tribal Drinking Water and Clean Water Access Measure Modification" (January 2010).

⁶¹ *Ibid.*

⁶² US EPA. *FY2011 National Water Program Guidance, Appendix D: Explanation of Key Changes Summary* (April 2010). Available: http://www.epa.gov/ocfo/npmguidance/2011/owater/nwp_program_guidance_appendix_d_508.pdf.

Chart 2. Cumulative Number of Tribal Homes Provided Access to Safe Drinking Water and Wastewater Infrastructure, 2003-2009



Source: EPA Office of Water. SP-5 and SP-15 Tracking Spreadsheet (Excel) (January 2010). Based on Project Data System (PDS) data from IHS STARS.

To understand whether EPA projects would have influenced the community-level DLs, and therefore changes in access as it was previously calculated at the community level, the evaluators conducted a correlation analysis of the relationship between changes in DLs in homes provided a service through EPA projects (at the PDS level) and the changes in DLs at homes (at the CDP level). The analysis results showed no significant correlation, meaning that a provision of access (in PDS) for a home served by an EPA project would not be expected to result in a change in access designation for a home at the community level (in CDP). This result could either be because the effect on the community is small, or because the update to the community designation of homes is not immediate.⁶³ (See Correlation 6 in Appendix D for more details.) In other words, EPA was reporting based on number of homes from community/CDP data, but EPA-funded projects were not influencing the changes in the CDP data.

Future upgrades to STARS will likely help address this CDP-project level linkage issue, though there will still be limits in the impacts of individual projects, as homes may be associated with multiple infrastructure needs. In 2010, EPA decided to use project level (PDS) information as the basis for tracking performance on the access strategic measure. This improvement will alleviate the problem of lack of connectivity to the community-level influences, but it does introduce a double counting issue, and also, as we describe in more detail below, the assumptions behind the term “access” as it is used by EPA for performance measurement purposes are problematic.

⁶³ For this analysis, we looked only at EPA projects; the results of the correlation analysis may be different when looking at all projects and all communities tracked by IHS in STARS.

Reported Performance on the Current Access Measures

In the *FY2011-2015 EPA Strategic Plan*, EPA replaced the former access strategic targets with two new strategic measures.

- › By 2015, in coordination with other federal agencies, provide safe drinking water access to 136,100 American Indian and Alaska Native homes.⁶⁴
- › By 2015, in coordination with other federal agencies, provide basic sanitation access to 67,900 American Indian and Alaska Native homes.⁶⁵

The new strategic measures rely on a count of the number of homes provided access, rather than the percent and number of homes lacking access. These measures are cumulative (i.e., in 2009, 80,900 homes have been provided access to safe drinking water; 55,200 more should be provided access by 2015). These new strategic measures address the issue of a “changing baseline,” but some interviewees pointed out that there is no longer context (e.g., the proportion of the entire population) from which to gauge progress and know its relative impact.

According to the latest STARS data available for this evaluation (2009), the number of tribal homes lacking access to safe drinking water was 43,437 homes, which was fewer than the remaining number of homes (55,200) that EPA has set for itself and other federal agencies to provide safe drinking water access to by 2015. In other words, EPA’s 2015 measure identified more homes to provide access to than there were homes that needed access as of 2009. EPA may, however, be anticipating that more homes with high drinking water needs will be added to STARS (e.g., new SDWA rules causing systems to fall out of compliance, new tribal homes being added to STARS).

According to STARS data, there were 28,052 homes lacking access to basic sanitation in 2009; this number is slightly higher than the cumulative target (19,990 homes) that EPA has set in the new strategic measure.

EPA has not yet reported performance on these measures, but, from discussions with EPA, we expect that EPA will use data from the Project Data System (PDS) from STARS to report on this measure alleviating the problem with the previously reported progress based on data from CDP in STARS.

Factors Influencing Achievement of Progress Toward Access

Information collected through the interviews and data analysis suggest that six factors influence the extent to which EPA has been able to make progress on the access strategic measure: O&M at tribal systems, compliance with new rules, available funding, EPA’s scope of influence, data availability and quality, and project selection. Other factors may also influence progress on the access strategic measures, but information with which to analyze potential additional factors was not available.

O&M at Tribal Systems

As discussed in the section on factors influencing progress on the compliance measure, adequate O&M capacity is vital for ensuring the infrastructure funded by EPA is functional and maintained over its projected life. The Infrastructure Task Force Access Subgroup has noted that sufficient tribal capacity for O&M is crucial for ensuring access to water and sanitation infrastructure, and that sub-optimal capacity is a factor in infrastructure becoming unusable before its design life is over. The Subgroup also noted that, in areas with low population densities or

⁶⁴ The Annual Commitment System code for this measure is SDW-18.

⁶⁵ The Annual Commitment System code for this measure is WQ-24.

remote geography, sufficient capacity for O&M can be difficult to attract and sustain, and as discussed earlier in this report, made recommendations related to O&M capacity that the Infrastructure Task Force has begun addressing.⁶⁶

Interviews with most EPA regional coordinators, as well with a tribal government representative, echoed that adequate tribal capacity is necessary to maintain infrastructure, and that there is a general lack of tribal and federal funding and capacity available to address O&M issues at tribal systems. If existing infrastructure degrades due to inadequate O&M, homes previously provided access to drinking water or basic sanitation could no longer have access, given the way access is currently defined.

The lack of O&M capacity is a daunting issue, and no source of sustained federal funding currently exists for the operation and maintenance of water infrastructure on tribal lands. The earlier report section on factors influencing the progress on the compliance strategic measure discusses a few possible strategies suggested by interviewees for addressing tribal O&M issues, which are applicable to both drinking water and clean water infrastructure maintenance.

Compliance with New Drinking Water and Clean Water Rules

Compliance with new drinking water rules influences performance on the drinking water access measure. Critical health-based violations resulting from new rules can cause IHS staff to re-designate homes from a lower DL to a DL-4, assuming IHS is aware of the compliance problem. Compliance with new rules associated with the Clean Water Act (CWA) may affect whether tribal homes lack access to basic sanitation; however, the evaluation received no data or information about this issue, and we therefore cannot say whether CWA compliance would affect progress on access to basic sanitation.

Available Funding

The Infrastructure Task Force Access Subgroup report referenced previously stated that sufficient federal funds are not available to meet the US access goal by 2015. This paper estimated that a 40 to 50 percent increase over current project funding is needed to meet the US access goal by 2015, or approximately \$50 million to \$63 million more federal dollars over current funding levels. Interviewees with EPA headquarters staff and some regional coordinators emphasized that a more funding than the current level is needed to address all infrastructure needs in Indian country. As one EPA headquarters staff person said, "If I look at the data from IHS and the needs out there... it looks like we would need a significant boost in funding to address the total need." In addition, this need for funding for access to water infrastructure does not account for the additional funding needed to maintain that infrastructure, to upgrade infrastructure if EPA promulgates new rules that would require that, or to expand to account for new population growth.

Scope of Influence

EPA's access strategic measures are explicit that achieving these measures will be done in coordination with other federal partners. The DWIG-TSA and CWISA programs are limited in the amount of impact that they can have on the reported progress of the programs' strategic measures. As discussed in the program background section of this report, the DWIG-TSA and CWISA programs have limitations on which projects are eligible for funding. Despite the limits on what these EPA infrastructure programs can fund, ineligible projects and associated tribal homes are

⁶⁶ Federal Infrastructure Task Force Access Subgroup. *Meeting the Access Goal: Strategies for Increasing Access to Safe Drinking Water and Wastewater Treatment to American Indian and Alaska Native Homes* (March 2008).

still included in the IHS STARS database and thus are included in reported numbers of homes provided or lacking access. As EPA funds cannot be used for these projects, EPA cannot directly impact these homes.

In addition to not having the influence to fund all projects that would affect water infrastructure access at tribal homes, EPA is not the direct implementer of these projects; tribes often work with IHS to at least administer the funds for these grants and IHS staff often serve as the engineers. Thus, EPA cannot directly influence the time projects take to complete and thus the provision of access to homes. As an IHS area staff person noted, “EPA is put in a difficult situation being held accountable for work that IHS ends up doing.”

Data Availability and Quality

For the current access strategic measures, EPA has addressed the changing baseline of homes issue, as well as the issue of connecting project data to performance gauged at the community level.⁶⁷ However, there are several data-related issues associated with these strategic measures that will impact EPA’s ability to fully affect both reported and actual on-the-ground performance.

- › **Double-counting of homes:** Due to the way the PDS system is designed and how the access numbers are calculated, double counting of homes provided access will likely occur if EPA or IHS fund multiple projects in a particular community. Homes may also be double counted if funded through an infrastructure project and provided “access” (by moving from a DL-4 or DL-5 to something lower), only later to return to a DL-4 or DL-5 and be funded again. As an IHS staff person said, “Looking at access as changes in DLs may be skewing things, because from year to year, those numbers can change a lot and we don’t necessarily know if it’s new homes or it’s the same homes.” As discussed, IHS is working on improving the ability to uniquely identify individual homes, which will hopefully enable prevention of double counting in the future.
- › **Deficiency level “backsliding”:** Related to the previous point, DLs can change from one year to the next. EPA relies on the provision of access (as defined as a change in DLs) in reported numbers on the measures, but these DL designations can shift following project completion.
- › **Timing of Project Impact:** According to the STARS manual, when a project is funded, the homes receiving the service should immediately have their DL changed to the final DL (FDL) associated with the project.⁶⁸ Given that most projects take years to complete, the reliance on a metric that requires immediate progress in reducing deficiencies is misleading, yet EPA also relies on the same immediate provision of “access” when reporting performance.
- › **Direct Grant Inclusion:** Between both programs, approximately eight percent of all EPA-funded projects (and eight percent of EPA funding) between 2003 and 2009 were provided as direct grants to tribes. Although this is a relatively small amount overall, some regions, including those with large populations, have a significant portion of their funding directed to direct grants. For example, 60 percent of the DWIG-TSA projects between 2003 and 2009 in Region 8 were direct grants to tribes. Direct grant projects have not (and will not) contribute to the reported number of homes provided access unless the homes associated with these projects are already being tracked by IHS due to their involvement in implementing the projects or active communication by EPA or the tribe.

⁶⁷ This statement assumes that the DLs of homes will be tracked using only PDS data, not CDP data. Our understanding from talking with EPA staff is that only PDS data will be used in reporting on the new access measures.

⁶⁸ Indian Health Services. *STARS User Manual* (September 2008).

Project Selection

As discussed in the section on implementation, many of the projects selected by the CWISA and DWIG-TSA programs are not addressing DL-4 and DL-5 needs or DL-4 and DL-5 homes. For the CWISA program, EPA regions generally fund projects in order down the SDS list, where deficiency level is only one factor of eight of a project's ranking score on the list. Similarly, for DWIG-TSA projects, regional coordinators consider several factors—not only providing access—when deciding which projects to fund. However, for both programs, we also note that DL-2 and DL-3 needs are often necessary to address for tribes to have quality water system infrastructure and outputs.⁶⁹

Access Strategic Measures as Indicator of Program Progress

In addition to the factors discussed above that may influence progress that are outside the control or scope of these programs' funding and implementation, the current access strategic measures are not specific to EPA's activities. They rely on EPA's "coordination with other federal partners" and thus the actions and influence of other federal agencies. This evaluation did not analyze the extent to which the other federal agencies involved with the Infrastructure Task Force could affect progress on these measures, but a significant part of IHS's activities are to work with tribes on developing drinking water and basic sanitation infrastructure. In addition, there are HUD and USDA funds available to tribes that would affect infrastructure projects. To put it simply, the lack of an EPA-specific strategic measure means that it is difficult to assess the impact of the EPA programs on tribal access to safe drinking water and basic sanitation.

For comparison, IHS has four strategic measures related to both serving and providing access to tribal homes, with three of these related directly to IHS-specific activities, rather than more general indicators of progress across multiple federal agencies:⁷⁰

- › Number of new or like-new tribal homes and existing homes provided with sanitation facilities;
- › Percentage of existing homes served by the program at DL-4 or above;
- › Average project duration; and
- › Percentage of tribal homes with sanitation facilities.

⁶⁹ For example, IHS designates systems that do not meet national secondary drinking water standards as having DL-2 water needs, and lagoons in need of repair as having DL-2 sewer needs. Source: Indian Health Services. *Sanitation Deficiency System (SDS) Guide for Reporting Sanitation Deficiencies for Indian Homes and Communities*. May 2003. Available: <http://www.ihs.gov/dsfc/documents/SDSWorkingDraft2003.pdf>.

⁷⁰ Indian Health Services. *Strategic Plan 2006-2011*. Available: <http://www.ihs.gov/PlanningEvaluation/documents/IHSstrategicPlan20062011.pdf>.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the findings presented throughout this report, the evaluators have drawn the following summary conclusions about the implementation of the DWIG-TSA and CWISA programs, the progress on achieving goals as tracked by the programs' strategic measures, and the use of these performance measures as indicators of program progress.

- › **The goals and priorities for these programs could be clearer and more focused.** The goals and priorities for both programs lack precision and clarity: EPA staff have different ideas of what the term "goal" means for these programs (e.g., is it the US access goal? Or EPA Strategic Plan Goal 2? Is the drinking water program more focused on a compliance goal or an access goal, or both?) and how the drinking water program priorities of compliance and access relate (e.g., does access automatically support compliance and vice versa?). EPA has the opportunity to more clearly articulate and focus the goals of both programs, and then to focus program design and implementation accordingly in a set of "cascading" decisions and actions that would follow clearer goals and priorities.
- › **Funding allocation for both programs could be improved to be more in line with EPA's priorities.** The method used to allocate funds for each program has an understandable basis and history; however, neither allocation process is an ideal match for the current program priorities and strategic measures.
 - The DWIG-TSA program allocation of funds is not ideal for supporting the programs' current program strategic measures and maximizing progress toward these measures. For example, if compliance with SDWA is the highest priority for the drinking water program, funding could more directly be allocated based on compliance needs. In addition, the use of the SDS list as a way to calculate overall drinking water needs in a region means that ineligible projects and projects addressing lower deficiency needs are contributing to the DWIG-TSA allocation. In addition, the two percent base allocation under DWIG-TSA for each region is necessarily a strategic process for making progress toward the program's strategic measures.
 - For the CWISA program allocation of funds, the SDS list is a valuable tool for EPA, but it does not align with the CWISA program's ability to fund projects or with the strategic measure related to basic sanitation.
 - We support the work that is already underway to allow the fund transfer between programs to more effectively address the most pressing water infrastructure problems in a given year.
- › **For both programs, project selection could be more clearly and consistently tied to EPA's priorities, while still maintaining regional discretion and flexibility.**
 - Project selection under the DWIG-TSA program differs from region to region, and these processes have developed due to differing regional circumstances. Though regional coordinators have the best understanding of regional conditions, these varied project selection processes may mean differential treatment of tribes across the EPA regions and that some regions are less consistent with helping meet EPA headquarters program priorities than are others.

- For the CWISA program, the IHS SDS list is an invaluable tool for the CWISA program in terms of guiding project selection, but using the SDS list to fund in rank order is not ideal for CWISA’s priorities and ability to fund projects.
- › **Communication and coordination between EPA headquarters and EPA regions had been inconsistent until the recent ARRA funding.** Based on interviews and our own observations, it appears that communication between EPA regions and EPA headquarters is generally less than optimal for facilitating mutual understanding of national and regional priorities and progress, program implementation, a unified EPA approach to these programs, and strategic learning and improvement. The management processes used to implement ARRA funding led to improved communication and coordination within EPA and it appears that some of these processes will persist into routine program implementation. From interviews, it seems that a single IA for all DWIG-TSA projects and one for all CWISA projects, as was done under ARRA, could have advantages for coordination. However, trying to coordinate simultaneous funding and closure for all projects would likely be challenging if EPA pursued this funding mechanism for routine program implementation.
- › **Despite improvement in recent years, communication between EPA and IHS is inconsistent and not optimal for strategic program management or strategic learning and improvement.** Though interviewees reported that communication on the whole between the two agencies is currently working well, it has been inconsistent in the past. The two agencies could enhance communication at the regional/area office and headquarters levels to better understand each others’ priorities and roles and the details of the new standardized IA. For the DWIG-TSA program, increased communication around SDWA compliance problems would be worthwhile, and it appears from the December 2010 meeting of DWIG-TSA staff that EPA is already committed to doing this.
- › **IHS is a vital partner for EPA to implement these programs.** EPA relies on IHS to implement these programs and help achieve improvements in access at tribal homes. EPA could not realistically take over IHS’s responsibilities: EPA does not have the in-house expertise, field presence, or relationships with tribes that would be needed to do so. In addition, the IHS STARS database is an important tool for the grant program implementation. As noted by the Infrastructure Task Force and interviewees for this evaluation, there are issues with using the STARS database as a reporting mechanism and project selection tool for these EPA infrastructure grant programs. However, this database is also generally considered by program staff and other stakeholders to be the best source of information on tribal water infrastructure information and is thus an invaluable tool for these EPA programs.
- › **There are opportunities for improved communication with tribes about these programs.** Based on the interviews with tribal government staff, EPA, and IHS, the evaluators find that tribal communication about these programs is inconsistent and “light” on the whole. EPA could strengthen its direct communication with the tribes to enhance knowledge of tribal contexts and needs and more consistently provide tribes with information about funding options (IAs versus direct grants). Increased communication could help EPA understand program accomplishments and identify areas for program improvements.
- › **EPA has limited ability to make progress on the current strategic measures focused on providing access to drinking water and clean water to tribal homes.** EPA’s limitations include:
 - Lower program funding relative to the funding needed to provide for all identified access needs;
 - A history of funding a substantial proportion of projects that do not provide access (as defined by moving from a higher deficiency level (DL) to a lower one) due to project selection processes;

- Restrictions on EPA’s authority to fund some projects that would provide access, such as by funding individual drinking water wells or providing sanitation infrastructure services to homes that are not on reservation land;
 - Reliance on a metric which assumes *changes* in DLs (from a DL-4 or -5 to a lower DL) that are immediate and permanent, when in reality, DLs may not change in this manner as a result of funding (e.g., because a DL-4 project only partially funds the infrastructure needed to change the associated homes to a DL-3 or lower) and there is sometimes “backsliding” of DL designations due to compliance violations, lack of infrastructure maintenance, or other reasons;
 - Substantial reliance on other federal agencies, particularly IHS, to contribute toward progress on the access measure; and
 - Disconnects between reported progress on providing access (reported to be immediate upon project funding) and actual progress on the ground, which typically occurs years later, after construction is completed and the new or upgraded infrastructure is operating.
- › **EPA appears to be quite limited in its ability to make progress toward the current compliance strategic measure, though the extent of the limitations is not clear due to a lack of measurable data.** According to the evaluation interviews, an analysis of compliance data from Region 10 (Alaska area), and the Infrastructure Task Force Access Subgroup report, the drivers of some if not most compliance problems may be related to a lack of sufficient O&M capacity at tribal systems or the introduction of new drinking water rules, rather than to infrastructure problems that the DWIG-TSA program can address. In addition, the allocation of DWIG-TSA funding has not been directly tied to compliance needs or opportunities, nor has project selection clearly and consistently been linked to compliance support on a national scale. EPA has the opportunity to conduct additional data analysis that will further explore the relationship between SDWA violations and the DWIG-TSA program and then to focus project selection on projects that that will be more likely to support compliance improvements over time.
- › **EPA’s meaningful contributions to meeting tribal infrastructure needs are not well reflected by the reported program performance.** Despite the identified challenges surrounding making progress toward the current strategic measures, both programs have made significant contributions over the years to Indian country through these programs by providing funding for vital water infrastructure needs. These contributions—and the public and environmental health benefits they have provided—have not been clearly recognized in a public or formal way. As one EPA regional coordinator said, “I don’t think we hear enough about what the achievements are—we know what the goals are, but I don’t know what the achievements have been.”

Recommendations

Core Question V: What implementation improvements or innovations could be made by EPA to make the DWIG-TSA and CWISA programs more effective in meeting the water and wastewater infrastructure needs of tribes?

Based on the evaluation’s findings and conclusions, we offer eight recommendations and three additional items for consideration. We consider the first four recommendations to be policy recommendations as they would require approval from senior EPA management and, in the case of at least recommendations 1-3, approval from the Office of Management and Budget (OMB). Recommendations 5-8 are more program-oriented and therefore could be considered and implemented by program staff. We present the recommendations in this order because we feel that they are iterative considerations for the programs.

1. Clarify the goals and priorities of both programs.

To reduce confusion and increase program focus and management, we recommend that EPA identify clear, specific, and measurable goals and priorities for both the DWIG-TSA and CWISA programs. We encourage EPA to clarify, for example, whether providing “access” (or perhaps simply “serving homes that currently lack access” which might be preferable—see Recommendation 2) is the highest level priority for both programs, and, if so, to identify clear program-specific goals that correspond to this priority. A set of cascading changes to both programs’ processes (e.g., allocation of funds, project selection) and performance measures could then logically follow as described in the following recommendations. For DWIG-TSA, if compliance with SDWA is the highest priority, then making this clear would be helpful for program planning, implementation, and reporting. We are aware that EPA has not consistently shared compliance information with IHS, so it is likely that many compliance-related issues that would result in a lack of “access” as defined by IHS are not reflected in reported numbers. Ideally, clearer program-specific priorities and goals would involve specific targets and performance measures that EPA can readily track and report on.

2. Consider changing the access strategic measures by which EPA tracks its performance to measures that more directly reflect EPA’s mandate, authority, and scope of influence; take into consideration data availability and quality; and reflect changes or clarifications to the programmatic goals made in response to recommendation 1.

We offer several options for EPA’s consideration regarding the current access performance measures, which we do not think serve EPA or reflect progress toward meeting tribal needs as well as other options would. Of the options we list below, most are variations on the current access strategic measures, but they address some or all of the challenges described in this report. (One option is to simply leave the current measures unchanged.)

Note that, in this recommendation, we use the term “measure” (to be consistent with the usage of this term in the FY2011-2015 EPA Strategic Plan) for what would generally be considered a 5-year “goal” or “target” against which performance would be “measured” from year to year. Also, if EPA’s highest priority for the DWIG-TSA program is to support SDWA compliance, EPA may want to consider dropping the drinking water access strategic measure altogether in support of a measure that is more clearly related to compliance for the program (see also recommendation 3, below).

Table 11 below provides a list of options for the access-related strategic measures, including pros and cons for each option. This list and associated pros/cons are not necessarily exhaustive; they are intended to illustrate tradeoffs between alternatives.

Options 1–5 assume that the number of homes will be counted using the PDS data of the IHS STARS database; the STARS database, while imperfect for EPA’s uses, is currently the best available national data on the number of tribal homes and water infrastructure needs. Options 6–7 assume use of the EPA Safe Drinking Water Information System (SDWIS) by connecting EPA project data on the water systems served with tribal population data available in SDWIS.

Table 11. Options Pertaining to Access Strategic Measures

Options – Both Programs	Pros	Cons
1. By [YEAR] provide infrastructure services ⁷¹ to [X] tribal homes	A, B, C, G Note: One IHS measure is very similar ⁷²	I, J, O
2. By [YEAR] provide infrastructure services to [X%] of tribal homes	A, C, G	I, J, O
3. By [YEAR] fund [X%] of projects [or could be a % of funding need] with initial DL-4 or DL-5 ⁷³	D, G	I, (M – depending on % chosen), O
4. By [YEAR] provide infrastructure services to [X%] of homes with DL-4 or DL-5 designations	D, G Note: One IHS measure is very similar ⁷⁴	I, K, L, M, O
5. By 2015, in coordination with other federal agencies, provide access ⁷⁵ to safe drinking water for 136,100 AI/AN homes and basic sanitation to 67,900 AI/AN homes (Current measures)	B, D, E, F	I, J, K, L, M, O
Options – DWIG-TSA only	Pros	Cons
6. By [YEAR] provide infrastructure services to [X%] of all tribal community water systems	More concrete, comprehensive measure of EPA’s influence, would provide a numerical context (total tribal population served by PWSSs), would not rely on external data source	Would require additional data analysis by EPA, would not reflect AI/AN population not served by public water systems
7. By [YEAR] provide infrastructure services to [X%] of the tribal population served by community water systems		

Pros

- A. Relatively clean, clear measure of homes provided some type of infrastructure service each year with EPA funding; recognizes and “gives credit” to all work done by EPA
- B. Does not require a percent or other relational number that would be tied to a potentially-fluctuating number of homes in the homes universe (STARS homes inventory), which, given its fluctuations, can make EPA’s performance look poor even if it is serving more than its *original* target number and *percentage* (relative to the original universe) of homes
- C. Does not assume that EPA is or should be exclusively funding DL-4/5 needs, or that all IDL-4/5 projects will result in “access” as defined by moving to DL-3 or lower
- D. Supports the US access goal
- E. May be able to reduce burden on EPA for performance and accountability given that the measure is “in conjunction with other federal agencies”
- F. Has been approved by senior EPA managers and OMB
- G. Is not dependent on other agencies’ funding, project selection, or implementation (in some cases other agencies may co-fund projects with EPA, but the measure could be tracked only in relation to EPA-funded work)
- H. Provides context through a percentage or other relational number intended to represent the larger population

Cons

- I. Homes will sometimes be double counted (extent unknown)

⁷¹ Infrastructure services (or a similar term) would cover all projects funded, rather than just projects serving homes with high deficiency levels, and would include both significant upgrades to systems, as well as partial upgrades.

⁷² IHS measure (FY2006-2011 IHS strategic plan): Number of new or like-new AI/AN homes and existing homes provided with sanitation facilities (Targets: FY2010: 21,811; FY2011: 21,500).

⁷³ Some projects with IDLs of 4 or 5 also have FDLs of 4 or 5 due to other existing issues.

⁷⁴ IHS measure: Percentage of existing homes served by the program at DL-4 or above (Targets: FY2010: 37%; FY2011: 37%)

⁷⁵ “Access” is defined as a shift in deficiency levels (in the IHS STARS data system) from a 4 or 5 to a 1-3.

- J. Would not have a numerical context (such as the total universe of homes) from which to gauge relative/proportional performance
- K. Assumes immediate “access” results even though projects take years to complete and therefore for the access or benefit to be realized on the ground immediately after funding
- L. Does not account for factors, such as compliance violations that result overnight from the introduction of new EPA rules or lack of adequate maintenance that could cause home to move from a DL-1-3 to a DL-4-5 and in so doing overlook the improvements EPA has invested in and achieved toward the measure
- M. Does not reflect or give “credit” to the good work being done through projects that are serving DL-1-3 homes (a sizable proportion of projects have IDL designations of DL-2 or -3)
- N. Puts pressure on EPA to fund a lot (or essentially all, depending on the numbers chosen) of DL-4/5 homes regardless of whether EPA has the authority to (e.g., individual home wells; sanitation projects not on reservation land), cost feasibility, funding levels, availability of access needs, etc.
- O. Reporting on the measure from STARS does not necessarily include direct grants, and therefore does not reflect all EPA work or influence.

3. Consider changing the DWIG-TSA compliance strategic measure to one that more directly reflects the drivers of compliance problems and EPA’s scope of influence over these problems.

A revised compliance measure targeted specifically to infrastructure-solvable compliance problems that EPA has the ability to address would more directly and clearly reflect the influence of the DWIG-TSA program on compliance. We offer three options for such a measure. All three options assume that DWIG-TSA funds (or some portion of these funds) would be targeted to those public water systems (community water systems and non-profit non-community water systems) that, based on additional data analysis conducted by EPA regions, would reasonably be expected to see improved compliance as a result of receiving new infrastructure through this program.

Option 1: By [X YEAR], achieve [x] reductions in health-based compliance violations at systems funded by the DWIG-TSA program.

This option would likely require tracking over some years the compliance improvements that would be expected to result after new infrastructure is completed and up and running. Therefore, it could be difficult to track direct compliance improvements from a particular project in the year it was funded.

Option 2: By [X YEAR], target [X] percent of DWIG-TSA funds to those systems that have had compliance violations that can be solved with new infrastructure funded through DWIG-TSA.

This relatively straight-forward option would aim to ensure that funding is focused (to an agreed upon extent) on compliance improvements. One advantage of this option would be that it could be done annually—without waiting for years for the compliance benefit to be realized. A disadvantage would be that it is more focused on the activities of the DWIG-TSA program, rather than the expected or desired outcomes.

Option 3: By [X YEAR], [X] percent of the population in Indian country served by community water systems that have received DWIG-TSA funding will receive drinking water that meets all applicable health-based drinking water standards.

Option 3 is a variation on the current compliance strategic measure. It would limit EPA’s commitment to DWIG-TSA funded community water systems (rather than *all* tribal community water systems) to more directly understand and track influence of the program. Like the other options above, this would also ideally involve

increased analysis of compliance drivers and funding targeted specifically to systems that have problems that DWIG-TSA funding could help to solve or could help to prevent. (Without these additional data analysis and targeted funding steps, EPA would continue to have a measure for compliance that risks being outside of the DWIG-TSA program's sphere of influence.) Like option 1 above and the current compliance measure, compliance improvements would take time (usually years) to be realized, creating a time lag between each year's DWIG-TSA funded work and compliance outcomes. EPA would need to consider how and if to include compliance information for non-profit non-community water systems that receive funding, as well as state-delegated water systems that receive funding (e.g., systems serving Alaska Native Village).

4. Reassess the national annual budget allocation for both programs to be more clearly tied to EPA's goals and priorities.

Once EPA has determined whether and how to update each program's goals, priorities, and measures, deciding whether and how to update the allocation formulas for one or both programs will be easier; however, we recommend updating the allocation formulas even if EPA makes no changes in response to recommendations 1-3.

CWISA Allocation

For the CWISA program, EPA current allocates resources based on sewer infrastructure needs identified in each IHS area's SDS priority list. Per the CWISA national guidelines, EPA regions select projects in rank order down their respective IHS area office SDS list(s), unless there are reasons to skip projects as described earlier in this report.

Allocating funding based on the SDS list does not align directly with DL designation (i.e., "access") or with EPA's authority to fund (e.g., projects listed that are not within tribal jurisdiction; projects that would require plumbing or water connections from a home). The CWISA allocation formula is thus allocating based on needs in the IHS areas that do not necessarily support progress on the access strategic measure for basic sanitation.

A more direct way to support access (assuming access continues to be a priority and strategic measure) would be to use the DL designation alone and divide funding proportionately according to those EPA regions or IHS areas that have the highest proportion of DL-4/5 projects from the SDS list. If, however, EPA were to focus more on homes served, rather than homes provided access, the current allocation method may be the best method, given that it prioritizes the highest nation-wide sanitation needs. There may also be ways to factor in EPA priorities such as decentralized infrastructure, though we are not clear from the work done for this evaluation how EPA could do this.

DWIG-TSA Allocation

For the DWIG-TSA program, allocation is based on a combination of information from DWINS and the SDS list, after each region is first allocated two percent of the annual funding available.

The current two percent base allocation means that all regions with federally recognized tribes receive funding, even if there are no projects that would have significant public health impacts, otherwise improve compliance with SDWA, or provide access to safe drinking water in a region. We recommend that EPA consider removing this base allocation in favor of a formula that would be more needs- and results-focused based on (clarified) program goals and priorities.

The DWINS results, once completed in the next few years, will be a helpful resource from which to better understand tribal infrastructure needs and consider allocation.

In the meantime, if EPA considers provision of access to be the highest program priority, a more direct way to support access would be to use the DL designations alone and divide proportionately according to those EPA regions that have the highest proportion of DL-4/5 projects from the SDS list.

The current allocation method does not consider SDWA compliance history or issues. Assuming compliance with SDWA is a priority, if not the highest priority, for the DWIG-TSA program, EPA could allocate funding to the regions in proportion to health-based compliance violations in a given year. If this method were used, it would be extremely important for EPA to have a deeper understanding of the drivers of the compliance problems, isolating infrastructure-related violations that would be appropriately solved through DWIG-TSA funding versus through other technical assistance or enforcement options. As EPA staff are also aware, focusing funding on systems with infrastructure-related compliance problems may create a disincentive for systems to comply in the first place. EPA could also choose to allocate based on compliance vulnerabilities (versus violation histories); however, this too would require deeper analysis by EPA headquarters and regions to understand systems that are vulnerable to infrastructure-related compliance issues. We recommend that, to the extent that EPA considers SDWA compliance as a priority, EPA shift allocation to more directly support compliance.

5. For both programs, update and clarify expectations for project selection to be more clearly in line with the program priorities, allow for regional flexibility and discretion, and promote increased consistency and transparency.

The project selection processes for both programs have their bases and merits, but neither process is ideal: For the DWIG-TSA program, consideration of both compliance needs and provision of access varies from region to region; regions often choose projects based on other considerations, making it difficult for EPA to make progress on its strategic measures. For CWISA, exclusive use of the SDS list is limiting and does not recognize EPA's distinct mission, authority to fund, or priorities, including provision of access.

Updating the project selection guidances to focus on a simple set of core program elements while allowing for regional flexibility and discretion would provide more coherency across the regions, particularly for the DWIG-TSA program, and more direct linkage to program priorities for both programs. In the guidances, EPA could provide guidelines on use of the SDS⁷⁶ and other data sources.

EPA headquarters and regional staff could create a simple form that lists each program's priorities for funding. Regions could use this form to show how the projects they have selected match with the identified priorities or core program elements. (We are suggesting that the regions list only those projects they select for funding, not all potential projects that are not funded.) This form could include basic questions or checklists such as the following:

⁷⁶ The IHS SDS list is an important resource with no clear substitute, but given its limitations for EPA's purposes, SDS is not the ideal information source from which to pick projects without considering other information sources. For example, the SDS list does not directly represent EPA priorities such as SDWA compliance, infrastructure security, and decentralized wastewater infrastructure, and it includes tribal homes and projects that are not eligible for EPA funding. Further, choosing projects in rank order from the SDS list is not likely to support strong performance toward the access measure.

1. Which of EPA's priorities are addressed through this project (check all that apply)?
 - a. Priority 1
 - b. Priority 2
 - c. Priority 3
 - d. Etc.

(Questions 2-3 may not be needed if EPA headquarters staff can quickly access this information directly from STARS)

2. Was this project on the IHS SDS list? (Y/N) Optional comments: _____
 - a. If yes, which IHS area?
 - b. If yes, what is the SDS ranking?
 - c. If yes, what are the project's estimated IDL and FDL?
3. In your assessment (or based on an IHS or other assessment), does the tribal community receiving funding have adequate capacity to manage the results of the project? (Y/N) Please describe.
4. Has the direct grant option been communicated to the funding recipient?
5. Will this project be funded through a direct grant or an interagency agreement with IHS?
6. What are the estimated construction start and construction completion dates?

For DWIG-TSA:

7. Was past compliance history (where relevant) evaluated?
8. Are past compliance violations able to be addressed through funding for infrastructure? (Y/N)
Optional comments: _____
9. Have other compliance improvement options been considered and pursued?

Regions could submit the populated form to a central information source. Headquarters staff would not be selecting or rejecting projects for funding, but could ask questions to clarify why certain projects were selected. This type of transparent, priority-driven, yet flexible approach would likely make EPA less vulnerable to scrutiny from national decision makers or auditors who could otherwise cast doubt on how selected projects support EPA's priorities.

To further support the selection of DWIG-TSA projects that address compliance issues, EPA regional staff could also continue working with regional compliance programs to support a more unified EPA approach, whether that be through considering how to promote prevention of compliance problems, considering enforcement options in lieu of DWIG-TSA funding, or other options. During the meeting of EPA regional coordinators in December 2010, the DWIG-TSA coordinators decided to more proactively share compliance information with IHS area offices to ensure that priority compliance needs are reflected on the SDS list. This increased information sharing between the agencies could help IHS to be better aware of the compliance issues and improve the reflection of compliance issues in the SDS ranking.

- 6. For both programs, routinely collect and analyze data to enhance transparency and strategic coordination and improve EPA's ability to report on, advocate, and improve both programs through learning and adaptation.**

Improved information availability will enable EPA to better understand its contributions through these programs and support learning over time to improve program effectiveness. Given there is currently very little information collected by EPA nationally other than basic funding statistics, even a modest increase in data collection would provide a markedly improved ability to understand, explain, and advocate for these infrastructure programs at the regional and national levels. The type of information that could be beneficial would not be complicated or extensive. It would likely include the following.

- › Summary information about projects funded similar to what is currently collected and supplemented with information from the project selection form described in recommendation 5.
- › The current status of the project on an annual or semi-annual basis. This information could be taken from the STARS milestone information or from grant reports if projects are administered through a direct grant with no IHS involvement.
- › For the DWIG-TSA program, an annual summary of the current compliance trends at tribal water systems in the regions and a “diagnosis” about which of these problems are potential candidates for DWIG-TSA-funded solutions. This type of information would help the DWIG-TSA program better target funding toward compliance issues that can be addressed with infrastructure funding, as well as understand when there are issues that cannot be addressed with this funding but could be supported by other EPA programs, such as technical assistance.

An on-line tool that is professionally developed using current technology would allow for easy data entry, data access, and reporting. With an on-line reporting tool, the reporting burden on the regions would be modest and infrequent, and the benefits to the program would be worth the effort (including some decreased burden on the regions from headquarters’ staff making as many ad hoc inquiries).

EPA headquarters made a previous attempt to use an on-line database to track information for the DWIG-TSA program. We understand from interviews that users found the database to be difficult to use and update and therefore it was not consistently populated and was ultimately abandoned. In addition, some regional interviewees indicated that the EPA Integrated Grant Management System (IGMS) already has some of the kind of data that we have suggested collecting, and that any additional reporting beyond what is already required would be duplicative. It is our understanding that IGMS does have some basic data on EPA grants, but that the data on IAs is very limited, and on the whole, that IGMS does not have most of the information we would suggest collecting. We would, however, encourage EPA headquarters staff to directly address and clarify this question of dual reporting from IGMS, and wherever possible (whether from IGMS, STARS, or another source), gather data from existing information first before asking the regions to report data.

A retrospective on the reporting done under ARRA would further help to identify when ARRA-like reporting may be helpful for routine program implementation.

7. Update the national guidelines for both programs.

Following the consideration of the above recommendations and any resulting changes, we recommend that EPA headquarters work with EPA regions to update the guidelines for both programs to:

- › Reflect any changes or clarifications in goals, priorities, and measures;
- › Reflect any changes or clarifications to expected project selection processes;

- › Clarify (or reiterate) what projects are eligible for program funding, based on experiences with implementation over the course of the program;
- › Clarify reporting expectations;
- › Clarify the expected communication and roles regarding IAs (including interactions with IHS) and direct grants;
- › Make the guidelines as concise and clear as possible; and
- › For the DWIG-TSA program, also clarify expectations around:
 - Identifying and communicating about compliance violations to IHS area staff;
 - Tracking the cause of compliance violations (i.e., whether infrastructure related or not) and whether there is a possible infrastructure fix to the problem; and
 - Working with other regional compliance staff to pursue available options for improving compliance.

In addition, EPA headquarters should work with the EPA regions to update any communication materials about these programs. For example, the CWISA program has a Frequently Asked Questions document developed in 2007 that should be updated with new information about eligible projects.

8. Continue to enhance and improve communication within EPA, between EPA and IHS, and between EPA and the tribes.

As discussed in the findings section, communication between EPA headquarters and EPA regions, between EPA and IHS, and between EPA and the tribes is important to effectively implement and measure the impact that these programs have on tribal communities. Although the evaluators heard from interviewees many positive reflections on communication, we also heard that communication improvements in the following areas would be useful:

- › Improving the “we are in this together as one agency” collaboration between EPA headquarters and EPA regions;
- › Ensuring that calls and meetings on these programs have clear objectives and substantive exchanges, rather than holding them just for the sake of holding them;
- › Increasing the frequency and quality of communication between the EPA regional staff and IHS area office staff where communication is currently sparse. This communication is particularly important around sharing of compliance history for inclusion into the IHS area SDS lists, but communication would also be valuable around each agency’s (and region/area’s) priorities, project selection considerations, and knowledge of tribal specifics;
- › Encouraging EPA regional staff to have some direct contact with the tribes where they do not already. At a minimum, this contact could be a letter sent to tribes reminding them of EPA’s role in funding, including the process for project selection and the direct grant/IA options. There may also be the opportunity or need for more direct communication with tribes around compliance issues, though in some regions, this could likely be handled through other regional compliance program channels; and
- › Considering ways to highlight the accomplishments of the program that may not be reflected through numbers, both within EPA and to external stakeholders, such as through the issuance of an annual program report.

Additional Considerations

Below we offer three additional considerations which reflect our support for efforts that are already underway or, in one case, previous work done to reflect on many of the same issues that this evaluation has covered.

1. Continue to focus on the critical issues surrounding infrastructure sustainability, including tribal O&M capacity issues.

It is clear that maintaining water infrastructure for the duration of its expected lifespan is critical for ensuring the best use of taxpayer dollars and for best supporting tribal needs in the long run. In 2010, EPA issued its Clean Water and Drinking Water Infrastructure Sustainability Policy, which encourages all communities to develop sustainable systems that employ effective utility management practices to build and maintain the level of technical, financial, and managerial capacity necessary to ensure long-term sustainability.⁷⁷ As this evaluation found, tribal systems have particular challenges associated with adequate O&M capacity to sustain and maintain infrastructure.

Given the number of underlying factors that contribute to infrastructure longevity, including ensuring appropriate design and the role of ongoing maintenance and operation, the evaluators recognize that, to a large extent, the long-term effectiveness of these infrastructure programs will be determined by tackling these bigger-picture challenges. At the same time, we recognize EPA's statutory limitations (e.g., these programs cannot fund operation and maintenance) and resource constraints. Therefore we encourage EPA to work with other federal agencies as well as with tribes to identify and address these complex, but critically important, sustainability issues, including identifying any needed changes to federal statute(s). Reports from the Infrastructure Task Force on meeting the access goal and on improving technical assistance to AI/AN communities have recommendations for all the involved federal agencies to consider to best support infrastructure longevity, including addressing funding for O&M and coordinating current technical assistance programs to maximize their reach.⁷⁸

2. Continue to communicate about IA requirements, expectations, and inter-agency roles.

We heard from IHS and one of the tribal interviewees that clarifying IA requirements, expectations, and roles would be useful. Some, if not all of these individuals were already familiar with the new standardized IA terms and conditions, yet still expressed concerns about different interpretations of the requirements and expectations, and at least two IHS staff noted continued concerns that IAs are perceived incorrectly as grants by EPA. Additional or reiterated clarification of requirements, expectations, and roles may be helpful.

3. Reflect on other reports and recommendations that pertain to these programs.

Other efforts have or are examining several of the same issues that this evaluation has covered, including statutory limitations of EPA to provide funding for certain needs (e.g., operations and maintenance, individual wells), the gap between the funding needed to meet access needs and actual funding, and the challenges of tracking progress toward the United States' access goal using the available data. The Infrastructure Task Force Access Subgroup

⁷⁷ U.S. EPA. Clean Water and Drinking water Infrastructure Sustainability Policy. Available: <http://water.epa.gov/aboutow/upload/Sustainability-Policy.pdf>.

⁷⁸ Federal Infrastructure Task Force Access Subgroup. *Meeting the Access Goal: Strategies for Increasing Access to Safe Drinking Water and Wastewater Treatment to American Indian and Alaska Native Homes*. (March 2008). Tribal Technical Assistance Workgroup, Federal Infrastructure Task Force on Tribal Access to Safe Drinking Water and Basic Sanitation. *Strategies for Improving Technical Assistance Delivery in American Indian and Alaska Native Communities* (March 2010).

developed a report in 2008, “Meeting the Access Goal: Strategies for Increasing Access to Safe Drinking Water and Wastewater Treatment to American Indian and Alaska Native Homes.” This paper made a number of recommendations for the involved federal agencies to consider in the areas of infrastructure funding, operational and maintenance cost and capacity, and programmatic coordination. The Infrastructure Access Task Force Tribal Technical Assistance Workgroup also developed a report on strategies for improving technical assistance delivery in tribal communities. Several recommendations in both of these reports are still valid and consistent with the findings and recommendations in this evaluation, and we encourage EPA to reflect upon this work and other efforts, as well as the recommendations in this report to determine best steps forward for these programs and their interaction with other federal work underway.