

The Sanitation Facilities Construction Program of the Indian Health Service



Public Law 86-121

# ANNUAL REPORT FOR 2012



U.S. Public Health Service  
Department of Health and Human Services





This Annual Report for Fiscal Year 2012 was produced by the Indian Health Service Sanitation Facilities Construction Program to make available frequently requested information about the Program. Additional information can be obtained by writing to the following address:

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## The Sanitation Facilities Construction Program Annual Report for 2012

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## Preface

The Indian Health Service (IHS) Sanitation Facilities Construction (SFC) Program continues to identify and report the sanitation needs of American Indians and Alaska Natives while carrying out a Program to meet those needs in cooperation with tribal governments. Those needs as well as some of the accomplishments of the Program during FY 2012 are summarized in this report. The Program's continuing challenges include improving community water supplies, waste water treatment systems, and solid waste disposal facilities in culturally diverse and often times remote areas--from Alaska to Florida and from Maine to California. The projects highlighted in this report illustrate typical SFC Program efforts in addressing these specific challenges.

Since the passage of Public Law 86-121 in 1959, the SFC Program has worked in partnership with tribal governments to construct essential sanitation facilities. As a result of cooperative efforts, many tribes have developed the administrative and technical capability to construct their own sanitation facilities with engineering support from IHS. Tribes, tribal organizations or Indian-owned firms are directly involved with the majority of contracting and/or construction supported by the Program's project funds. Nineteen tribes continue to assume responsibility for their respective SFC Programs. One goal of the SFC Program is to make available Program information in a more open, accurate, and efficient way; this report, prepared annually, is one means of achieving that goal.

This report describes the FY 2012 SFC Program appropriated and contributed funding and outputs. It also highlights projects active during FY2012.





## Introduction

On July 31, 1959, President Dwight D. Eisenhower signed Public Law (P.L.) 86-121. Under this Act, the Surgeon General is authorized to construct essential sanitation facilities for American Indian and Alaska Native (AI/AN) homes and communities. Since 1959, over 299,000 homes have been provided sanitation facilities and this achievement has had a significant impact on the health of Native Americans. The gastroenteric and post-neonatal death rates among the Indian people have been reduced significantly, primarily because of the increased prevalence of safe drinking water supplies and sanitary waste disposal systems (*Rhoades ER. The Indian Health Service Record of Achievement. Public Health Reports. July-August 1987, Vol. 102, No. 4, 356-360.*).

The authority vested in the Surgeon General by P.L. 86-121 was transferred to the Secretary, Health, Education, and Welfare (HEW), by Reorganization Plan No. 3 of 1966. The Secretary of HEW was re-designated Secretary of Health and Human Services by Section 509(b) of P.L. 96-88 in 1979. The authority was delegated to the Director, Indian Health Service, by the Reorganization Order of January 4, 1988 (52 FR 47053), which elevated the IHS to a Public Health Service (PHS) Agency.

The Sanitation Facilities Construction (SFC) Program is unusual among Federal Programs because IHS personnel work cooperatively, as close partners, with tribes in providing essential sanitation facilities to Indian communities and Alaska villages. Enhancing tribal capabilities and building partnerships based on mutual respect are the major keys to the success of the SFC Program.

Protecting the health of and preventing disease among American Indian and Alaska Native populations are primary IHS objectives. In the clinical environment, physicians, dentists, nurses, and other medical care providers work to restore the health of ill patients. However, preventing illness is clearly the most effective way to improve health status. Improving the environment in which people live and assisting them to interact positively with that environment results in significantly healthier populations. Providing sanitation facilities and better quality housing are environmental improvements that have proven track records in that regard.



## The SFC Program Mission

The SFC Program continues to provide assistance to the American Indian and Alaska Native people in eliminating sanitation facilities deficiencies in Indian homes and communities. The IHS mission is to raise the health status of American Indian and Alaska Native people to the highest possible level. To carry out its mission, the IHS provides comprehensive primary and preventive health services. The SFC Program supports the IHS's mission by providing engineering, technical, and financial assistance to Indian tribes and Alaska Native villages (tribes) for cooperative development and continued operation of safe water, wastewater, and solid waste systems and related support facilities. In partnership with the tribes, the SFC Program:



Septic Tank installation in the 1960's.

1. *Develops and maintains an inventory of sanitation deficiencies in Indian and Alaska Native communities for use by IHS and to inform Congress.*
2. *Provides environmental engineering assistance with utility master planning and sanitary surveys.*
3. *Develops multi-agency funded sanitation projects; accomplishes interagency coordination; assists with grant applications; and leverages IHS funds.*
4. *Provides water supply and waste disposal facilities.*
5. *Provides professional engineering design and/or construction services for water supply and waste disposal facilities.*
6. *Provides technical consultation and training to improve the operation and maintenance of tribally owned water supply and waste disposal systems.*
7. *Advocates for tribes during the development of policy, regulations, and Programs.*
8. *Assists tribes with sanitation facility emergencies.*

## Tribal Involvement

The SFC Program employs a cooperative approach for providing sanitation facilities to American Indian and Alaska Native communities. During fiscal year (FY) 2012, tribes, tribal organizations and Indian-owned construction firms administered approximately \$139 million in construction funds. Many tribes participated by contributing labor, materials, and administrative support to projects.

The IHS SFC Program seeks the advice and recommendations of the national Facilities Appropriation Advisory Board and Area-specific Tribal Advisory Committees. These groups review Program policies and guidelines and provide input on the future direction of the SFC Program.

Every sanitation facilities construction project is initiated at the request of a tribe or tribal organization. Consultation with the tribal government is maintained throughout every phase of the construction process, from preliminary design to project completion. Operation and maintenance of these facilities by the American Indian and Alaska Native people, with ongoing technical assistance from IHS, ensures the long-term health benefits associated with improved sanitation conditions. Titles I and V of the Indian Self-Determination and Education Assistance Act (P.L. 93-638) enable tribes to assume responsibility for the administration of their SFC Programs. Nineteen tribes (see Table 1) administer their own SFC Programs under Title I or V.



100,000 gallon concrete waster storage tank, Washington.



Wastewater lagoon expansion, New Mexico.

<b>TABLE 1</b> <b>Tribes that Managed the SFC Program in FY 2012</b> <b>Under Title I or V of P.L. 93-638, as Amended</b>	
<b>IHS Area</b>	<b>Tribe</b>
Anchorage	Alaska Native Tribal Health Consortium
Billings	Confederated Tribes of Salish & Kootenai (Flathead)
	Chippewa Cree Tribe of Rocky Boy Montana
California	Hoop Valley Tribe
Nashville	Chitimacha Tribe of Louisiana
	Mississippi Band of Choctaw Indians
	St. Regis Mohawk Tribe
	Eastern Band of Cherokee
Navajo	* Navajo Nation
Oklahoma City	Cherokee Nation of Oklahoma
	Absentee Shawnee Tribe of Oklahoma
	Choctaw Nation of Oklahoma
	Chickasaw Nation of Oklahoma
	Wyandotte Tribe of Oklahoma
	* Modoc Tribe of Oklahoma
	The Seminole Nation of Oklahoma (in Chickasaw Compact)
Phoenix	Ely Shoshone Tribe
	Gila River Pima-Maricopa Indian Community
	* Yerington Paiute Tribe
* Title I	



## "The Year" in Review

In FY 2012, over \$79 million was appropriated to IHS for the construction of sanitation facilities. Figure 1 shows how these funds were distributed to the twelve IHS Areas. In addition to those appropriated funds, the SFC Program received more than \$65 million in contributions from other Federal agencies including the Environmental Protection Agency (EPA) and from non-Federal sources such as tribes and State agencies. Figure 2 shows the distribution of both IHS and contributed funds to the twelve Areas. With these contributions, the SFC Program's construction budget for the fiscal year totaled more than \$144 million.

Using the appropriated and contributed funds, the homes served are shown in Table 2.

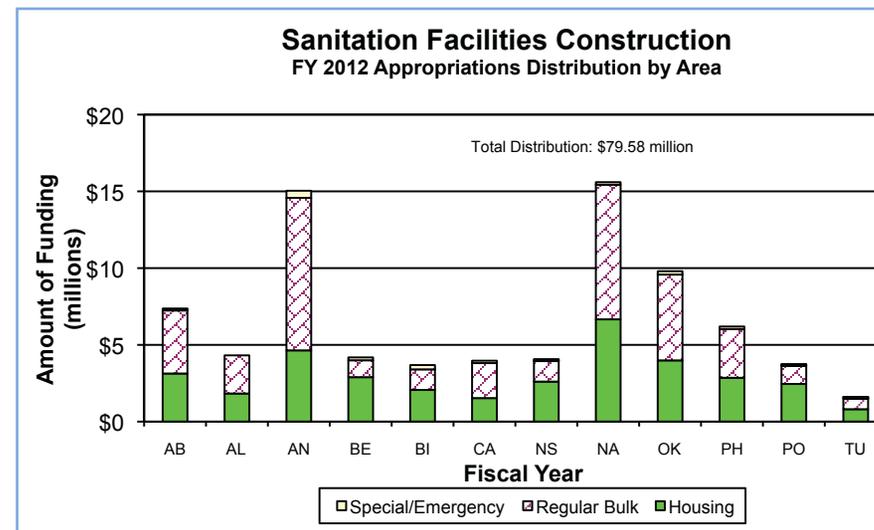


Figure 1: Distribution of SFC Project appropriations, by Area, for FY 2012

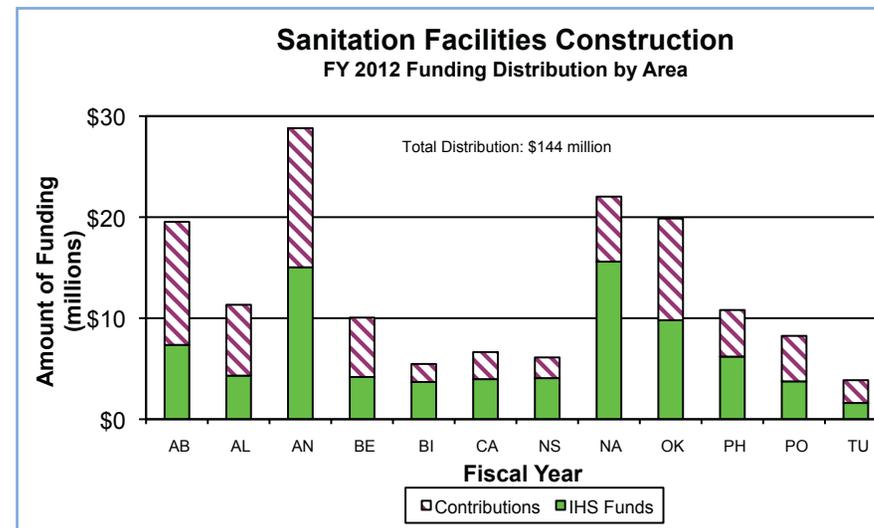


Figure 2: Total Distributions of SFC Project funds in FY 2012, including contributions.



**TABLE 2**  
**IHS Sanitation Facilities Construction Program Statistics for FY 2012**

<b><u>SFC Program Budget:</u></b>		<b><u>Homes Provided Sanitation Facilities since 1959:</u></b>	
IHS SFC Appropriation =	\$79,332,464	• Number of New and Like-New Homes	
HUD Contributions (Housing + CDBG*) =	\$0	HUD-sponsored Homes =	61,890
Other Contributions =	\$65,399,798	BIA-sponsored Homes =	23,414
Total Funding in FY 2012 =	\$144,732,262	Tribal and Other Homes =	86,418
Total IHS SFC Appropriations since 1959 =	\$2.9 billion	Subtotal	171,722
		• Number of First Service Existing Homes =	<u>127,855</u>
		Total Number of Homes Served =	299,578
<b><u>SFC Projects:</u></b>		<b><u>Sanitation Deficiency System (SDS) Information:</u></b>	
Number of Projects Undertaken in 2012 =	459	Total Estimated Cost of Sanitation Deficiencies =	\$2.853 billion
Total Number of Projects Undertaken since 1959 =	15,815	Total Estimated Cost of Feasible Projects =	\$1.638 billion
<b><u>Homes Provided Sanitation Facilities in FY 2012:</u></b>		Total Number of Projects/Phases Identified =	3,477
• Number of New and Like-New Homes Served		Number of Feasible Projects Identified =	2,712
HUD-sponsored Homes =	9	Estimated Total Number of Existing Homes	
BIA-sponsored Homes =	38	Without Potable Water =	30,273
Tribal and Other Homes =	1,144	Estimated Total Number of Homes That Lack	
Subtotal	1,192	Either a Safe Water Supply or Sewage Disposal	
• Number of Existing First Service Homes Served =	1,692	System, or Both (Deficiency Levels 4 and 5) =	47,835
• Number of Previously Served Homes			
Provided Upgraded Sanitation Facilities =	16,534		
Total Number of Homes Served in 2012 =	19,418		
*CDBG-HUD Community Development Block Grant Program			

Various sanitation facilities construction projects are highlighted on the following pages. These projects represent a small fraction of the total construction workload undertaken by the SFC Program. They were selected to illustrate typical cooperative efforts undertaken by IHS, the tribes, and other Federal and state agencies to provide safe water supply, sanitary sewage disposal, and solid waste facilities for American Indian and Alaska Native homes and communities.



Construction of the surface water treatment plant, Arizona.



Site for a surface water treatment plant, Arizona.



Completed surface water treatment plant, Arizona.



## Monument Valley Southwest Extension Navajo Nation, Utah

The Oljato Chapter of the Navajo Nation requested assistance for waterline extensions to homes in the Oljato area. Residents of fifty-three homes that were provided with cistern systems in previous projects were required to haul water to their homes. The other fifty-one homes that benefitted from the project had never been served with any water or sewer systems.

A planning agreement was executed in 2005 to check the feasibility to construct waterline extensions to homes in the in the Oljato area. In 2009 the project was funded for construction in the amount of \$1,899,000. The Navajo Engineering Construction Authority (NECA) was the contractor on this project.

The project scope consisted of 52.1 miles of 8-inch, 6-inch, 4-inch, and 2-inch waterline, a 248,000 gallon water storage tank, pumphouse, and 3-phase power line extension. The project served 104 homes with water and sewer services. All the homes on this project received onsite wastewater systems.

The construction on the project began in August 2011 and completed on August 2012. The Indian Health Service (IHS) is currently working to have the facilities up and running by fall of 2013.



3-phase power extension to the pumphouse.



Vermeer trencher used to lay PVC pipe.

## Arsenic Adsorption Treatment Plants Tohono O’odham, Arizona

Twelve skid-mounted arsenic adsorption drinking water treatment plants were installed throughout the Tohono O’odham Nation in Southern Arizona to ensure compliance with the Safe Drinking Water Act at 11 public water systems, serving nearly 700 homes.

These plants are constructed such that they will provide many years of reliable service for the entire population. The installation of these plants also brings eleven community water systems (CWS) into compliance with the US EPA Arsenic Rule.

If no action had been taken by IHS and the Tohono O’odham Utility Authority (TOUA), eleven CWS would be in violation of National Primary Drinking Water Regulations. By working together to provide water that meets all Federal drinking water regulations, this work not only enhanced the IHS mission of improving Native American health status, but it also embodies the spirit of IHS Agency Priorities in the areas of strengthening tribal partnerships and improving customer service.



Construction of the Kohatk plant.



Construction for the plant in San Miguel.



## Santa Clara Wastewater Treatment Project Pueblo of Santa Clara, New Mexico

The majority of the Pueblo of Santa Clara's wastewater is conveyed to a 10.7 acre lagoon system. The old clay liners that were installed several decades ago were compromised, therefore raw wastewater entered the lagoon cells and immediately percolated into the groundwater.

IHS was able to fund 2 projects to help address the lagoon seepage. The first phase of construction installed a 6 acre HDPE liner in the first lagoon cell to provide a primary level of wastewater treatment prior to discharging the effluent to a percolation cell.

The second phase provided more advanced treatment after the 6 acre primary lagoon cell by constructing a 1.2 acre HDPE lined lagoon cell within the percolation cell. This new cell was outfitted with a fixed film media technology, that operates using a small (10 HP) air blower to achieve the bacteriological growth necessary to remove the total nitrogen in the effluent to less than 10 mg/L prior to discharge to the percolation cell. The completed project served approximately 383 Indian homes and helped to improve local groundwater and surface water quality to protect public health.



Final inspection of Phase 1: Six acre HDPE lagoon liner.



Installation of the fixed media technology.

## Santa Ysabel Two-System Connection Phase I Iipay Nation of Santa Ysabel, California

Two public water systems that serve the Iipay Nation of Santa Ysabel did not have back up water sources. This project proposed to connect the two water systems so each would serve as the backup for the other.

Phase I of this project constructed approximately 5,000-ft of 6-inch PVC water main to connect the two systems along a steep, mountainside roadway. Phase II will construct booster stations to enable water to be pumped between the two systems' storage tanks. Both phases of the project are funded by IHS Regular funds for a total estimated cost of \$525,000. The project served 86 American Indian Homes.

Challenges during the Phase I design and construction included coordination of the water main design with a proposed BIA road improvement project; keeping the road, which is the community's main access route, open during construction; and perpendicular crossings of several existing and proposed drainage culverts along the road. A thick walled PVC pipe was specified to cope with high pressures at lower elevations along the pipeline.



Construction of the water main pipeline.



Water pipe in steel casing being installed at culvert crossing.



## Richardson Road Pumphouse Seneca Nation of Indians, New York

The Cattaraugus Reservation is located in western New York approximately 40 miles south of Buffalo and is served by the Nashville Area Indian Health Service. The Richardson Road Pumphouse Improvement project was constructed after the Seneca Nation completed a study to construct a new groundwater supply source to supplement and replace the Nation's reliance on the Erie County Water Authority (ECWA) supply, which is a non-tribal water source for the Cattaraugus Community Water System.

Two new production wells were drilled in 2010 to provide a potable water supply. The wells were evaluated and determined capable of providing a reliable water source for the Cattaraugus Water System. As a result, the old Richardson Road Well Pumphouse needed to be renovated to accommodate the increased flow from the newly drilled wells and the system needed to be connected into the existing community water system.



Exterior repairs to the pumphouse.



Plumbing tree installation.



Chemical supply room.

The construction included the complete renovation of the pumphouse building, new plumbing tree with valves and meters, new water main from wells, well pumps, pump control system, automatic backup generator, and treatment equipment which included disinfection and fluoridation. In addition, 3,000 feet of 10-inch water main was installed from the pumphouse to the distribution system.

The project served 489 homes and will eventually serve the entire reservation of approximately 1,350 homes. The project was a collaborative effort among the IHS, EPA, and the Seneca Nation of Indians for a total construction cost of approximately \$700,000.



Completed pumphouse renovation.



## Sanitation Facilities and Health

Protecting the health of and preventing disease among the AI/AN people are primary IHS objectives. Congress declared in the Indian Health Care Improvement Act (IHCA) (P.L. 94-437, as amended), that "...it is in the interest of the United States that all Indian communities and Indian homes, new and existing, be provided with safe and adequate water supply systems and sanitary sewage waste disposal systems as soon as possible." Citing this policy, Congress reaffirmed the primary responsibility and authority of the IHS "...to provide the necessary sanitation facilities..." as authorized under P.L. 86-121.

The IHS considers the provision of sanitation facilities to be a logical extension of its primary health care delivery efforts. The availability of essential sanitation facilities is critical to the prevention of waterborne and communicable disease episodes. A Report to Congress by the Comptroller General ("Progress and Problems in Providing Health Services to Indians" 095970, by the Comptroller General, USA, March 11, 1974), noted that AI/AN families living in homes with satisfactory environmental conditions placed fewer demands on IHS's primary health care delivery system.

Properly designed and operated facilities can reduce the incidence of disease by eliminating waterborne bacteria, viruses, and parasites, which cause such illnesses as salmonellosis, typhoid fever, cholera, and giardiasis. In addition, many other communicable diseases, including hepatitis A, shigella, and impetigo are associated with the



Checking the compaction of soils during construction, California.



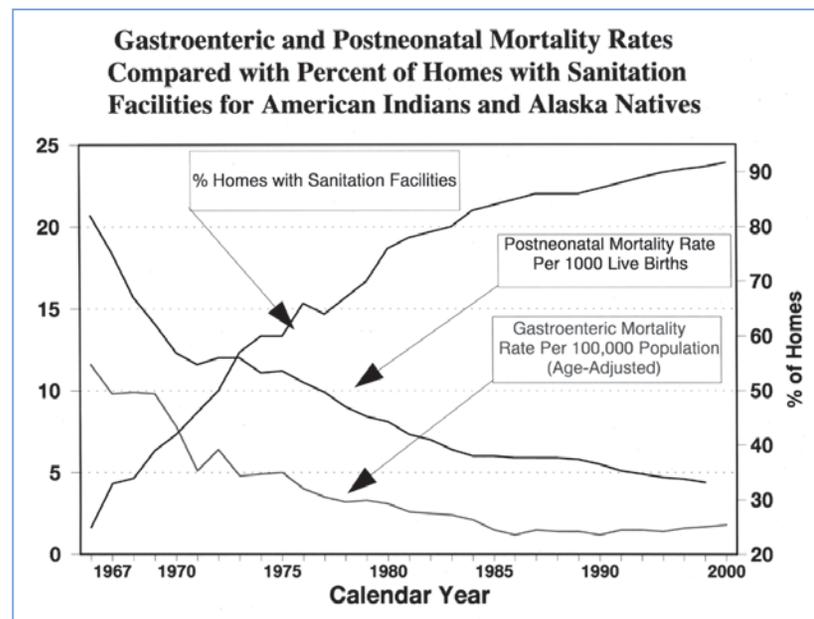
Preconstruction meeting on a Navajo Nation project, Arizona.

limited hand washing and bathing practices often found in households lacking adequate water supplies.

The availability of adequate sanitation facilities has value beyond disease intervention. Safe drinking water supplies and adequate waste disposal facilities are essential preconditions for most health promotion and disease prevention efforts. Consistently and optimally fluoridated drinking water, which can virtually eliminate tooth decay among children, is an example of this public health principle. Efforts by other public health specialists, such as nutritionists and alcoholism counselors, are enhanced if safe drinking water is readily available. Lack of indoor plumbing (sanitation facilities) is a significant risk factor for falls, which are a leading cause of injury related deaths for elderly people. Home health care nursing services are much more effective when safe water and adequate wastewater disposal systems are in place.

In 1955, more than 80 percent of American Indians and Alaska Natives were living in homes without essential sanitation facilities. The age-adjusted gastrointestinal disease death rate for American Indians and Alaska Natives was 15.4 per 100,000 population. This rate was 4.3 times higher than that for all other races in the United States. In 2003, by contrast, the age-adjusted gastrointestinal disease death rate for American Indians and Alaska Natives had decreased to 0.8 per 100,000. A major factor in this significant gastrointestinal disease rate reduction is the SFC Program's efforts to construct safe water supply and waste disposal facilities.

The SFC Program is a significant contributor to the improved health status of American Indians and Alaska Natives as indicated by the decrease in the gastrointestinal disease death rate and concurrent increase in life expectancy.



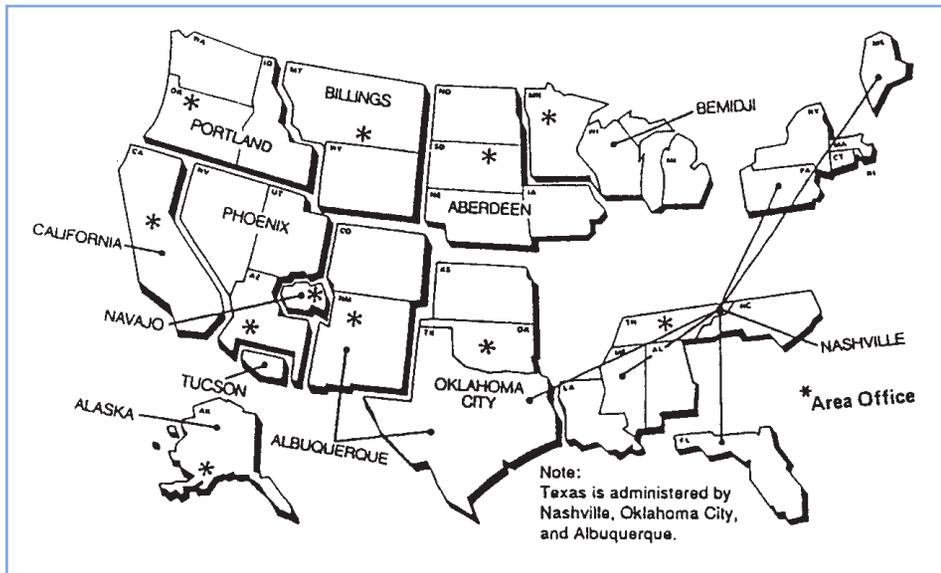
Graph of gastroenteric and postneonatal death rates versus the percent of Indian homes with potable water.



## Program Operations

The SFC Program is part of the IHS Office of Environmental Health and Engineering. The SFC Program's activities are supported by engineers, sanitarians, engineering technicians, clerical staff, and skilled construction workers.

There is an SFC Program in each of the 12 IHS Area offices. The Program's Headquarters component, located in Rockville, Maryland, assists the Area offices by establishing policies, providing guidance to ensure consistent and equitable Program implementation nationwide, and collaborating with other Federal agencies.



Location of Indian Health Service Area Offices.

The SFC Program works cooperatively with tribes and tribal organizations, tribal housing authorities, and with many governmental agencies, such as HUD, BIA, EPA, and USDA Rural Utility Service to achieve its sanitation facilities construction objectives. In FY 2012, IHS received over \$48 million in EPA contributions.



Installation of a septic tank/drainfield system, Arizona.

Interagency agreements between IHS and EPA's Clean Water Indian and Drinking Water Infrastructure Grant Tribal Set-Aside Programs enable EPA to contribute funds to support the construction of wastewater and drinking water infrastructure that benefit tribes. States do not have jurisdiction on trust lands and, except for Alaska, historically have provided relatively little support to Indian tribes and reservations for the construction of sanitation facilities. The State of Alaska, through its Village Safe Water Program, participates in many jointly funded IHS construction projects in Alaska Native communities.

The SFC Program's efforts to provide sanitation facilities for AI/AN homes and communities benefits 566 federally recognized tribes and tribal organizations located in 38 States.

Sanitation facilities are provided at the request of federally recognized tribes, bands, or groups for eligible homes owned and occupied by American Indians and Alaska Natives. Provision of water, wastewater, and solid waste facilities for commercial and industrial purposes are not authorized for funding under P.L. 86-121.

Eligible sanitation facilities projects that are approved for implementation are classified under one of the following categories: 1) projects for essential sanitation facilities for new (non HUD funded) and like-new Indian housing (Housing Support Projects); 2) projects to serve existing homes and communities (Regular Projects); and 3) special/emergency projects.



PVC pipes used in waterline construction, Monument Valley, Utah.



Installing pitless adapter on well casing, Utah.



**Housing Support Projects** provide sanitation facilities for new homes and homes in like new condition owned by eligible AI/AN families. These projects typically serve homes being constructed or rehabilitated by the Bureau of Indian Affairs - Housing Improvement Program (BIA-HIP), tribes, individual homeowners, or other nonprofit organizations.



Delivery of arsenic treatment equipment on the Tohono O'odham Reservation, Arizona.

**Regular Projects** provide sanitation facilities for existing AI/AN homes and communities. The SFC Program has established the Sanitation Deficiency System (SDS) as required by the IHCA, as amended, for identifying and prioritizing projects to serve homes and communities with unmet water, sewer, and solid waste needs. SDS is updated annually and the information and funding requirements are submitted each year to the Congress in accordance with the requirements of the IHCA.

**Special/Emergency Projects** provide sanitation facilities for special studies and emergency situations. Emergency projects typically involve community sanitation facilities that have undergone, or are expected to experience, sudden wide-spread failure that will directly affect the public health. Funding for special/emergency projects is very limited and all projects must be approved by the Director, DSFC IHS Headquarters.



Arsenic adsorption drinking water treatment equipment, Arizona.

## Technical Assistance

Upon project completion, the facilities constructed under the SFC Program are owned and operated by the tribe, individual homeowner, or other responsible non-Federal entity. As a condition of the project the IHS provides technical assistance to the owners of the sanitation facilities and training on proper operation and maintenance. Homeowners who receive individual sanitation facilities are instructed on the proper operation and maintenance of their newly installed wells and/or septic systems and tribal operators are instructed on the correct operation and maintenance of community water and sewer facilities. The latter may include training for chlorination and fluoridation equipment, pumps, and motor control systems for community water supply facilities and sewage collection systems, lift stations, and wastewater treatment facilities.

Technical assistance is also provided, resources permitting, at the request of a tribe on many issues related to operation maintenance of tribally owned sanitation facilities. The SFC Program has provided technical assistance to tribal utility organizations in the following areas:

- Operational troubleshooting
- Preventive maintenance planning
- Budgeting
- Rate studies and billing
- Ordinance, by-laws, design and construction standards development.



Replacement Water Storage Tank, Washington.

As additional and more stringent environmental regulations regarding safe drinking water, sewage treatment and disposal, and solid waste disposal are issued, the IHS will continue providing technical support and consultation on environmentally-related public health issues to AI/AN tribes and individual homeowners.



## Strategic Planning

In 2012, the SFC Program continued to work on improving Program performance through implementation of the 10 vision elements identified in 2006 as part of a strategic planning process requested by the Office of Management and Budget.

Implementation of the strategic planning elements is shared between the SFC Directors, the mid-level managers, the operations and maintenance coordinators, and the data system managers.



IHS engineer doing a level survey at a wastewater lagoon, New Mexico.



Waterline construction, New Mexico.



## SFC Vision Elements

1. Relationships with other Federal agencies and states are coordinated to benefit tribal Programs.
2. Tribal self-determination decisions are supported and respected.
3. SFC Programs are optimally and effectively managed.
4. Formal career development occurs for all SFC staff.
5. SFC staff is customer-service oriented to meet the needs of tribes and participants.
6. Tribal O&M is fully self-sustaining.
7. Technical engineering support is readily available to the SFC Program.
8. SFC construction-oriented procurement is readily available.
9. Formal project management is part of the SFC culture.
10. Technical and administrative data systems are accurate, updated, and readily available.

## American Recovery and Reinvestment Act of 2009

The Sanitation Facilities Construction (SFC) Program was appropriated \$68 million from the American Recovery and Reinvestment Act of 2009 (ARRA) to provide essential sanitation facilities to AI/AN homes. The IHS also received \$90 M in ARRA funds through interagency agreements with the Environmental Protection Agency (EPA). A summary of the project and ARRA funds expended during 2012 is provided below.

### Summary of ARRA Funded Projects and Expenditures

Number of Projects Pending Construction Completion	66
Number of Projects Construction Complete	224
Total Number of Projects Funded	290
Total ARRA Funding Expended	\$102M

Data Source: IHS Project Data System as of October 2012



## Program Implementation

Projects are executed using a combination of Public Law (P.L.) 86-121 Memorandum of Agreement (MOA) utilizing federal construction and Indian self-determination (P.L. 93-638) construction project agreements. Sanitation Facilities Construction projects can be managed by the IHS directly (Direct Service) or they can be managed by tribes that elect to use Title I or Title V authorization under P.L. 93-638, the Indian Self-Determination and Education Assistance Act, as amended. The overall SFC goals, eligibility criteria, and project funding priorities remain the same, regardless of the delivery methods chosen by a tribe.



Watermain construction, New Mexico.

## Sanitation Deficiencies

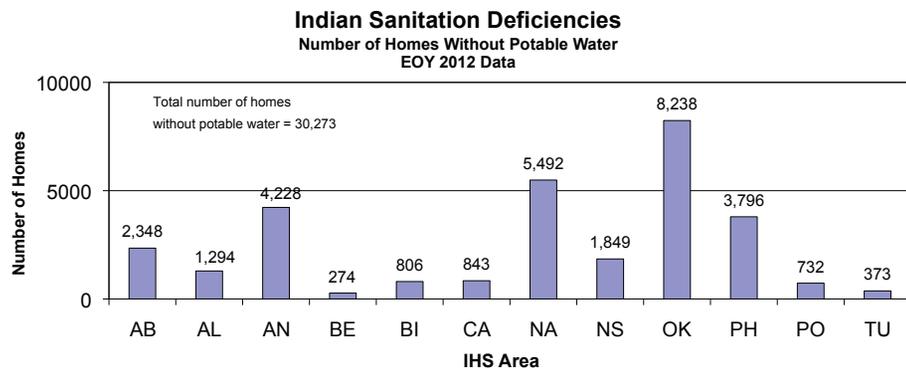


Figure 3: Number of Indian homes without potable water, by Area

The IHCIA requires the IHS to have a funding plan to provide safe water supply and sewage and solid waste disposal facilities to existing AI/AN homes and communities, and to new and renovated homes. In accordance with those requirements, the SFC Program annually estimates the total need to provide safe and adequate sanitation facilities for AI/AN homes and communities.

Sanitation deficiencies are reported as proposed projects or project phases. The inventory of sanitation deficiencies completed in November 2012 identified more than 3,400 sanitation facilities construction projects or project phases at an estimated cost of \$2.85 billion. These projects represent all unmet needs eligible for IHS funding. However, some projects are prohibitively expensive to construct and/or operate and are considered to be economically infeasible.

As of November 2012, 2,712 of the identified projects are considered to be economically feasible with an estimated cost of \$1.64 billion.

In an effort to reflect the relative impact on health of various water supply, sewage disposal, and solid waste deficiencies to be addressed, sanitation deficiency levels are determined for each project or project phase. The IHCIA defines the following deficiency levels:

**Level I:** The deficiency level describing an Indian tribe or community with a sanitation system that complies with all applicable water supply and pollution control laws, and in which the deficiencies relate to routine replacement, repair, or maintenance needs.

**Level II:** The deficiency level that describes an Indian tribe or community with a sanitation system that 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.

**Level III:** The deficiency level that describes an Indian tribe or community with a sanitation system that has an inadequate or partial water supply and a sewage disposal facility that does not comply with applicable water supply and pollution control laws, or has no solid waste disposal.



**Level IV:** The deficiency level that describes an Indian tribe or community with a sanitation system which lacks either a safe water supply system or a sewage disposal system.

**Level V:** The deficiency level that describes an Indian tribe or community with a sanitation system which lacks either a safe water supply system or a sewage disposal system.

The deficiency level assigned to a project is determined by the deficiency being resolved by the project. Projects are divided into phases, as appropriate, to provide logically independent and functional segments that can be funded in one year and which generally address one level of deficiency. Each proposed project or project phase will not necessarily bring the facilities for a community or tribe to level I deficiency or better. However, the goal is that a combination of all projects reported for each community will bring all facilities to deficiency level I or better.

Based on end of year 2012 data, the IHS estimates that 7.5% or over 30,000 Indian homes were without access to a reliable safe drinking water supply (Figure 3). The reasons for this continued lack of access is due to population growth, the age and condition of the existing infrastructure and new drinking water regulations like arsenic, surface water treatment and disinfection by products rules promulgated by the Environmental Protection Agency under the Safe Drinking Water Act. The deficiencies that are causing the lack of access to reliable safe drinking water are an enormous challenge, especially because the resources to meet them are finite. To resolve this problem existing sanitation facilities will require upgrading while IHS and tribes continue to

work towards providing and maintaining services to many yet unserved homes, many in isolated locations.

Tables 3 through 8 and corresponding charts illustrate the type, geographic location, and associated costs of the sanitation deficiencies.



Wastewater treatment plant construction, Alabama.

**Table 3**  
**Number of Homes at Each Deficiency Level**  
**by Area**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	1,912	4,301	12,487	5,611	310	24,621
AL	1,300	3,510	5,346	5,666	206	16,028
AN	820	497	11,547	758	3,818	17,440
BE	23,968	6,088	7,083	431	0	37,570
BI	3,009	3,677	7,013	1,035	6	14,740
CA	4,410	2,229	4,398	1,782	389	13,208
NA	10,274	4,788	37,101	722	5,335	58,220
NS	5,599	6,898	8,279	1,680	264	22,720
OK	109,124	2,696	29,730	12,452	565	154,567
PH	3,981	7,976	8,719	4,577	710	25,963
PO	1,221	5,747	7,265	1,081	63	15,377
TU	4	1,377	3,377	348	26	5,132
<b>TOTAL</b>	<b>165,622</b>	<b>49,784</b>	<b>142,345</b>	<b>36,143</b>	<b>11,692</b>	<b>405,586</b>

Data Source: Snapshot - IHS National November 5, 2012.



**Table 4**  
**Number of Homes Requiring Assistance**  
**by Type of Facility**

AREA	WATER	SEWER	SOLID WASTE
AB	16,924	16,770	21,013
AL	14,241	12,874	7,358
AN	14,413	12,902	13,184
BE	6,983	8,172	7,695
BI	9,607	4,377	6,600
CA	6,873	6,930	4,802
NA	26,804	12,562	36,842
NS	14,109	15,394	11,789
OK	25,308	12,187	18,762
PH	18,995	15,387	15,880
PO	7,845	7,429	10,456
TU	4,124	2,598	4,522
TOTAL	166,226	127,582	158,903

Data Source: Snapshot - IHS National November 5, 2012.

Note: An individual home may require more than one type of facility.

**Table 5**  
**Project Cost by Deficiency Level**  
**Feasible Projects**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$0	\$35,811,139	\$102,289,064	\$32,122,059	\$3,335,000	\$173,557,262
AL	\$0	\$54,565,806	\$15,167,000	\$18,043,000	\$474,000	\$88,249,806
AN	\$0	\$57,841,910	\$264,302,146	\$172,602,946	\$17,679,458	\$512,426,460
BE	\$0	\$38,309,874	\$33,937,576	\$9,907,403	\$0	\$82,154,853
BI	\$0	\$19,587,697	\$22,424,068	\$6,055,446	\$0	\$48,067,211
CA	\$0	\$25,624,872	\$45,371,861	\$18,896,037	\$4,936,000	\$94,828,770
NA	\$0	\$55,248,941	\$47,493,707	\$14,857,062	\$157,475,938	\$275,075,648
NS	\$0	\$50,365,096	\$22,282,438	\$2,115,000	\$228,000	\$74,990,534
OK	\$0	\$8,043,753	\$52,220,501	\$35,342,547	\$2,006,000	\$97,612,801
PH	\$0	\$57,831,048	\$18,959,768	\$33,878,916	\$1,926,000	\$112,595,732
PO	\$0	\$26,658,007	\$15,706,283	\$934,833	\$0	\$43,299,123
TU	\$0	\$18,414,600	\$9,699,000	\$6,371,000	\$626,000	\$35,110,600
<b>TOTAL</b>	<b>\$0</b>	<b>\$448,302,743</b>	<b>\$649,853,412</b>	<b>\$351,126,249</b>	<b>\$188,686,396</b>	<b>\$1,637,968,800</b>

Data Source: Snapshot - IHS National November 5, 2012.

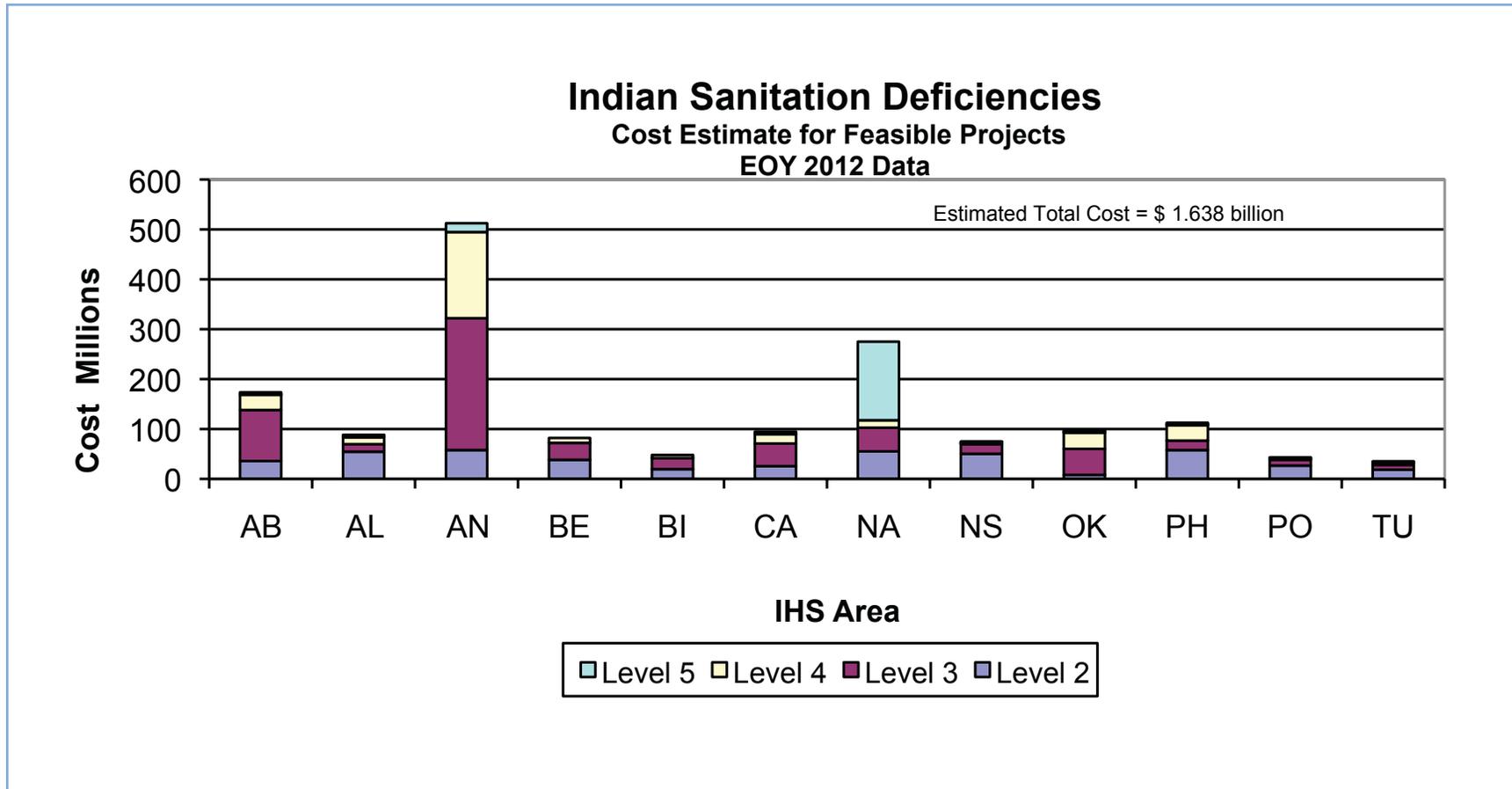


Figure 4:

**Table 6**  
**Project Cost by Deficiency Level**  
**Total Database**

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$2,039,000	\$39,398,639	\$202,294,864	\$39,856,059	\$3,545,000	\$287,133,562
AL	\$5,357,000	\$94,669,806	\$31,658,000	\$25,043,000	\$474,000	\$157,201,806
AN	\$4,387,253	\$58,477,910	\$386,141,300	\$320,092,044	\$58,972,681	\$828,071,188
BE	\$1,990,600	\$69,552,514	\$48,040,176	\$9,907,403	\$0	\$129,490,693
BI	\$576,420	\$26,044,197	\$28,045,369	\$8,455,446	\$0	\$63,121,432
CA	\$3,681,000	\$80,740,717	\$73,557,868	\$30,619,637	\$4,936,000	\$193,535,222
NA	\$49,103,372	\$324,855,559	\$58,438,866	\$14,992,062	\$183,053,780	\$630,443,639
NS	\$28,000	\$67,608,642	\$59,186,740	\$2,115,000	\$228,000	\$129,166,382
OK	\$1,990,400	\$11,576,753	\$63,218,501	\$44,231,171	\$2,787,700	\$123,804,525
PH	\$3,611,690	\$80,303,048	\$35,882,768	\$36,922,916	\$11,664,400	\$168,384,822
PO	\$1,374,250	\$39,075,507	\$38,792,117	\$4,316,033	\$100,000	\$83,657,907
TU	\$0	\$18,831,600	\$21,850,000	\$10,799,000	\$7,901,300	\$59,381,900
<b>TOTAL</b>	<b>\$74,138,985</b>	<b>\$911,134,892</b>	<b>\$1,047,106,569</b>	<b>\$547,349,771</b>	<b>\$273,662,861</b>	<b>\$2,853,393,078</b>

Data Source: Snapshot - IHS National November 5, 2012.

Note: Total Database includes all feasible and infeasible projects.

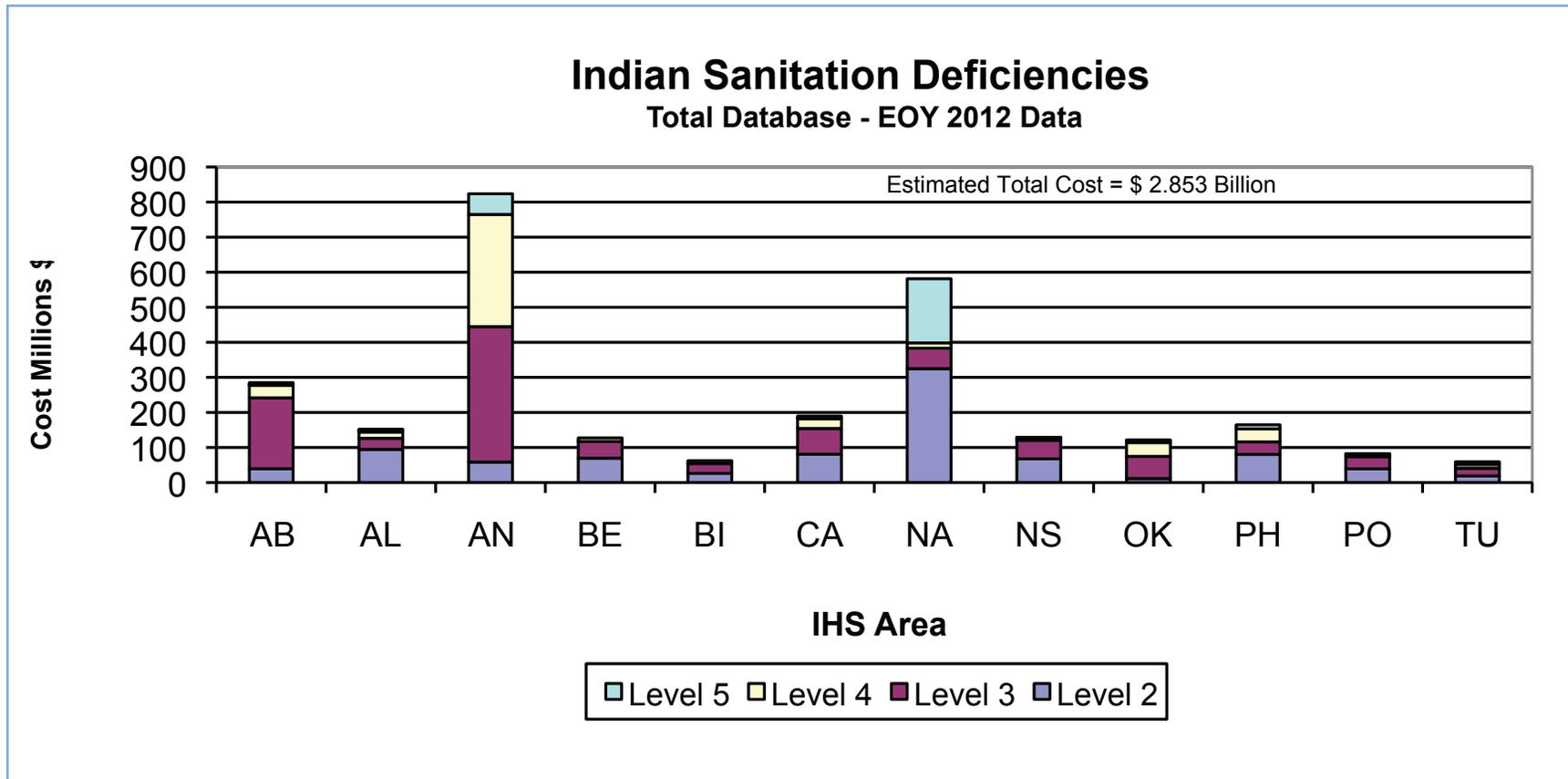


Figure 5:



**Table 7**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Feasible Projects**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AN	\$104,576,741	\$51,179,257	\$17,751,264	\$50,000	\$173,557,262
BE	\$41,580,200	\$40,752,606	\$5,917,000	\$0	\$88,249,806
BI	\$253,072,929	\$190,552,627	\$67,930,404	\$870,500	\$512,426,460
CA	\$39,726,088	\$34,964,258	\$7,464,507	\$0	\$82,154,853
NA	\$24,001,987	\$20,681,727	\$3,375,257	\$8,240	\$48,067,211
NS	\$44,771,859	\$42,043,979	\$7,707,932	\$305,000	\$94,828,770
OK	\$151,812,131	\$98,236,197	\$25,027,320	\$0	\$275,075,648
PH	\$49,434,993	\$18,400,328	\$7,037,913	\$117,300	\$74,990,534
PO	\$64,246,960	\$27,762,801	\$5,563,640	\$39,400	\$97,612,801
TU	\$69,798,018	\$28,495,809	\$13,255,826	\$1,046,079	\$112,595,732
AB	\$18,212,862	\$14,315,608	\$10,765,653	\$5,000	\$43,299,123
AL	\$22,031,000	\$11,415,900	\$1,333,700	\$330,000	\$35,110,600
<b>TOTAL</b>	<b>\$883,265,768</b>	<b>\$578,801,097</b>	<b>\$173,130,416</b>	<b>\$2,771,519</b>	<b>\$1,637,968,800</b>

Data Source: Snapshot - IHS National November 5, 2012.



## Current 10 - Year Funding Plan to Address Indian Sanitation Deficiencies Cost Estimates by Type of Facilities EOY 2012 Data - Economically Feasible Projects

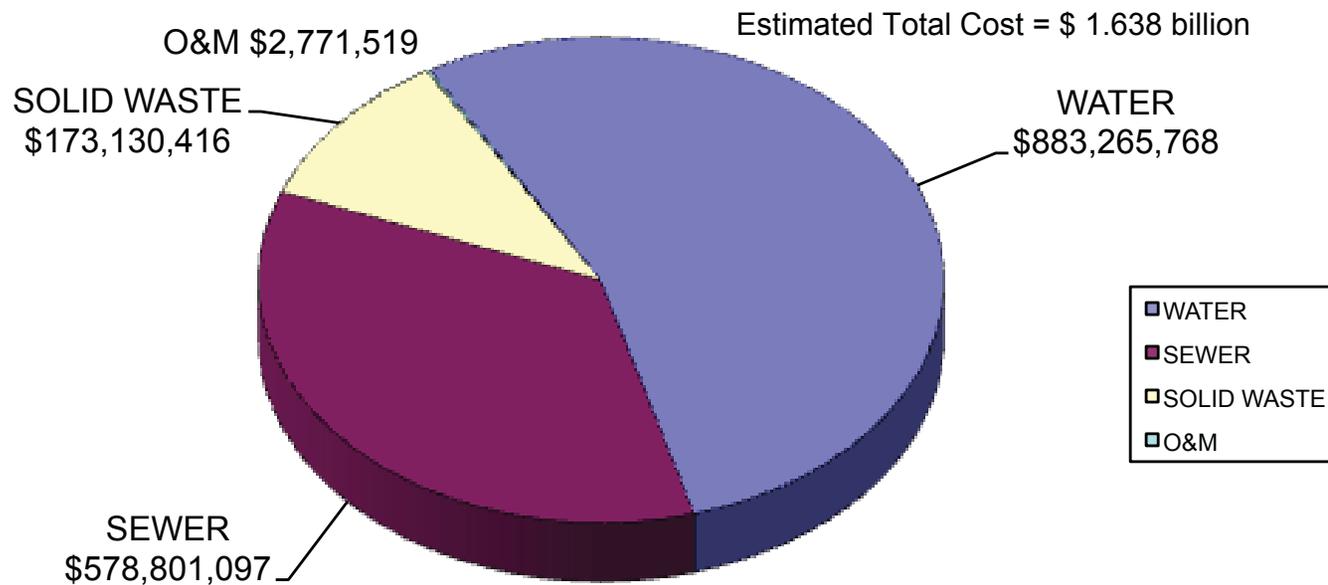


Figure 6:



**Table 8**  
**Cost Estimates by Type of Needed Facility by IHS Area**  
**Total Database**

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AB	\$205,583,641	\$61,519,657	\$19,980,264	\$50,000	\$287,133,562
AL	\$56,347,200	\$90,774,606	\$10,080,000	\$0	\$157,201,806
AN	\$413,947,376	\$304,534,869	\$108,718,443	\$870,500	\$828,071,188
BE	\$53,455,813	\$67,481,373	\$8,553,507	\$0	\$129,490,693
BI	\$28,815,407	\$30,823,528	\$3,474,257	\$8,240	\$63,121,432
CA	\$75,032,611	\$109,128,679	\$8,208,932	\$1,165,000	\$193,535,222
NA	\$474,108,378	\$131,307,941	\$25,027,320	\$0	\$630,443,639
NS	\$64,767,411	\$55,443,758	\$8,837,913	\$117,300	\$129,166,382
OK	\$80,990,584	\$37,066,901	\$5,683,640	\$63,400	\$123,804,525
PH	\$99,997,679	\$53,685,238	\$13,365,826	\$1,336,079	\$168,384,822
PO	\$43,794,062	\$26,970,242	\$12,859,603	\$34,000	\$83,657,907
TU	\$35,433,000	\$22,205,300	\$1,395,700	\$347,900	\$59,381,900
<b>TOTAL</b>	<b>\$1,632,273,162</b>	<b>\$990,942,092</b>	<b>\$226,185,405</b>	<b>\$3,992,419</b>	<b>\$2,853,393,078</b>

Data Source: Snapshot - IHS National November 5, 2012.



### Cost Estimates by Type of Facility EOY 2012 Data - Total Database

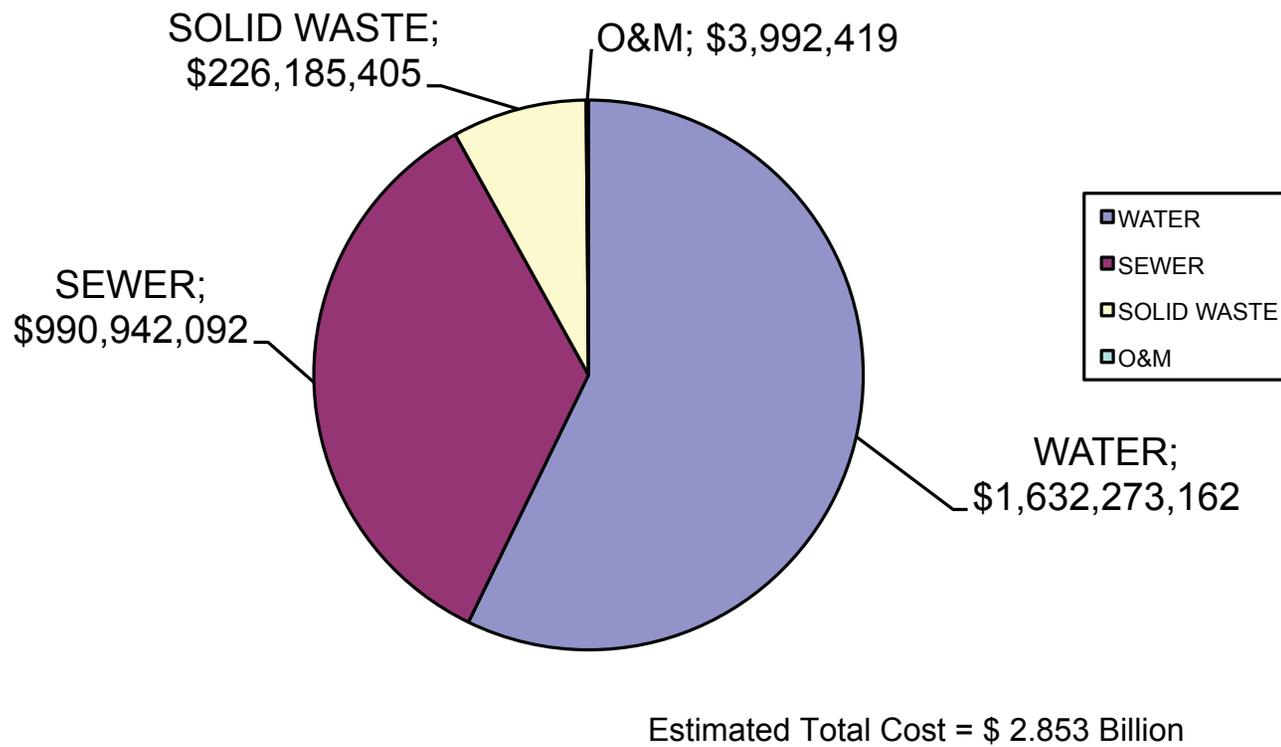


Figure 7:

## The Challenge Ahead

The ultimate goal of the SFC Program is to provide adequate water and sewer facilities for all existing Indian homes. However, despite current funding levels, there are numerous factors that will continue to create additional sanitation facility needs in the future. These factors include population growth and the corresponding additional need for homes. The number of Indian families is increasing faster than new homes are being constructed, making it especially difficult to meet critical sanitation needs in many Indian communities (*Trends in Indian Health 2002-2003 Edition*).

Another factor is the need to upgrade or replace existing sanitation facilities when their useful design life is reached; the IHS began providing water and sewer systems to AI/AN communities over 52 years ago. This factor becomes increasingly critical as existing sanitation facilities become less reliable and the cost of operating and maintaining older sanitation facilities increase. Despite an IHS emphasis on designing systems that are simple and economical to operate and maintain, the reliability of most community water and sewer systems in Indian country needs to be improved. The aging national water and infrastructure needs are documented by the EPA, the Government Accountability Office, and the American Water Works Association.

More stringent environmental standards and more difficult site conditions will challenge the SFC Program as it endeavors to provide needed sanitation facilities in years to come. Standards for public water systems, solid waste disposal facilities, and sewage treatment facilities are continually being modified by legislation and regulation. The impact of these changes is generally most severe on small utility systems such as those serving American Indians and Alaska Natives. As a result of more stringent regulations, small systems will cost more to build and operate.

In the future, the technical and managerial skills of IHS and tribal staff to design, construct, and operate needed sanitation facilities in an environment with more fiscal and regulatory challenges will be tested. A true partnership among the tribes, the U.S. Congress, and the IHS is needed if we are to meet these challenges successfully.



Santa Rosa, California water main project.



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