

The Sanitation Facilities Construction Program of the Indian Health Service



Public Law 86-121

ANNUAL REPORT FOR 2011



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



This Annual Report for Fiscal Year 2011 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:

Indian Health Service
Sanitation Facilities Construction Program
12300 Twinbrook Parkway
Room 610, Twinbrook Metro Plaza
Rockville, MD 20852

Website: www.dsfc.ihs.gov

Editor: Carol L. Rogers, P.E.

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The Sanitation Facilities Construction Program Annual Report for 2011

Table of Contents

Preface.....	iii
Introduction	1
The SFC Program Mission	2
Tribal Involvement.....	3
“The Year” in Review	5
Kyle Sewage Lift Station and Lagoon Rehabilitation, Oglala Sioux Reservation, South Dakota	8
Encinal Springs SDWA Filtration Compliance, Pueblo of Laguna, New Mexico	10
Lac Du Flambeau Water System Improvements, Lac Du Flambeau, Wisconsin	11
Dennehotso Waterline Extension, Navajo Reservation, Arizona	12
Mariano Lake North, Navajo Reservation, New Mexico	13
Santa Rose Community Sewer, Tohono O’odham Reservation, Arizona	14
Sanitation Facilities and Health	15
Program Operations	17
Sanitation Deficiencies	24
The Challenge Ahead	36
IHS Area SFC Program Directory	37



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 are summarized in this report as well as some of the accomplishments of the Program during the reported fiscal year. 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 over 52 years of cooperative efforts, many tribes have developed the administrative and technical capability to construct their own sanitation facilities with engineering support from IHS. The majority of all the SFC Program's construction work is accomplished by either tribes, tribal organizations or Indian-owned construction firms. A number of tribes continue to assume responsibility for their respective SFC programs, while the SFC Program continues to work with tribes and others to support the tribal Self-Governance/ Self-Determination decision making process under the authority of the Indian Self-Determination and Education Assistance Act. One goal of the SFC Program is to make available program information in a more open, accurate, and efficient way; this report, prepared annually since 1993, is one means of achieving that goal.



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 homes and communities. Since 1959, over 379,000 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.

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

Today, as it has for over 52 years, 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:



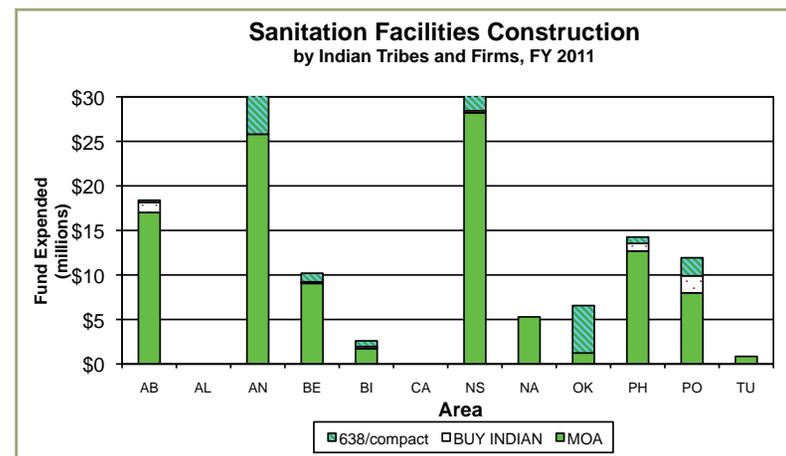
Hauling water in the 1960's.

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; assist with grant applications; and leverages IHS funds.*
4. *Provides funding for 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 policies, 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) 2011, tribes, tribal organizations or Indian-owned construction firms administered approximately \$139 million in construction funds. Many tribes participated by contributing labor, materials, and administrative support to projects.

Each 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. In addition to construction work, a number of tribes assumed responsibility for the administration of their own SFC Program. Under Titles I and V of P.L. 93-638, the Indian Self-Determination and Education Assistance Act, as amended, tribes from the Anchorage, Billings, California, Nashville, Oklahoma City and Phoenix Areas are managing their own SFC Program through Self-Governance compacts. (Table 1).



Funds expended by Indian and Alaska Native tribes and Indian-owned firms in FY 2011, by IHS Area.



Completed pumphouse for Fort Hall reservation, Idaho.



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..



500k gallon water storage tank on Navajo reservation in Sweetwater, Arizona.

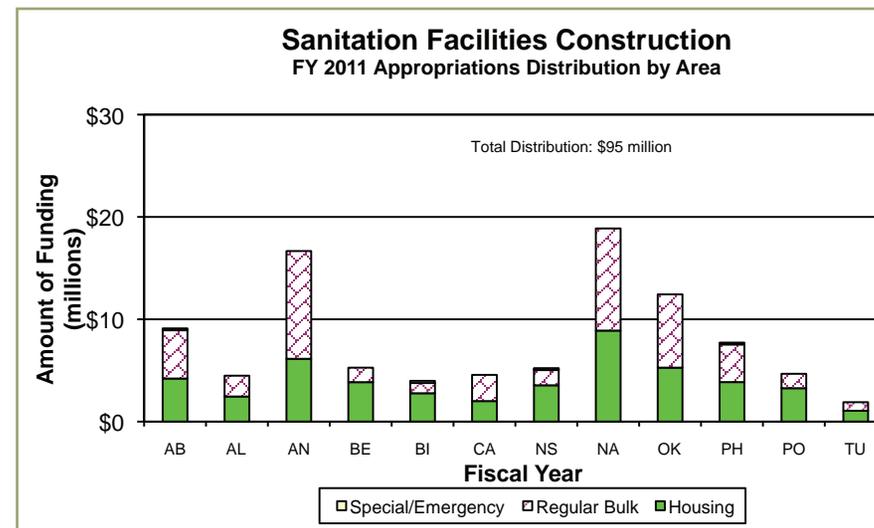
TABLE 1 Tribes that Managed the SFC Program in FY 2011 Under Title I or V of P.L. 93-638, as Amended	
IHS Area	Tribe
Anchorage	Alaska Native Tribal Health Consortium
Billings	Confederated Tribes of Salish & Kootenai (Flathead)
	Rocky Boys (Chippewa-Cree)
California	Hoopa Valley Tribe
Nashville	Chitimacha Tribe of Louisiana
	Mississippi Band of Choctaw Indians
	St. Regis Mohawk
	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
* Title I	



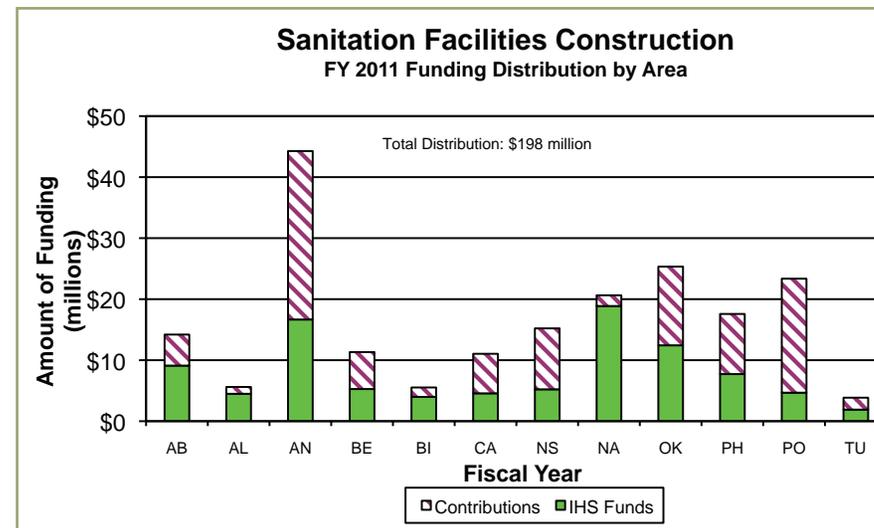
"The Year" in Review

In FY 2011, over \$95 million was appropriated for the construction of sanitation facilities. In addition to those appropriated funds, the SFC Program received more than \$68 million in contributions from other Federal agencies including the Environmental Protection Agency (EPA) and from non-Federal sources such as tribes and State agencies. With these contributions, the SFC Program's construction budget for the fiscal year totaled more than \$163 million.

Using the appropriated and contributed funds, the SFC Program initiated 471 projects to provide essential sanitation facilities to an estimated 1,309 new and like-new homes, 2,604 existing first service homes and 18,071 existing homes. The new housing units provided with sanitation facilities included 21 HUD-sponsored units (served with contributed funds), 40 Bureau of Indian Affairs-Home Improvement Program (BIA-HIP) sponsored units, and 1,249 units constructed by tribes, individuals, and other entities. In FY 2011, the SFC Program provided sanitation facilities to a total of 21,984 homes. These statistics are summarized in Table 2 on the following page.



Distribution of SFC Project appropriations, by Area, for FY 2011.



Total distribution of SFC Project funds in FY 2011, including all contributions and HUD funds.



TABLE 2
IHS Sanitation Facilities Construction Program Statistics for FY 2011

<u>SFC Program Budget:</u>		<u>Homes Provided Sanitation Facilities since 1959:</u>	
IHS SFC Appropriation =	\$95,665,286	• Number of New and Like-New Homes	
HUD Contributions (Housing + CDBG*) =	\$1,153,000	HUD-sponsored Homes =	61,883
Other Contributions =	<u>\$67,625,140</u>	BIA-sponsored Homes =	23,337
Total Funding in FY 2011 =	\$164,443,426	Tribal and Other Homes =	<u>85,270</u>
Total IHS SFC Appropriations since 1959 =	\$2.8 billion	Subtotal	169,221
		• Number of First Service Existing Homes =	<u>124,164</u>
		Total Number of Homes Served =	296,694
<u>SFC Projects:</u>			
Number of Projects Undertaken in 2011 =	471	<u>Sanitation Deficiency System (SDS) Information:</u>	
Total Number of Projects Undertaken since 1959 =	15,356	Total Estimated Cost of Sanitation Deficiencies =	\$3.089 billion
		Total Estimated Cost of Feasible Projects =	\$1.458 billion
<u>Homes Provided Sanitation Facilities in FY 2011:</u>			
• Number of New and Like-New Homes Served		Total Number of Projects/Phases Identified =	3,518
HUD-sponsored Homes =	21	Number of Feasible Projects Identified =	2,660
BIA-sponsored Homes =	40		
Tribal and Other Homes =	<u>1,249</u>	Estimated Total Number of Existing Homes	
Subtotal	1,310	Without Potable Water =	32,900
• Number of Existing First Service Homes Served =	2,604		
• Number of Previously Served Homes		Estimated Total Number of Homes That Lack	
Provided Upgraded Sanitation Facilities =	<u>18,070</u>	Either a Safe Water Supply or Sewage Disposal	
Total Number of Homes Served in 2011 =	21,984	System, or Both (Deficiency Levels 4 and 5) =	47,771
*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.



San Carlos Apache tribal force account crew installing 7 miles of 12-inch water distribution line, Arizona.



Contractor pouring the foundation for a 100k gallon buried concrete reservoir for on the Lake Traverse reservation, South Dakota.



Sewer main extension for the Lac Vieux Desert Band of Lake Superior Chippewa, Michigan.



Kyle Sewage Lift Station and Lagoon Rehabilitation Oglala Sioux Reservation, South Dakota

The Oglala Sioux Tribe requested assistance to construct a lift station replacement and to provide improvements to the existing wastewater pond system for the Kyle community on the Pine Ridge Indian Reservation, South Dakota. IHS evaluated alternatives to resolve the ongoing problems at the lift station and to determine the best approach to renovating the damaged lagoon system.

Conditions at the existing sewage lift station had deteriorated over the past ten years and was susceptible to flooding during heavy rainfall. The new lift station will provide a safer work environment for operators.

Under this project the IHS replaced the deteriorating sewage lift station with a new packaged concrete lift station with adequate wet well capacity for future growth, including pumps, a 5HP sewage grinder, a new stainless steel control panel, a new portable lift crane and, new chain link fence, a yard hydrant assembly to clean off pumps and lift station area, and 51 feet of 6-inch sewer force main to connect the new sewage lift station to the existing sewer force main.



Rip rap placement around the lagoon.



Lift station installation.



Installation of the control panel.

The lift station was also raised 3 feet in elevation to prevent the lift station from flooding. The project also able made improvements to the current wastewater treatment pond system including repairing the fencing, repairing the eroded embankments providing additional rip rap and geotextile, removing all excessive weed growth and trees, and providing a graveled access road.

The addition of the sewage grinder will minimize daily cleaning and other lift station problems. The construction of adequate wet well capacity allows for larger submersible pump sizes, improving the pump start and stop times and decrease grease buildup around the pumps.



Completed lift station.



Encinal Springs SDWA Filtration Compliance Pueblo of Laguna, New Mexico

Encinal Springs has been the only water supply for the Village of Encinal for hundreds of years. In 2006, EPA determined that the springs, 14 in total with a combined flowrate of 85 gpm, were a groundwater under the direct influence of surface water (GWUDI) source and thus subject to the SDWA surface water treatment rule.

Different filtration options such as sand filtration, microfiltration and reverse osmosis were evaluated by IHS. Fortunately, the spring water is low in many of the objectionable or regulated contaminants such as taste and odor as well as radionuclides, organics and inorganics. Only microbial contaminants (*Giardia* and *Cryptosporidium*) needed to be filtered. Virus inactivation was best addressed through disinfection.

IHS elected to employ a backwashable series of pre-filters ranging in pore size from 1,000-micron to 25-micron in order to increase the longevity of the disposable 1-micron absolute filters. The SDWA requires all Subpart H (surface water) systems to have an absolute filter screen of this size or less. The pre-filters require a minimum system hydraulic pressure of 40 psi to backwash effectively. Rather than employing pumps to generate the pressure, an upstream pressure sustaining control valve was utilized to backup the water in the pipe from the springs, hundreds of feet higher in elevation, to maintain an adequate hydraulic pressure.



Technicians evaluating the upstream press valve.



Spring catchments.

Lac Du Flambeau Water System Improvements Lac Du Flambeau, Wisconsin

In February 2010, the IHS, Lac du Flambeau Band of Lake Superior Chippewa Indians and the EPA began an effort to make substantial improvements to the efficiency, sustainability and reliability of the community water system on the Lac du Flambeau Indian Reservation. The first phase of the project addressed issues with the Fence Lake subdivision water system which required extensive manpower and funding to operate and maintain and suffered from multiple deficiencies. This phase included constructing 11,700 feet of 8-inch and 10-inch polyethylene (PE) water main to connect the subdivision to the main water system which allowed the problematic fence lake pumphouse and wells to be demolished.

The next phase completed a water main extension in a different area of the water system to decrease electrical consumption for the west pumphouse and increase system reliability. This phase of the project included constructing 4,730 feet of 8-inch PE water main to provide a parallel main through an area of the system consisting of older, 6-inch SDR35 water main. The new water main will reduce the overall pumping head by 46ft, reducing electrical costs by about \$6,454.45/year. The project improved the water system which serves 604 homes. Annual operation and maintenance costs were reduced by approximately \$15,000.00 and annual electrical costs were reduced by approximately \$6,500.00. The project also increased the reliability and fire fighting capacity of the system.



Cutting pipe for the waterline extension.



Laying of the pipe for the waterline extension.



Road boring for the waterline.

Dennehotso Waterline Extension Navajo Reservation, Arizona

This project provided a new waterline extension for the Dennehotso Chapter, Navajo Nation. The total cost of the project was \$4,750,000. The project consisted of constructing 53.3 miles of 8-inch, 6-inch, 4-inch, and 2-inch PVC pipe. A new 200,000 gallon water tank was constructed, and a new well. The project served a total of 89 homes. Plumbing services were also completed for about 40 homes.

The water well is about 1,000 feet deep and will be pumped at rate of 150 gallons per minute (gpm). The pump test showed that this well can be pumped as high as 350 gpm. The Dennehotso Chapter plans to tap this system for their future economic and residential development. Since the 200,000 gallon water tank was constructed on top of a mesa, a total of 5 pressure reducing valves (PRV) were installed. The Vermeer trencher was used with great efficiency getting up to 4,000 feet per day of production.



Completed 200,000 gallon water tank.



Clearing of the right of way for the waterline project



Completed water storage tank.

Mariano Lake North Navajo Reservation, New Mexico

The Mariano Lake Chapter is located in the eastern portion of the Navajo Nation in New Mexico. Homes located in the project area have traditionally been Navajo log-mud hogans.

Since the homes are located in remote, rural localities, many residents of Mariano Lake still do not have access to water in their homes. This project constructed more than seven miles of waterline, upgraded an existing well and built a new tank to supply water to 49 homes.



Laying waterline for the 7 miles of extension



Santa Rosa Community Sewer Tohono O'odham Reservation, Arizona

The community of Santa Rosa Ranch, on the Tohono O'odham Reservation in Southern Arizona, consists of twenty homes and a BIA day school. The Santa Rosa Ranch Sewer Project expanded and lined an existing lagoon that previously served only the school. Through the project, fourteen homes that previously utilized marginally operational or failing septic systems were connected to the expanded lagoon system.

By lining the lagoon and connecting homes to the Santa Rosa Ranch community sewer, the risk of contamination of a nearby water source has been greatly reduced. The Santa Rosa Ranch community sewer system is maintained by the Tohono O'odham Utility Authority, who currently operates and maintains a total of 34 community water systems and 22 community sewer systems on the Tohono O'odham.



Inspection of the entrance manhole for the lagoon expansion.



The lagoon put into service.



Grading of the expanded lagoon.

Sanitation Facilities and Health

Protecting the health of and preventing disease among the AI/AN people are primary IHS objectives. The Congress declared in the Indian Health Care Improvement Act (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, the Congress reaffirmed the primary responsibility and authority of the IHS "...to provide the necessary sanitation facilities..." as authorized under P.L. 86-121.

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.

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. 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

Solid waste site in Arizona.



Cleaned up solid waste site in Arizona.



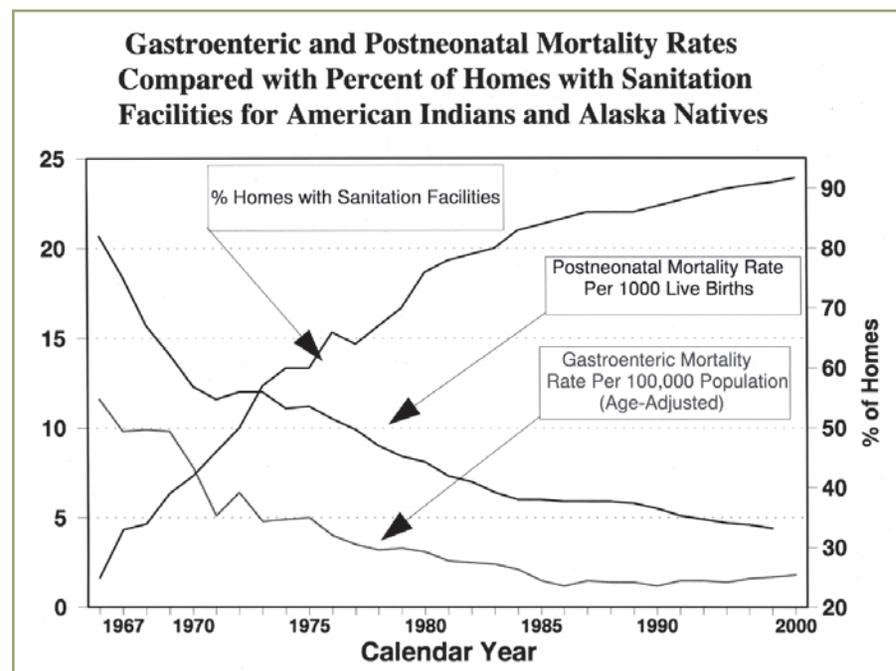
limited hand washing and bathing practices often found in households lacking adequate water supplies. This is particularly true for families that do not have access to safe drinking water.

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.

Several diseases are readily transmitted by contaminated water supplies, and those of greatest concern are hepatitis A; typhoid, cholera, and paratyphoid fevers; and dysenteries. 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 had decreased significantly 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 2003 rate is now 38 percent lower than the rate for all races in the U.S.

The SFC Program is a significant contributor to the improved health status of American Indians and Alaska Natives as clearly 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.

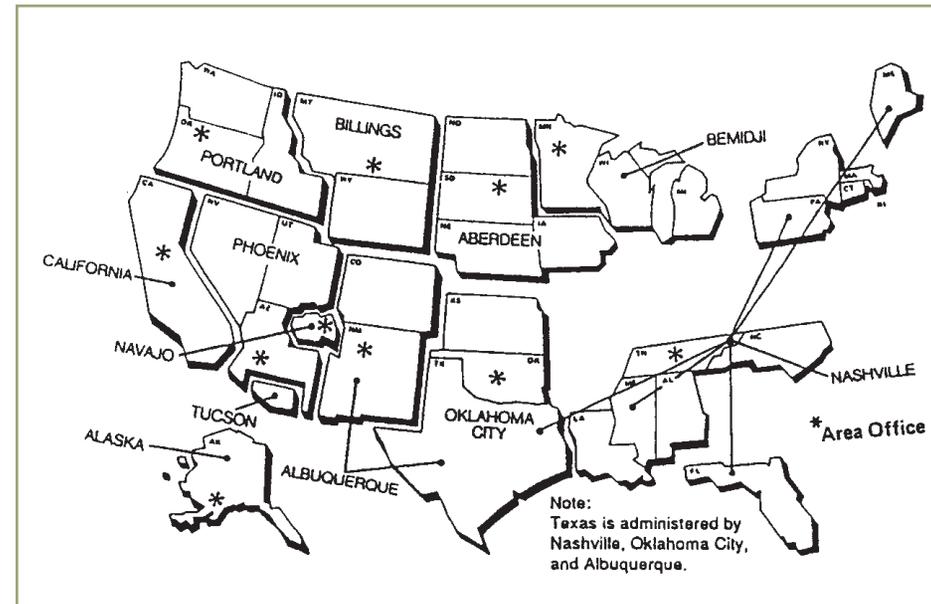


Program Operations

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.

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 achieve its sanitation facilities construction objectives. An example of this cooperation is the funds that are transferred from HUD to the IHS for sanitation facilities construction in support of new and renovated HUD homes, typically made available to the SFC Program through tribal entities and Indian housing authorities. Agreements among the tribes, Indian housing authorities, IHS, and HUD enable the transfer of HUD funds to the SFC Program for construction of necessary water and sewer facilities. Congress authorized IHS to accept the HUD contributions.



Location of Indian Health Service Area Offices.

Similar agreements among the tribes, IHS, and the EPA Indian Set-Aside (ISA) Program enable the EPA to contribute the ISA wastewater funds to the SFC Program. 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 1 AI/AN homes and communities benefits to 566 Federally 1 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.



Evapo-transpiration (ET) sand bed during construction in the village of Schuchuligh on the Tohono O'odham reservation.



Construction of a Evapo-transpiration (ET) sand bed, Arizona.

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.

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 BIA-HIP, tribes, individual homeowners, or other nonprofit organizations.



Installation of diffusers in the new aerated lagoon cell, Wisconsin.

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. This system is updated annually, and the information and funding requirements are submitted each year to the Congress in accordance with the requirements of the Indian Health Care Improvement Act. A summary of the inventory of sanitation deficiencies is presented in the following pages. **Special/Emergency Projects** provide sanitation facilities for special studies and emergency situations. Emergency projects typically involve community sanitation facilities which 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. The average project funding level is \$20,000 to \$70,000. The mean and most frequent project funding over the last five years is about \$50,000 and \$20,000 respectively.

In addition to providing direct services for the construction of sanitation facilities, resources permitting, the SFC Program provides technical assistance on many issues related to construction and operation and maintenance of tribally owned sanitation facilities.



Completion of the ET system which disposes of wastewater into the atmosphere through evaporation.



Technical assistance, such as reviews of engineering plans and specifications for sanitation facilities for new home construction, is routinely provided to tribes and Indian housing authorities. Technical reviews of feasibility studies and grant proposals are also provided to tribes by the SFC

Program for a wide range of civil and sanitation facilities engineering projects related to Indian Housing. The amount or degree of technical assistance provided depends on available resources.

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. The IHS provides technical assistance to the owners of the new sanitation facilities and provides training on proper operation and maintenance of the new facilities. 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.



Renovations of an existing wastewater lagoon in Neopit for the Menominee Tribe of Wisconsin.



Construction of a 14" waterline located in Sweetwater on the Navajo Reservation.



Sewer main extension for Lac Vieux Desert Band of Lake Superior Chippewa in Watersmeet, Michigan.

The latter may include training in proper operation and maintenance of chlorination and fluoridation equipment, pumps and motor control systems for community water supply facilities, and proper operation and maintenance of sewage collection systems, lift stations, and wastewater treatment facilities.

The SFC Program also provides technical assistance to tribes in the development of tribal utility organizations for operation, maintenance, and management of community water and sewer facilities. The technical assistance may include development of rate structures to determine appropriate customer water and sewer fees.

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.

In 2002, the Office of Management and Budget conducted an SFC Program review using the Program Assessment Rating Tool (PART). One recommendation was that the Program conduct an independent external evaluation. As a result, the Program contracted with Federal Occupational Health to conduct the evaluation and the initial report was completed in 2005 and the final Independent Evaluation Report with specific recommendations was published on July 15, 2006. One of those recommendations was that the SFC Program develop and implement a strategic plan.

Beginning in 2005 and continuing through the present, the SFC Program began development of a strategic plan. The SFC Directors from all 12 IHS Areas met three times during 2005 to identify strategic directions for the Program and to identify barriers that make moving in those directions difficult. As a result of this high level planning, 10 vision elements were clearly stated. Implementation of those elements is shared between the SFC Directors, the midlevel managers, the operations and maintenance coordinators, and the data system managers.



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.

Implementation workshops were conducted throughout 2006 and as a result 18 vision element teams comprised of 82 people from all IHS Areas, one tribe, and two EPA Regions are currently working on specific vision elements or sub-elements.

American Recovery and Reinvestment Act of 2009

The Sanitation Facilities Construction (SFC) Program received \$68 million from the American Recovery and Reinvestment Act of 2009 (ARRA) to provide essential sanitation facilities to the backlog of existing AI/AN homes. The IHS also received ARRA funds through the Environmental Protection Agency (EPA) (\$30 million in Safe Drinking Water Act (SDWA) and \$60 million in Clean Water Act (CWA)) to provide essential sanitation facilities to the backlog of existing AI/AN homes. These funds will provide essential water and sewer facilities to about 16,000 AI/AN homes with IHS appropriated funding and estimated 30,000 homes overall.

The ARRA funds were used to construct essential sanitation facilities including water supply, sewage, and solid waste disposal facilities for American Indian and Alaska Native (AI/AN) homes and communities. Funds were distributed to the 12 IHS Areas based on relative need considering both the dollar amount of sanitation need and the sanitation need measured in the number of homes lacking facilities. The projects within each Area are prioritized to serve existing homes, based on an established formula that considers, among other factors, health impact, cost effectiveness, and ability to expeditiously complete the projects. Projects were executed using a combination of Public Law (P.L.) 86-121 Memorandum of Agreement (MOA) utilizing federal construction contracts, tribal procurement or tribal construction and Indian self-determination (P.L. 93-638) construction project agreements. Sanitation Facilities

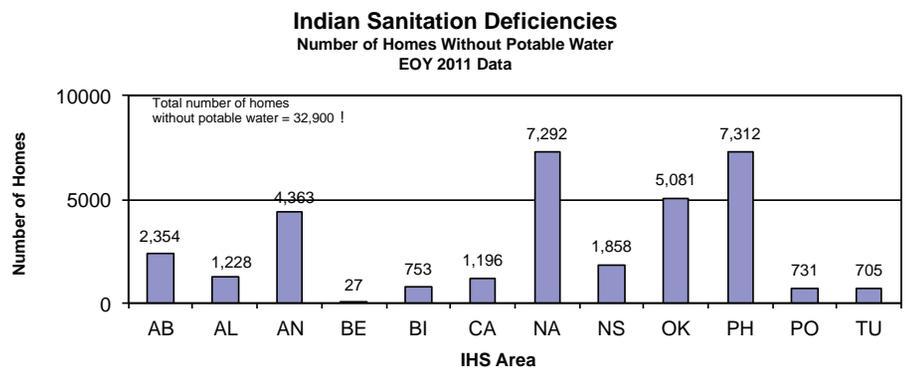
Construction projects can be managed by the IHS directly (Direct Service) or they can be managed by Tribes that elect to use Title I or Title V authorization under P.L. 93-638, the Indian Self-Determination and Education Assistance Act, as amended. The overall SFC goals, eligibility criteria, and project funding priorities remain the same, regardless of the delivery methods chosen by a Tribe.



Construction of sewer outfall line for Village of Shungopavi, Hopi Reservations.



Sanitation Deficiencies



Number of Indian homes without potable water, by Area.

The Indian Health Care Improvement Act (IHCA) 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 current inventory of sanitation deficiencies identified more than 3,400 sanitation facilities construction projects or project phases at an estimated cost of \$2.97 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. Currently, 2,638 of the identified projects are considered to be economically feasible with an estimated cost of \$1.45 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 IHCA 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 that lacks a safe water supply and 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 projects 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 combination of all projects reported for each community will bring all facilities to deficiency level I or better.

For several years IHS stated that 7.5% of AI/AN homes were without potable (safe and reliable) water. Based on end of year 2010 data, it is estimated that approximately 9% of AI/AN homes are without a safe and reliable water supply. This increase in the number of AI/AN homes lacking safe water is due to population growth, the age and condition of the existing infrastructure, high numbers of new and like new housing, and new environmental regulations including the arsenic and surface water treatment rules promulgated by the Environmental Protection Agency. The arsenic rule accounted for most of this increase because approximately 54 communities with over 17,000 homes were classified as deficiency level 4, because they lacked a safe water supply. In order to meet the IHS strategic goal of raising the percent of AI/AN homes with safe water to 94% by 2015 a significant increase in sanitation project and staff resources are required.

These deficiencies represent an enormous challenge, especially because the resources to meet them are finite. Existing sanitation facilities require upgrading while efforts continue towards providing services to many yet unserved and mostly isolated homes.



Soil testing on the Navajo Reservation.

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



Table 3
Number of Homes at Each Deficiency Level
by Area

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	1,872	5,535	11,669	5,031	316	24,423
AL	471	3,912	5,136	5,721	186	15,426
AN	820	497	11,288	818	3,941	17,364
BE	22,578	7,043	5,442	247	2	35,312
BI	1,675	6,265	4,436	2,506	5	14,887
CA	4,428	1,732	4,506	2,113	388	13,167
NA	11,022	4,446	35,194	1,917	5,910	58,489
NS	6,445	6,226	7,440	1,682	265	22,058
OK	98,266	2,479	28,811	6,470	587	136,613
PH	4,016	7,076	6,843	6,729	893	25,557
PO	1,316	6,124	6,635	1,238	63	15,376
TU	2	1,166	3,167	594	149	5,078
TOTAL	152,911	52,501	130,567	35,066	12,705	383,750



Table 4
Number of Homes Requiring Assistance
by Type of Facility

AREA	WATER	SEWER	SOLID WASTE	ELIGIBLE HOMES
AB	16,408	16,864	19,769	53,041
AL	14,358	13,054	7,345	34,757
AN	14,177	13,127	13,098	40,402
BE	7,437	7,261	7,183	21,881
BI	9,808	6,368	7,978	24,154
CA	6,960	6,923	4,781	18,664
NA	27,155	13,283	36,220	76,658
NS	13,461	13,200	10,874	37,535
OK	20,008	7,990	19,070	47,068
PH	18,558	13,916	15,521	47,995
PO	7,794	7,333	10,456	25,583
TU	4,186	1,800	4,503	10,489
TOTAL	160,310	121,119	156,798	438,227



Table 5
Project Cost by Deficiency Level
Feasible Projects

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$0	\$33,853,039	\$81,998,878	\$20,501,730	\$4,126,000	\$140,479,647
AL	\$0	\$46,988,631	\$26,475,206	\$18,771,000	\$0	\$92,234,837
AN	\$0	\$47,133,027	\$242,253,295	\$147,383,422	\$13,021,458	\$449,791,202
BE	\$0	\$28,500,505	\$25,290,520	\$2,204,850	\$0	\$55,995,875
BI	\$0	\$20,704,858	\$16,613,866	\$6,340,064	\$0	\$43,658,788
CA	\$0	\$22,259,112	\$44,069,051	\$21,097,290	\$4,936,000	\$92,361,453
NA	\$0	\$52,515,751	\$52,066,151	\$6,553,902	\$143,410,290	\$254,546,094
NS	\$0	\$30,952,195	\$15,115,030	\$2,762,000	\$278,000	\$49,107,225
OK	\$0	\$5,517,613	\$47,369,502	\$29,719,372	\$2,119,000	\$84,725,487
PH	\$0	\$59,418,650	\$18,499,836	\$34,129,136	\$3,128,400	\$115,176,022
PO	\$0	\$32,525,175	\$18,059,021	\$1,680,833	\$0	\$52,265,029
TU	\$0	\$10,262,700	\$8,435,000	\$8,705,000	\$917,300	\$28,320,000
TOTAL	\$0	\$390,631,256	\$596,245,356	\$299,848,599	\$171,936,448	\$1,458,661,659

Indian Sanitation Deficiencies

Cost Estimate for Feasible Projects

EOY 2011 Data

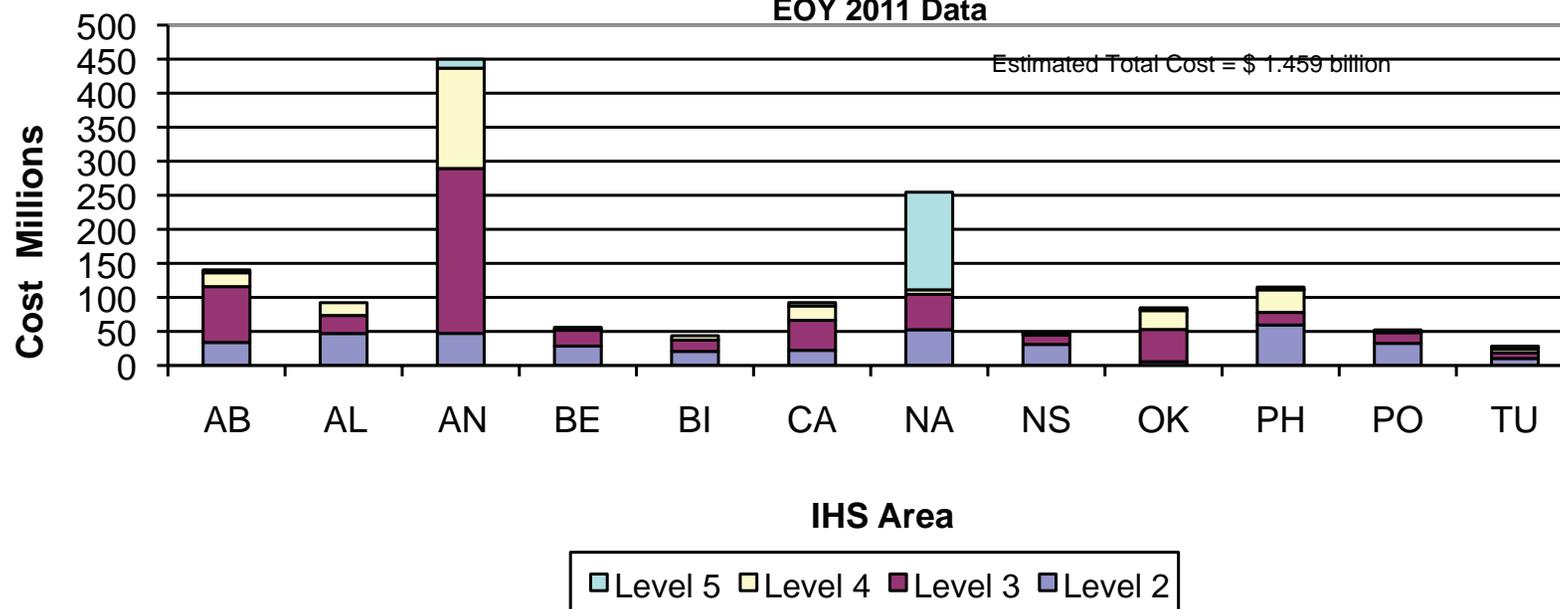




Table 6
Project Cost by Deficiency Level
Total Database

AREA	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	TOTAL
AB	\$1,995,000	\$45,874,539	\$448,848,938	\$31,999,205	\$4,336,000	\$533,053,682
AL	\$5,150,000	\$83,993,631	\$38,950,206	\$25,109,000	\$0	\$153,202,837
AN	\$12,681,438	\$81,063,649	\$388,768,258	\$326,717,131	\$76,553,743	\$885,784,219
BE	\$995,000	\$64,631,723	\$38,778,220	\$2,978,450	\$0	\$107,383,393
BI	\$471,500	\$20,975,858	\$18,735,167	\$10,042,060	\$0	\$50,224,585
CA	\$3,635,000	\$81,778,017	\$73,291,642	\$33,326,639	\$4,936,000	\$196,967,298
NA	\$9,518,915	\$348,075,220	\$58,119,141	\$21,789,016	\$161,625,762	\$599,128,054
NS	\$1,835,500	\$63,170,371	\$57,927,192	\$2,762,000	\$278,000	\$125,973,063
OK	\$290,400	\$9,541,613	\$58,774,502	\$40,214,552	\$3,019,700	\$111,840,767
PH	\$6,443,144	\$86,310,525	\$35,431,836	\$38,466,726	\$13,858,800	\$180,511,031
PO	\$1,008,100	\$44,754,675	\$40,728,855	\$4,767,033	\$185,900	\$91,444,563
TU	\$0	\$10,544,700	\$21,895,400	\$12,398,000	\$9,062,600	\$53,900,700
TOTAL	\$44,023,997	\$940,714,521	\$1,280,249,357	\$550,569,812	\$273,856,505	\$3,089,414,192

Indian Sanitation Deficiencies

Total Database - EOY 2011 Data

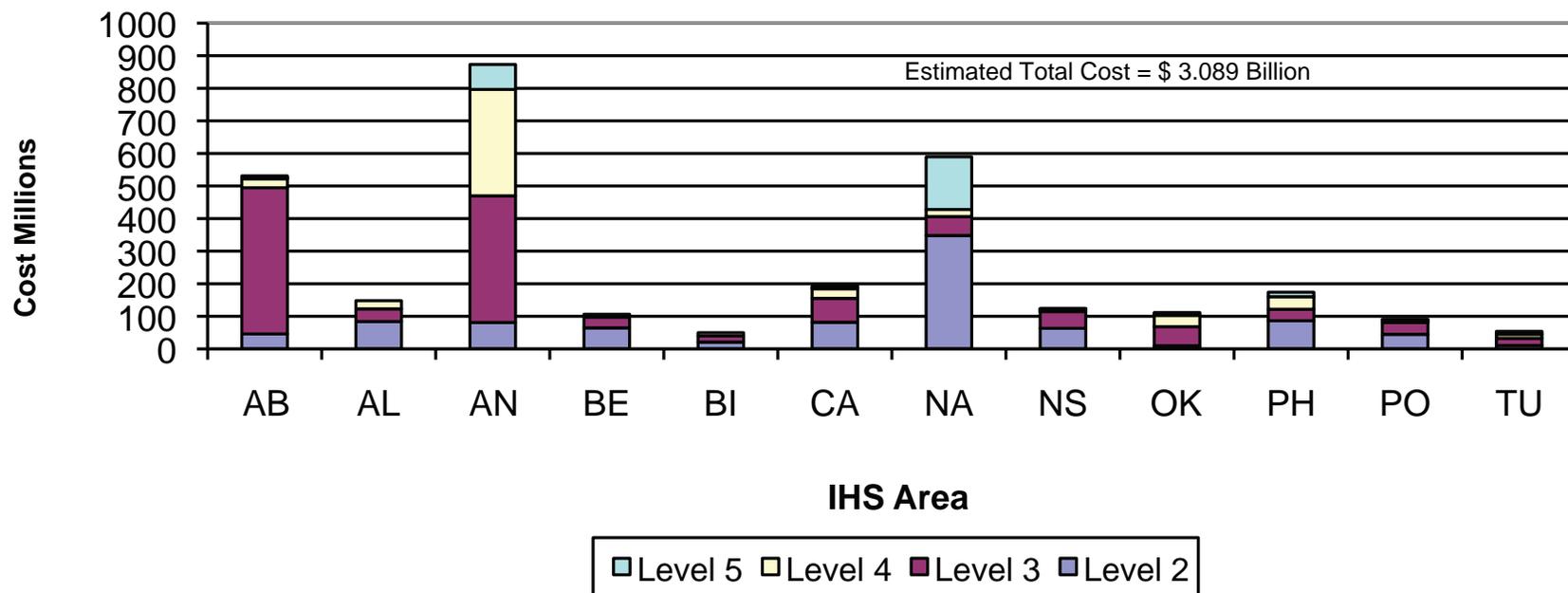




Table 7
Cost Estimates by Type of Needed Facility by IHS Area
Feasible Projects

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AN	\$90,505,115	\$33,616,368	\$16,258,164	\$100,000	\$140,479,647
BE	\$43,609,681	\$42,756,756	\$5,868,400	\$0	\$92,234,837
BI	\$233,792,971	\$159,488,804	\$56,133,995	\$375,432	\$449,791,202
CA	\$28,190,372	\$22,379,285	\$5,426,218	\$0	\$55,995,875
NA	\$22,344,286	\$17,909,012	\$3,403,450	\$2,040	\$43,658,788
NS	\$39,684,630	\$45,340,296	\$7,015,927	\$320,600	\$92,361,453
OK	\$138,884,562	\$90,638,212	\$25,023,320	\$0	\$254,546,094
PH	\$32,941,962	\$11,433,158	\$4,691,805	\$40,300	\$49,107,225
PO	\$55,817,164	\$23,308,283	\$5,563,640	\$36,400	\$84,725,487
TU	\$73,685,414	\$26,190,238	\$14,852,685	\$447,685	\$115,176,022
AB	\$24,492,530	\$15,984,846	\$11,763,653	\$24,000	\$52,265,029
AL	\$25,036,000	\$1,800,000	\$1,105,700	\$378,300	\$28,320,000
TOTAL	\$808,984,687	\$490,845,258	\$157,106,957	\$1,724,757	\$1,458,661,659

Current 10 - Year Funding Plan to Address Indian Sanitation Deficiencies

Cost Estimates by Type of Facilities EOY 2011 Data - Economically Feasible Projects

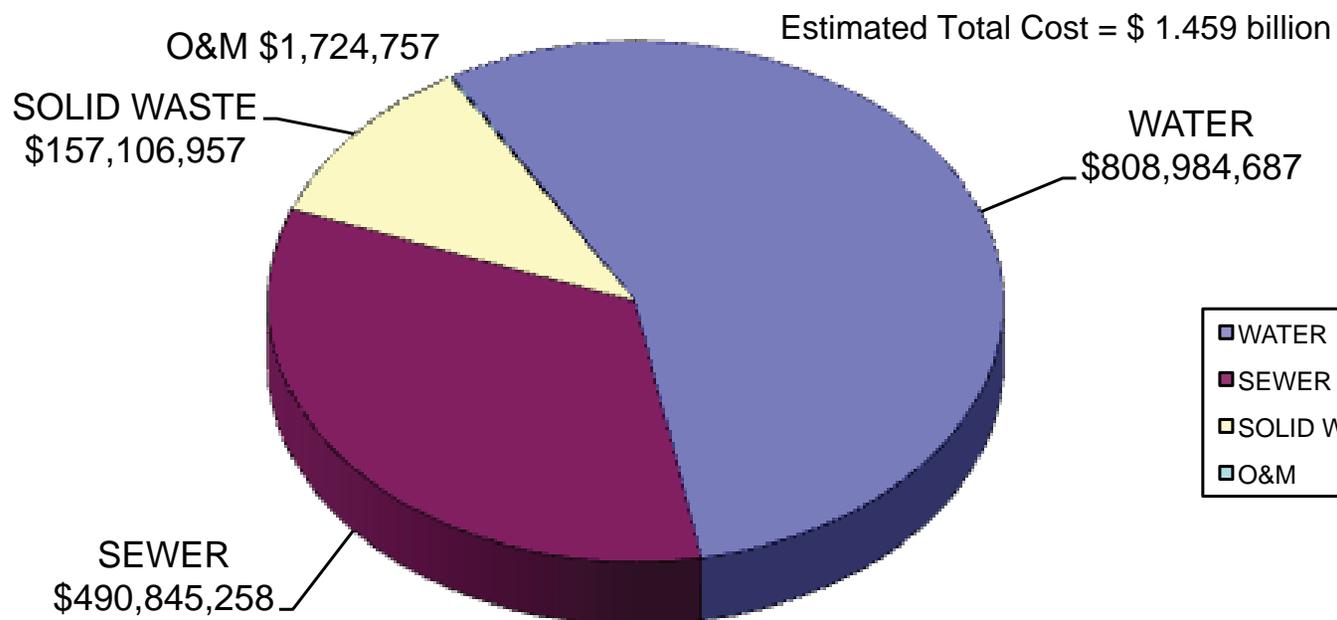
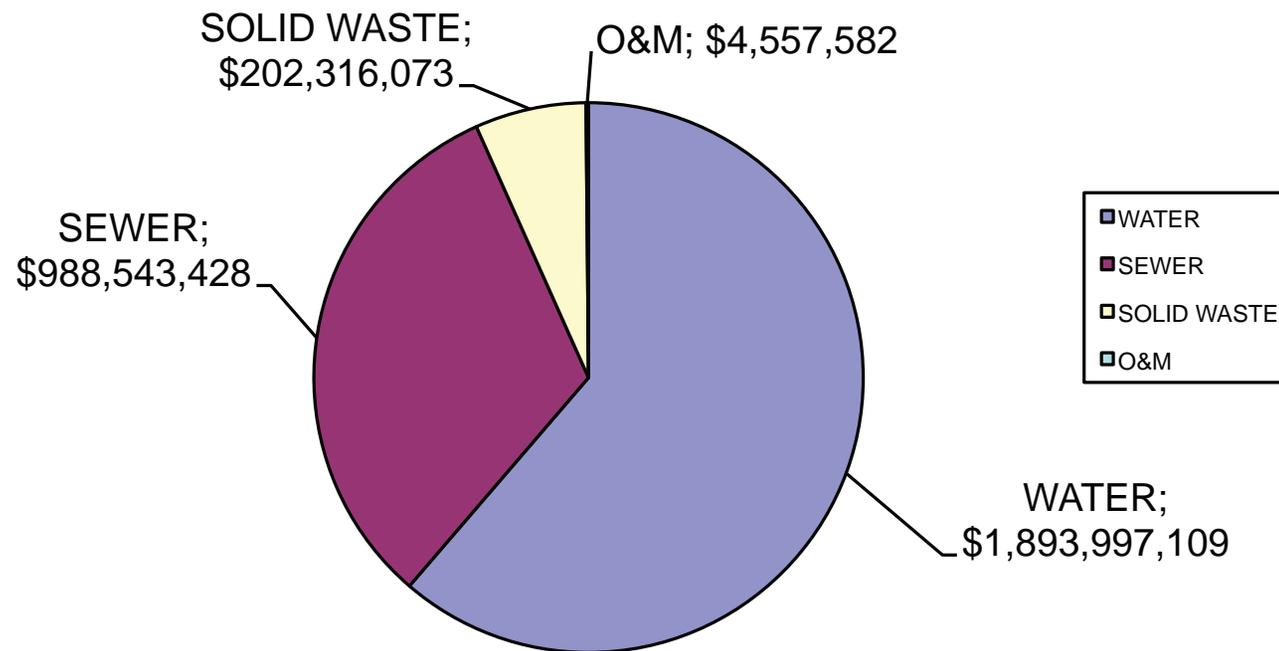




Table 8
Cost Estimates by Type of Needed Facility by IHS Area
Total Database

AREA	WATER	SEWER	SOLID WASTE	O&M	TOTALS
AB	\$459,301,730	\$55,164,788	\$18,487,164	\$100,000	\$533,053,682
AL	\$55,086,281	\$87,900,156	\$10,216,400	\$0	\$153,202,837
AN	\$472,053,800	\$324,163,959	\$87,632,103	\$1,934,357	\$885,784,219
BE	\$41,754,050	\$60,203,125	\$5,426,218	\$0	\$107,383,393
BI	\$26,391,437	\$20,328,658	\$3,502,450	\$2,040	\$50,224,585
CA	\$76,121,775	\$110,796,996	\$8,862,927	\$1,185,600	\$196,967,298
NA	\$431,751,641	\$142,353,093	\$25,023,320	\$0	\$599,128,054
NS	\$62,861,992	\$56,300,358	\$6,730,413	\$80,300	\$125,973,063
OK	\$72,070,344	\$34,026,383	\$5,683,640	\$60,400	\$111,840,767
PH	\$109,895,529	\$54,915,132	\$14,962,685	\$737,685	\$180,511,031
PO	\$49,059,230	\$28,568,680	\$13,763,653	\$53,000	\$91,444,563
TU	\$37,649,300	\$13,822,100	\$2,025,100	\$404,200	\$53,900,700
TOTAL	\$1,893,997,109	\$988,543,428	\$202,316,073	\$4,557,582	\$3,089,414,192

Cost Estimates by Type of Facilities EOY 2011 Data - Total Database



Estimated Total Cost = \$ 3.089 Billion



The Challenge Ahead



Ribbon cutting at the Ft. McDowell solid waste transfer station.

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.

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 supply 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.



IHS Area SFC Program Directory

Aberdeen Area/DSFC
115 4th Ave., Southeast
Aberdeen, SD 57401
Ph. (605) 226-7451

Anchorage Area/DSFC
4141 Ambassador Drive
Anchorage, AK 99508-5928
Ph. (907) 729-3540

Albuquerque Area/DSFC
5300 Homestead Rd., N.E.
Albuquerque, NM 87110
Ph. (505) 248-4595

Bemidji Area/DSFC
104 Minnesota Ave. NW
Bemidji, MN 56601
Ph. (218) 444-0504

Billings Area/DSFC
2900 4th Ave. N
Billings, MT 59101
Ph. (406) 247-7096

California Area/DSFC
650 Capitol Mall, Suite 7-100
Sacramento, CA 95814
Ph. (916) 930-3945

Nashville Area/DSFC
711 Stewarts Ferry Pike
Nashville, TN 37214-2634
Ph. (615) 467-1586

Navajo Area/DSFC
P.O. Box 9020
Window Rock, AZ 86515
Ph. (928) 871-5851

Oklahoma City Area/DSFC
701 Market Drive
Oklahoma City, OK 73114
Ph. (405) 951-3882

Phoenix Area/DSFC
Two Renaissance Square, 40 N. Central Ave. 600
Phoenix, AZ 85004
Ph. (602) 364-5068

Portland Area/DSFC
1414 NW Northrup Ave, Suite 800
Portland, OR 97209
Ph. (503) 414-7777

Tucson Area Indian Health Service
7900 South J Stock Road
Tucson, AZ 85746-2508
Ph. (520) 295-2580

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Indian Health Service
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