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What is an Integrated Waste
Management Plan (IWMP)?

- ☀ Five Elements for a Successful IWMP
- ☀ Blackfeet Nation Plans for a Cleaner
Today and Greener Tomorrow
- ☀ Washoe Plan: A Roadmap for
Recycling Success

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Solid Waste—Endangering Our Health and Our Land

Tires, appliances, furniture, car batteries, and abandoned vehicles may litter reservations. Backyard burning of waste pollutes the air and poisons fish and wildlife. People from on and off reservations may be illegally dumping solid and hazardous waste on tribal lands. These are just some of the waste issues that are pervasive problems on tribal lands. However, Integrated Waste Management Plans (IWMPs) may offer tribes an efficient and cost-effective way to reduce open dumping, effectively manage solid waste, and protect human health and the environment for this generation and the next.

Open dumps are defined by the U.S. Environmental Protection Agency (EPA) as “areas where waste is disposed of without proper controls, including regular application of cover, controlled access to the site, and other environmental controls.”

In the past, people have disposed of their waste in open pits or by burning it. These practices are no longer considered safe or effective because of what we now know about the types of waste generated today. The increase in plastics and other synthetic materials in the waste stream, in addition to the growth in the sheer volume of waste, make open dumping and backyard burning

dangerous to human health and the environment.

Open dumps create an unhealthy environment, with adverse health effects for both people and animals. People who frequently visit or rummage through open dumps can be hurt by sharp objects. They also can come in contact with toxic materials or contagious pathogens, which can lead to gastroenteritis; skin rashes and infections; or eye, nose, and ear infections. Open dumps also attract pests such as insects, rats, bears, birds, and raccoons that can potentially hurt people and spread disease. People who depend on wildlife for subsistence are especially vulner-

able to illnesses stemming from open dump contamination.

In addition, illegal dumping of solid waste (such as major appliances, construction and demolition debris, and household garbage) and hazardous waste (such as chemicals, pesticides, and medical waste) poses a significant threat to the surrounding soil and ground water. Open dumps can catch fire and release particulate matter and dioxins into the air and ecosystem. Some waste can even harbor vectors for disease, such as mosquitoes breeding in old water-filled tires.

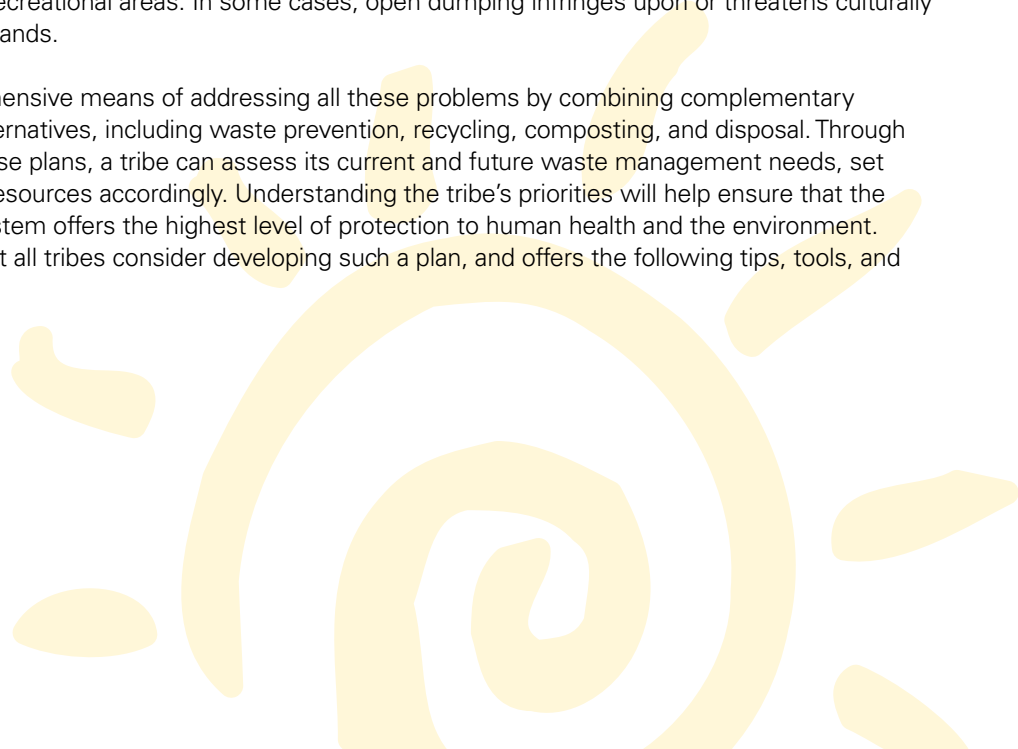
Burning waste can also release dangerous chemicals into the



atmosphere where they are inhaled immediately or settle on plants and bodies of water. Once the chemicals are released into the atmosphere they may enter the food chain. Air pollutants released by backyard burning include dioxins, fine particulate matter, carbon monoxide, nitrogen oxides, polycyclic aromatic hydrocarbons, volatile organic compounds, and hydrogen chloride. The ash residue from burning also can contain dangerous levels of toxic heavy metals, such as mercury, lead, chromium, and arsenic, which can contaminate water or enter the food chain.

The impacts of improper solid waste management go beyond these health and environmental problems. Open dumps and backyard burning also degrade the land by destroying fish and wildlife habitat, and can threaten the species themselves. Many tribes and villages depend on these natural resources for their economic survival. In the Pacific Northwest, for example, salmon are central to many tribes' social, spiritual, and economic livelihood. Uncontrolled dumping and burning degrades other natural resources, such as timber, farm land, and recreational areas. In some cases, open dumping infringes upon or threatens culturally or spiritually significant lands.

IWMPs offer a comprehensive means of addressing all these problems by combining complementary waste management alternatives, including waste prevention, recycling, composting, and disposal. Through the development of these plans, a tribe can assess its current and future waste management needs, set priorities, and allocate resources accordingly. Understanding the tribe's priorities will help ensure that the waste management system offers the highest level of protection to human health and the environment. Thus, EPA suggests that all tribes consider developing such a plan, and offers the following tips, tools, and success stories.





Waste Management: Developing an Integrated Plan for Your Tribe

Managing waste is a challenge because it poses unique problems, is pervasive throughout all aspects of life, and must often be handled with limited resources. Therefore, it is important for each tribe to develop a strategy for handling waste that prevents harmful methods of waste disposal and instead includes alternative solutions that lead to safer waste management practices that will work and will be sustainable in the long-run. To help develop such a strategy, the U.S. Environmental Protection Agency (EPA) recommends that every tribe create a detailed, comprehensive plan, known as an Integrated Waste Management Plan (IWMP).

What Is an IWMP and Why It Is Important?

An IWMP is a document that outlines various aspects of waste management, including the collection, storage, and disposal of waste, source reduction, recycling and composting, facility management, and budgeting and financing. This plan identifies existing solid waste systems, assesses needs, and sets forth the ways to design, implement, and monitor a more effective and sustainable solid waste management program.

There are several reasons why every tribe should create and implement an IWMP. A plan can serve as a roadmap for developing an effective waste management program and can help guide your

tribe's waste management efforts. In addition, the plan will help your tribe identify successful strategies for managing both current and future waste streams. This will help your tribe anticipate and meet both existing and future needs.

In addition, developing an IWMP is useful because it provides tribes with a way to identify waste management funding needs, research potential funding sources, and track funding requests. Outlining the necessary resources, including a budget and schedule, will help to ensure that the financial needs of tribes are understood, thus ensuring the sustainability of the waste management program. Furthermore, government agencies that provide financial assistance to

tribal communities for solid waste management look for sustainable programs and detailed financial planning (see "Tips for Funding an Integrated Waste Management Plan" on page 23).

Geography, demographics, financial needs, cultural needs, and current waste management practices are all described in an IWMP. For these reasons, no two IWMPs are exactly the same. Plans should be specific to each tribe and based on the tribe's technical and financial resources, as well as its priorities. Therefore, each plan should provide the specific information and guidance a tribe needs to make critical decisions regarding waste management.



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Key decisions that should be addressed in the process of planning for and writing an IWMP include:

- Is waste management a top priority?
- What are the most challenging waste management issues?
- What opportunities exist for waste reduction?
- What type of collection system can the tribe use for waste and recyclables?
- How much funding will be needed to implement the program now and sustain it in the future?
- What resources are available?

Setting Goals

Every IWMP needs a set of goals and objectives (see "Goals: The Backbone of Your IWMP" on page 15). For example, if illegal dumping is a problem in your community, a goal might be to reduce the number of illegal dump sites by using enforcement tools.

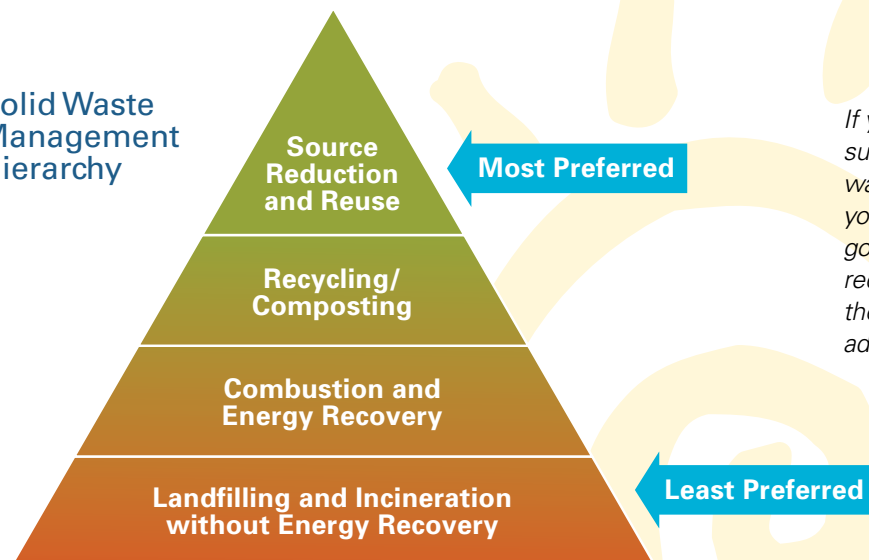
Goals may vary, but should be identified and established at the beginning of the planning process to help create a vision. They should also include targets to measure progress. Generally, the goals should follow the hierarchy of waste management, which prefers source reduction, followed by reuse, recycling, and disposal. Other goals and objectives may be:

- Protecting tribal members' health and safety.
- Obtaining tribal governments' support for funding and enforcement of waste management issues.
- Enhancing waste reduction programs to achieve a minimum of 50 percent waste reduction.
- Coordinating and communicating with other jurisdictions and government entities to carry out components of the plan.
- Increasing public awareness of solid waste issues through education and information dissemination.

- Creating convenient recycling opportunities throughout the community.
- Maintaining efficient and environmentally safe landfill operations.
- Providing incentives to separate, reduce, reuse, and recycle.

Waste management is a complex puzzle with many pieces. An IWMP will enable a tribe to look at various aspects of waste management and determine the best course of action for implementing and operating an integrated program. Whether the goals are short- or long-term, a coordinated and comprehensive plan will guide and focus efforts toward achieving success. Ultimately, an IWMP will help a tribe reduce, manage, and dispose of waste through a system that offers the highest level of protection to the health of tribal members and the environment.

Solid Waste Management Hierarchy



If you would like to follow the suggestions of EPA's solid waste management hierarchy, your waste management goals should focus on source reduction and reuse as being the most preferred ways to address solid waste.



Blackfeet Nation Plans for a Cleaner Today and Greener Tomorrow

In Montana, the Blackfeet Nation has adopted a comprehensive approach to solid waste management that has led to a more efficient waste disposal program. To devise this comprehensive approach, the Blackfeet Nation developed an Integrated Waste Management Plan (IWMP). This plan helps the tribe meet its current and future waste management needs.

The Blackfeet Nation Environmental Office created its IWMP several years ago, with assistance from EPA Region 8. In creating the plan, the Environmental Office gained a better understanding of the resources and programs that existed, accomplishments, needs, and what resources were lacking, says Gerald Wagner, Director of the Blackfeet Nation Environmental Office.

As part of the development of their IWMP, the environmental staff discussed various waste management options, including opening a new certified landfill. Public meetings were held to gather the community's input. In the end, when implementing the IWMP, the Blackfeet Nation chose to construct a transfer station to

collect, process, and haul trash to a certified offsite landfill.

The IWMP development process also led to the determination that, ideally, the Blackfeet Nation's solid waste program should be carried out by one full-time, fully funded employee. However, even without a full-time employee dedicated to implementing the IWMP, the staff has been able to become more organized. These efforts have allowed staff to respond to calls and inquiries about waste, ensure regulatory compliance, and investigate incidents of illegal dumping as well as other crimes.

Another outcome from developing an IWMP has been that Mr. Wagner is able to more effectively explain the solid waste

program to tribal members, especially those who believe that waste management services should be free of charge. The Environmental Office provides trash containers for a fee to construction sites, people undertaking renovations, special events, and more. The Environmental Office also charges fees for hauling the trash and may have to raise these fees in the future.

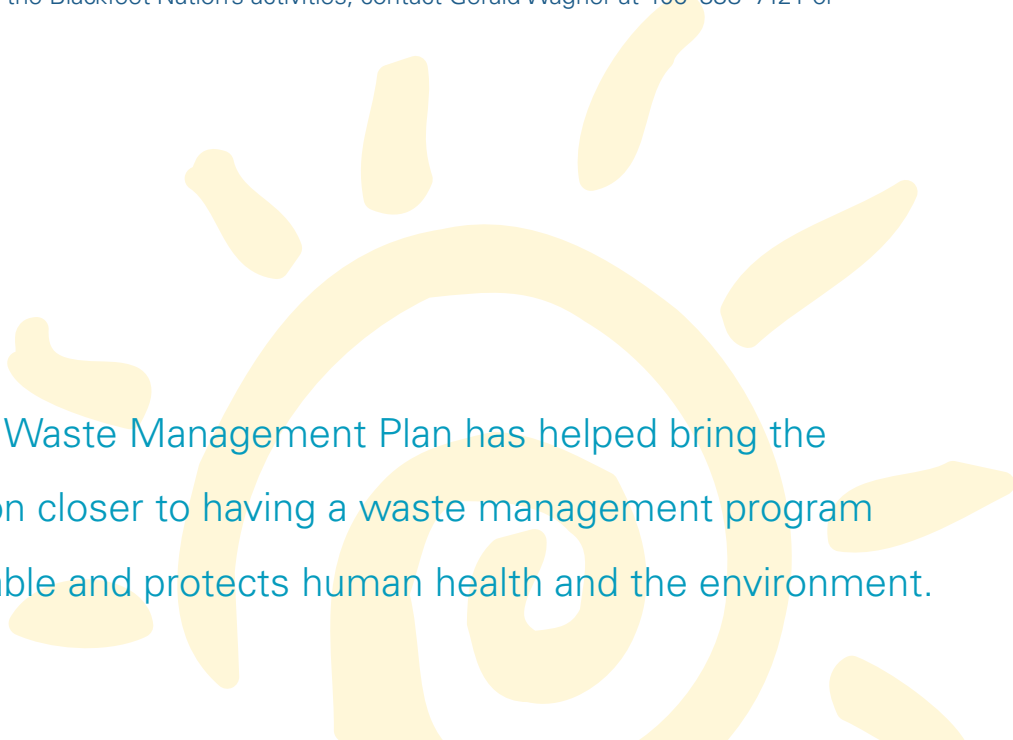
"Many people have the mentality that they don't have to pay for government services, and this myth has to be dispelled," explains Mr. Wagner. "The IWMP helps us do that by letting people see what they're getting for their money."



In addition, the plan has helped bring the Blackfeet Nation closer to having a waste management program that is sustainable and protects human health and the environment. The goal of the Blackfeet Nation's Environmental Office is to protect, preserve, and enhance the environment on its tribal lands through environmental stewardship. This plan is a large part of the Blackfeet Nation's efforts to meet this goal.

The IWMP also has been helpful in meetings with the Blackfeet community and elected officials to demonstrate what the Environmental Office is doing, future goals, and what resources are needed for managing wastes on tribal lands. In addition, the IWMP illustrates how every tribal member plays a role in keeping the Blackfeet Reservation, as well as Big Sky country, clean and safe. "Questions about solid waste need to be rephrased to ask, 'What are we going to do about the trash problem? What are we going to do about open dumping?'" Mr. Wagner says. "Everyone has to be part of the solution."

For more information on the Blackfeet Nation's activities, contact Gerald Wagner at 406-338-7421 or gwagner@3rivers.net.



The Integrated Waste Management Plan has helped bring the Blackfeet Nation closer to having a waste management program that is sustainable and protects human health and the environment.



Waste: What it is and Why it Matters

Countless items and materials contribute to the waste stream. These items can be placed into two categories, based on the nature of the item and disposal requirements. The first category, general household and commercial waste, typically includes everyday products and items used at home and in the office. The second category of waste, known as "special waste," includes items that require special arrangements for disposal. The following provides more information on these two categories of waste and related sub-categories.

General Household & Commercial Waste

General household and commercial waste is generated from the everyday items we use at home and at work such as food scraps, newspaper, paper, cardboard boxes, bottles, cans, and much more. General household and commercial waste consists of the items typically thought of as "garbage" or "trash."

Many communities and businesses have created and implemented practices to reduce, recycle, and better manage everyday waste. Recycling programs, where materials like glass, metal, plastics, and paper are collected, separated, and sent to facilities that process them into

new materials or products, have become more common. In 2006, more than 8,660 curbside collection programs served roughly half of the population in the United States.

However, for many tribal communities, their geographic location and rural setting creates additional challenges for efficiently managing waste. Being located far from any municipality or city can make it difficult to properly dispose of waste. Part of the solution could be to partner with neighboring communities to hold collection events and include these waste streams in their Integrated Waste Management Plans. The best option is, of course, to generate less waste in the first

place. Common waste prevention practices include reusing plastic bottles, bags, containers, and coffee mugs; substituting paper with cloth napkins; and purchasing items that are durable, made from recyclables, and packaged in less material.

Special Waste

Waste that requires special handling or consideration when being disposed of is often referred to as "special waste." This waste is not normally collected with other solid waste and requires special planning for proper disposal. The following types of waste are included in this category.



Partnering with neighboring communities to hold collection events and build other waste streams into their waste management systems can prove to be effective and efficient options.

Household Hazardous Waste

Some products used for everyday household cleaning and upkeep contain corrosive, toxic, ignitable, and/or reactive ingredients. These products are considered to be “household hazardous waste,” which can be harmful to humans and the environment if they are not disposed of properly. Often people do not realize that leftover household products, such as oil, batteries, cleaners, furniture polishes, and paints, need to be disposed of in a special manner. Improper disposal, such as pouring these wastes down the drain or dumping them in the backyard, can lead to explosions, fires, and contamination of soil and ground water. Hosting semi-annual or annual collection events and partnering with other local communities to combine volume and reduce hauling costs can help to effectively manage household hazardous waste.

Construction and Demolition Debris

Construction and demolition (C&D) debris is generated from a variety of construction and demolition activities. The quantity and type of C&D debris can vary greatly depending on the type of construction (e.g., office buildings, recreational facilities, schools, and residences), and the type of project (e.g., new construction, remodeling, renovation, clearing of land, and road repair). C&D debris is generally bulky waste

and can include wood, broken concrete, steel, asphalt, brick, plaster, wallboard, and piping.

Many components of C&D debris can be recycled including asphalt, concrete, wood, metals, and even “mixed-waste” rubble. Recycling facilities for these materials vary by market (check with your local municipality to see what items they accept for recycling). In addition, some C&D debris may be considered hazardous waste and should be separated and disposed of properly.

Batteries

Batteries of every shape and size serve as a convenient power source in everything from children’s toys to emergency radios, but once a non-rechargeable battery no longer produces power, it is considered a special waste and requires proper disposal. Batteries contain heavy metals such as mercury, lead, cadmium, and nickel, which can contaminate the environment.

When burned, these metals can be released into the air or can concentrate in the ash. All batteries can and should be recycled. The Web site of the Rechargeable Battery Recycling Corporation, a nonprofit organization, can help you find a nearby battery and cell phone recycling location by zip code. Also, be sure to visit Earth 911’s Web site, www.earth911.org/consumer/index.php, to locate one of the more than 50,000

recycling or reuse locations nationwide.

Tires

Scrap tires from cars, trucks, and farm equipment, when improperly disposed, can pose a threat to human health and the environment. Placing scrap tires into a landfill or dumping them into a large pile creates multiple threats, such as the potential for large, difficult-to-extinguish fires that release smoke and toxic oils. The shape of tires also collects and holds rainwater, creating an ideal habitat for breeding of mosquitoes and rodents that can carry diseases. For more information on scrap tires and how to recycle them, visit www.epa.gov/osw/conservematerials/tires/publications.htm.

Used Oil

Used motor oil is insoluble, slow to degrade, and can contain toxic materials. During normal use, oil can get mixed with dirt, metals, water, and chemicals, which is why it needs to be replaced periodically with new oil. But when used oil is disposed of improperly or dumped illegally, it can pollute waterways and contaminate drinking water supplies. Used motor oil can be recycled, and many service stations or local recycling centers have collections for motor oil recycling.



Medical Waste

Medical waste is all waste materials generated from health care facilities, including hospitals, clinics, physicians' offices, dental practices, blood banks, medical research facilities/laboratories, and veterinary hospitals/clinics. Examples of medical waste from health care facilities include bandages; culture dishes and other glassware; discarded surgical gloves; discarded surgical instruments; discarded needles used to give shots or draw blood; cultures, stocks, and swabs used to inoculate cultures; removed body organs; and discarded lancets.

Medical waste can also be generated in the home, such as needles and syringes used in diabetes care. Medical waste can be infectious, hazardous, or radioactive, and it is important for this type of medical waste to be disposed of properly. Visit www.epa.gov/epawaste/nonhaz/industrial/medical/disposal.htm or [www.naepc.com/announcements/THCbook\[1\].pdf](http://www.naepc.com/announcements/THCbook[1].pdf) for safe disposal methods of medical waste.

Other

Additional types of special waste include, but are not limited to, furniture, appliances, automobiles, liquid waste, asbestos waste, petroleum contaminated soil, and yard and agricultural waste.

Due to the rural locations of some tribal communities, some tribes face unique challenges for managing waste, particularly special waste. Partnering with neighboring communities to hold collection events and build other waste streams into their waste management systems can prove to be effective and efficient options. Also, tribes can explore regional resources at www.epa.gov/epawaste/wycd/tribal/about.htm and contact their regional coordinators to learn about potential partnership opportunities, established programs in their area, and available support for establishing waste management systems.

Being aware of the various types of waste is the first step to understanding how to properly dispose of items once they are no longer needed. Whether at home, at work, or elsewhere in the community, waste is a complex issue that requires a well-developed management plan for reduction and disposal. Visit www.epa.gov/epawaste/index.htm for more information.



Washoe Plan: A Roadmap for Recycling Success

The Washoe Tribe of Nevada and California recently proved that even good recycling and hazardous waste management plans can be improved through the development of an Integrated Waste Management Plan (IWMP). After developing an IWMP several years ago, the tribe improved its recycling program to make it more effective and more accessible to the community.

When the Washoe Tribe began developing their IWMP in 2002, they already had recycling and hazardous waste plans in place. The next year, the tribe started developing their IWMP by collecting data from members on their daily habits, solid waste needs, interest in recycling and composting, and more. Tribal representatives gathered this data by distributing questionnaires and going door to door to talk to community members. Approximately 80 percent of residents responded to these inquiries. Then in 2004, a waste stream analysis (WSA) was conducted to determine the quantity and composition of the solid waste generated within the communities. The WSA involved hands-on community waste sorts and was a collaborative effort between

Douglas County Disposal and the tribe. The WSA provided significant data to assist with the IWMP. "This proved to be one of the most important steps in developing the IWMP," says Washoe Environmental Director Marie Barry. In 2004, the tribe completed its IWMP, which was then approved by their tribal council.

The tribe's plan provided several options for solid waste collection, including recycling and composting, and they have implemented several components of this plan. Most notably, the tribe started a curbside recycling program. This program has been very successful and has led to a significant increase in the amount of material that is recycled rather than thrown in the trash. "If resources were available,

we could go from two to three pickups a week because of all the material we're collecting," says Ms. Barry.

This success is largely due to the fact that the recycling program is easy for residents to use. Each participating household receives three stackable recycling bins, and the tribe collects plastics, paper, cardboard, and other materials twice a week (once for residents and once for businesses). The recycling bins were purchased through a grant from the Nevada Division of Environmental Protection. Before the curbside recycling program was implemented, people had to take recyclables to dropoff areas once a week. Curbside pickup has made recycling much more accessible to the entire tribe, which



Photos provided courtesy of the Washoe Tribe of Nevada and California.

stretches across three communities in Nevada and one in California. These pickups are supplemented with community cleanups, where residents bring material to a central location for disposal.

Since implementation of the IWMP, the tribe has learned that outreach is an important part of successful waste management. The Washoe Environmental Protection Department distributes monthly newsletters and participates in community and tribal council meetings to inform members about the solid waste program's activities. Children are also a special focus of the outreach efforts, as children are often eager to learn about the environment and can educate their parents. Outreach to children is conducted at several places, including local Head Start facilities and Project Venture outings. The tribe also hosts events throughout the year, such as Earth Week, which feature waste-related activities.

The tribe's resources are limited, and their greatest challenge remains financial. While residents do not have to pay for curbside recycling, they do pay for waste removal, so some residents delay disposal of their trash until community cleanup days. In addition, non-residents are known to come onto tribal lands to dump garbage illegally. This is becoming increasingly common as more cities and towns grow in size and begin to encroach on tribal lands. Development of the IWMP also led to implementation of a Washoe Tribe telephone hotline that residents can call to report illegal dumping.

Despite their limited resources, the Washoe Tribe is continuing to look for ways to make their waste management program more sustainable. For example, tribal representatives participate in a Nevada Tribal Solid Waste Group, which meets twice a year and includes representatives from the U.S. Environmental Protection Agency, Nevada Division of Environmental Protection, U. S. Department of Agriculture, Indian Health Services, and Bureau of Indian Affairs. Participants are trying to develop a business plan for a sustainable joint recycling program. The IWMP has also led the tribe to sell scrap metal and participate in automobile recycling. In addition, the tribe has considered opening their own transfer station, where fees from collected materials could help fund the solid waste program.

For more information on the Washoe Tribe of Nevada and California's activities, contact Marie Barry at 775-265-8682 or marie.barry@washoetribe.us.



Five Elements for a Successful IWMP

An Integrated Waste Management Plan (IWMP) is a document that outlines how a tribe or village will reduce, manage, and dispose of its waste. It offers a comprehensive approach for managing waste, thereby protecting human health and the environment.

Through the preparation of these plans, a tribe can assess current and future waste management needs, set priorities, and allocate resources accordingly. However, until now, little information was available on how to develop an IWMP. To assist tribes, the U.S. Environmental Protection Agency's (EPA) Office of Resource Conservation and Recovery (formerly the Office of Solid Waste), along with several EPA regional offices and other federal agencies, have described five elements that should generally be included in a tribe's IWMP, unless information is provided that such element(s) are not appropriate or necessary. These elements can help a tribe meet solid waste management goals and protect both the health of tribal members and the environment.

The five elements described below represent the basic items that should be included in an IWMP. However, a plan may not necessarily need all of the elements due to the tribe's particular situation. If the tribe, for example, has a contract or some other mechanism in place to collect, transport, and dispose of waste, an abbreviated plan would be considered sufficient.

First, a tribe completing an IWMP should include a description of the community service area. Defining the current and projected extended community that may be served by the plan is important to effectively address current and future solid waste needs. This background information will also be helpful when preparing later sections of the IWMP.

Information on population and demographics, including population projections, should go into this section. Projections and related waste generation rates can be used to estimate the life spans of available disposal facilities and predict future needs. The section should also include information on households and housing. Data on the number and location of households and housing clusters, for instance, can be used to predict how fast waste will be generated, assess proposed alternatives, develop fee structures, and predict revenue.

In addition, community assets, resources, and the local economy should be addressed when describing the community service area. Such details can be used to assess community-specific economic needs and predict

An IWMP should include:

1. Description of the community service area;
2. Description of the tribe's waste management program structure and administration;
3. Description of the tribe's current and proposed waste management practices;
4. Description of the funding, sustainability, and long-term goals of the tribe's waste management program; and
5. Documentation of approval of the IWMP by appropriate governing body.

the specific needs of factories and other industrial generators of waste. The section should also include climate information, as local climate conditions may determine the feasibility of waste collection, storage, transfer, and disposal plans.

Tribes may also want to include information on geography, geology, and natural resources. Geographical features may limit final disposal options and dictate specific needs of the solid waste program. Information about the geological and engineering properties of the ground and soil is particularly important when considering landfill site selection, closure of existing dumps, and economic feasibility studies.

To collect this information, begin by visiting the U.S. Census Bureau Web site at www.census.gov. A tribal, local, or county housing office might also provide statistical information about the population.

Depending on the size of the community served, conducting local surveys can be effective for gathering details. All sources should be cited in an IWMP.

Second, a tribe's IWMP should include a description of the structure and administration of the solid waste program. These details will provide a basis for decisions about long-term management plans, and will clarify necessary improvements to maintain a successful solid waste program. A description of codes and ordinances and information about related enforcement policies also are important in maintaining compliance.

To gather this information for the IWMP, begin by speaking with other local (tribal and nontribal) solid waste program managers to assess the effectiveness of their organizational structure, codes and ordinances, and enforcement strategies already in use.

Third, an IWMP should include a description of the tribe's current and proposed waste management practices.

The section should be detailed enough that the strengths and weaknesses of existing and proposed practices can be assessed. The description of current waste management practices should address who is generating the waste; the amount and composition of waste generated; estimates of how much waste will be generated in the future; the number of unmanaged waste sites; how household, special, and hazardous waste is collected, transferred, and disposed; waste reduction practices; and descriptions of waste disposal facilities, regional infrastructure, and current partnerships. Presenting the current practices in detail will clarify the elements of the existing program that are successful and any that should be improved.



The description of proposed waste management practices should include information about special considerations, limitations, and inefficiencies of the current program as well as equipment and facility needs. Furthermore, the description should include a detailed alternatives analysis, with information about the cost and feasibility of the alternatives considered and details about the proposed waste management and waste reduction practices, such as information about the collection and disposal of all waste, including special and hazardous waste. In addition, the description should include language describing potential partnerships, compliance and enforcement issues, community education efforts, and the tribe's implementation strategy.

Presenting the proposed practices in detail will help define the aspects of the considered alternatives that are most beneficial to the solid waste program. Also, providing information about proposed partnerships, enforcement policies, community education, and implementation will show governing bodies and potential funding sources that the plan is well thought out and likely to succeed.

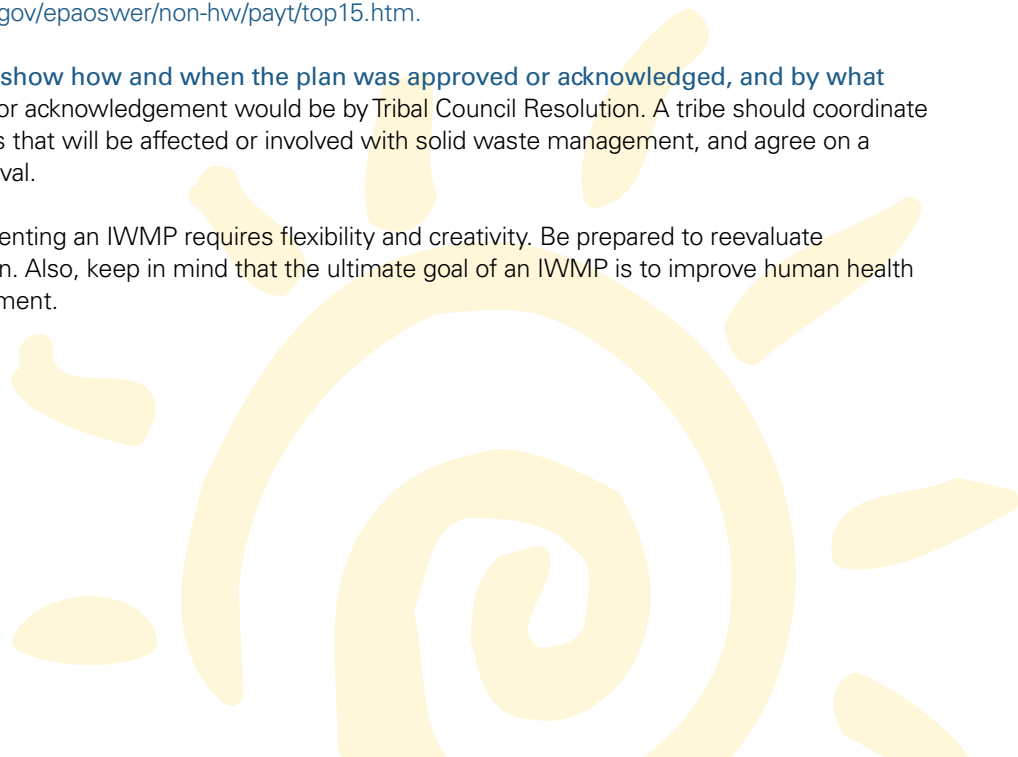
A tribe could take any of numerous approaches to collect the information to satisfy this element of an IWMP. For example, they might inventory the current waste generators and determine the categories they fit into, and compile a list of potential future waste generators. This would include residents as well as businesses, schools, and government facilities. A tribe might further inventory the weight and volume of waste managed by the system in order to determine values per capita, per industry, and so on. Many states maintain Web sites that provide waste generation rate data. EPA also has reports and links to state and national data at www.epa.gov/msw/index.htm.

Fourth, an IWMP should include a description of the funding, sustainability, and long-term goals of a tribe's solid waste program. This element describes an entity's long-term goals and strategies for financing and sustaining its waste management program. This section also should show how the waste management program will effectively serve the community. Full descriptions in this area should show a commitment to improving services beyond basic compliance.

A tribe could use a variety of methods to collect the recommended information, such as consulting with other tribal waste management programs for ideas about sustainable funding, and with other programs serving communities with similar geography and populations for ideas about developing the most effective fee structure. A tribe should look at a roster of current waste generators to get an idea of how much it might collect in fees, and should consult information on the number of households served and estimated population growth to project estimates of future revenue. EPA provides links to resources used in developing fee structures at www.epa.gov/epaoswer/non-hw/payt/top15.htm.

Last, an IWMP should show how and when the plan was approved or acknowledged, and by what entity. Ideally, approval or acknowledgement would be by Tribal Council Resolution. A tribe should coordinate with governing agencies that will be affected or involved with solid waste management, and agree on a format to indicate approval.

Developing and implementing an IWMP requires flexibility and creativity. Be prepared to reevaluate components of your plan. Also, keep in mind that the ultimate goal of an IWMP is to improve human health and protect the environment.





Goals: The Backbone of Your IWMP

Determining where to begin when developing, implementing, or updating your Integrated Waste Management Plan (IWMP) can be a challenge. To overcome this challenge, tribes can start by evaluating their current waste management practices and identifying existing or potential problem areas. This will help during the second step: setting goals for the IWMP and waste management program.

Developing practical and achievable goals is one of the most critical steps in the process of creating an IWMP. These goals will serve as the backbone of the waste management program. In addition, short- and long-term goals will guide planning and can help tribes focus on their priorities. Goals also provide a target to help measure progress. For example, if a tribe sets a goal of reducing backyard burning, it can measure its progress by how much backyard burning decreases.

A tribe's goals should address the problems or opportunities within its current waste management practices. A good way to determine goals is for tribes to list their values and what they would like to accomplish. In doing this, tribes should actively

solicit input from members to better understand the range of issues that members want to solve and accomplishments they want to achieve. While some goals should address short-term accomplishments, others should focus on the long term. Typical goals include encouraging more recycling and reuse, reducing the amount of trash sent to landfills, partnering with neighboring communities to save money on waste management practices, and discouraging open dumping.

Tribes should develop a goal statement for each problem and/or proposed improvement. A goal statement is a specific description of what needs to be done. For example, if the community has a problem with uncontrolled open dumping, the goal statement

might be: *Control open dumping to protect human health, the environment, and tribal resources.* Once the goal statement is defined, develop actions to accomplish this goal. To reduce uncontrolled dumping, an action might be: *Develop and enforce regulations that prohibit uncontrolled open dumping.* In this case, a tribe could evaluate their progress toward meeting this goal by measuring the number of uncontrolled dump sites in the community from year to year.

Once a tribe determines its goals, it will have completed an integral step to developing an IWMP. With clearly defined goals, a tribe can be sure their IWMP addresses their priorities and meets the needs of their community now and in the future.



The Perks of a Waste Management Plan

Tribes and Alaskan Native Villages can receive numerous benefits by developing Integrated Waste Management Plans (IWMPs). First and foremost, IWMPs can assist tribal communities in solving their most pressing waste management challenges, such as where to properly dispose of waste, how to reduce disposal costs, and how to increase recycling. Developing an IWMP also can help a tribe develop a self-sustaining waste program that is not only environmentally friendly but also helps pay for itself by selling recyclable materials. While these may be some of the greatest benefits of an IWMP, there are additional benefits to tribes.

For example, by developing an IWMP, a tribe is better able to determine and prioritize their waste management challenges. The process of creating an IWMP requires a tribe to evaluate various social, financial, technical, and environmental factors and identify what is most important when it comes to managing waste, whether it is saving money, being more environmentally sustainable, or moving trash away from homes. Once a tribe determines its priorities, it is better positioned to figure out how to spend money and which programs to implement.

Developing an IWMP also helps to increase awareness among tribal community members and leaders about waste-related issues and environmental topics. An IWMP is vastly improved when a tribe

gathers community feedback during the planning and decision-making process. In addition, this is an excellent opportunity to educate the tribal community about the importance of reducing, reusing, and recycling waste (the 3 Rs); the dangers of open dumps; and proper ways to dispose of solid and hazardous waste.

In addition to providing an educational opportunity, public involvement can help increase support for waste programs. Community members are more likely to support and participate in waste management programs when they are involved in the planning from the beginning. This is especially true when community members are involved in the decisions that impact their everyday lives, such as the frequency of waste

collection and the location of waste disposal facilities.

Another reason for tribes to develop an IWMP is that the process can help them identify new funding sources. To create an IWMP, tribes should assess their financial resources to determine how to pay for new programs. Through this process, tribes can discover new ways to obtain funds, such as grants; or other ways to generate revenue, such as selling scrap metal.

These are just a few of the many benefits of developing an IWMP. Every tribe is unique; therefore, every IWMP should be developed to meet the needs of a specific tribe and its waste management challenges.



The TSWAN Template: A Model for Waste Management Success

According to the Tribal Solid Waste Advisory Network (TSWAN), a nonprofit alliance of tribes that strives to improve waste management on tribal lands, more than 80 percent of its 29 member tribes do not have viable Integrated Waste Management Plans (IWMPs). Tribes may not have a plan or may not have updated their existing plan in recent years. To encourage tribes to develop and update IWMPs, TSWAN developed an IWMP template.

The Advantage of IWMPs

The numerous benefits of IWMPs are highlighted throughout this publication. In addition to those previously cited, an IWMP can help tribes that experience frequent turnover among decision-makers. An IWMP can ensure that a tribe's long-term priorities and goals are clearly defined from one decision-maker to the next. IWMPs can also help satisfy the growing demand among many tribes to be more environmentally friendly.

In addition, some tribal communities have started to charge a fee for waste disposal. Implementing an IWMP can help tribes develop a systematic approach for determining these fees.

TSWAN encourages all tribes to develop IWMPs because the plans can be so beneficial. However, TSWAN also recognizes that creating an IWMP can pose an administrative burden and that some tribes may be uncertain about what to include in their plan. To assist tribes in overcoming these challenges, TSWAN developed its own template of an IWMP.

Understanding the Template

The TSWAN template enables the user to fill in the blanks with information pertaining to their unique situation to create a custom IWMP. While the template may be used by any tribe, it may not be perfectly suited for Alaskan

Native Villages because of their unique circumstances. (For more information on a template suitable for native villages in Alaska, see page 19.)

TSWAN divided the template into three parts for a phased approach. The first is a step-by-step guide for collecting information that helps to determine what data are needed for the IWMP. The second part is where the user inserts information and data. Using the inserted data, the template helps generate graphs and charts to aid the user in determining the best waste management tools and protocols for a tribe's situation. The third part of the template includes sample language for a tribe to use to create a draft document.



In addition to the three parts, the template includes chapters on brownfields and special wastes, and soon will include a chapter on construction and demolition debris. While the chapters together create a comprehensive document, each chapter in the template can also stand alone. For example, after users fill in the necessary information for the recycling chapter, they can either use that section as part of a larger IWMP or make it their tribal recycling plan.

Implementing the Template

TSWAN's template is available to all tribes, not just TSWAN members. To date, TSWAN has distributed the template throughout EPA Regions 4, 9, and 10. Approximately 27 tribes in EPA Region 9 are using the template. In addition, since 2006, TSWAN has employed a circuit rider who has assisted several tribes, at no cost, with using the template. A few tribes also have hired their own contractors to help them develop IWMPs using the template. This method cuts contractor costs significantly because the template reduces the amount of work that contractors must perform compared to the work necessary to develop an IWMP from scratch.

Now that the template is successfully being used, TSWAN's future steps include developing a training package that will help tribes gather data on waste issues and hosting a 3- or 4-day training course for tribal representatives on developing an IWMP. Training participants will leave the course with a partial draft of an IWMP to bring back to their tribes for completion.

Anyone interested in obtaining a copy of TSWAN's template may contact Kami Snowden, Executive Director of TSWAN, at 509-235-6007 or ksnowden@tswan.org. For more information on TSWAN, visit www.tswan.org.



New IWMP Tool for Alaska Tribes And Native Villages

In the past, some Alaska tribes and native villages have hired consulting firms to write their Integrated Waste Management Plans (IWMPs). However, many of these consultants do not have the experience of living in rural areas of Alaska and, therefore, are unfamiliar with the different logistical, social, cultural, and financial circumstances posed by these remote places. Unfortunately, due to this lack of knowledge, many tribes have found that the plans developed by consultants did not address their particular village or community's needs for waste management.

To assist Alaska tribes in writing an IWMP to address their specific needs, Zender Environmental Health Group, a nonprofit organization, has developed the "Alaska Tribal Integrated Solid Waste Plan Template" (www.zendergroup.org/plan.htm). Zender designed the template to reduce the need for assistance from outside consultants in writing a plan that contains all of the necessary elements.

The template is a tool that encourages community participation and meets the individual and cultural needs of a village. It provides a unique, fill-in format, with examples that can be modified or deleted according to a tribe's particular situation. The

examples provide suggestions and are focused on reducing the health and environmental risks posed by solid waste disposal in rural Alaska. The template also includes online references in each section for additional help and features auto-numbered contents, chapters, table headings, and page numbers for ease of formatting and navigating.

Tribes and native villages can use the template to develop a full IWMP, or they can extract one or more of the 26 different tables and multiple sections to use for assisting in writing grants, as informational tools during community meetings, as operational checklists, or toward specific project planning tasks.

Filling out the template assists tribes in describing their cultural history, current solid waste management practices, and how those practices could be more effective and efficient. Several of the tables in the template can help users prioritize their solid waste management activities based on select factors, such as traditional values, protection of subsistence resources, community health, and creation of jobs. These tables enable users to present alternatives to their Tribal Council or community members.

The most widely used sections of the template are the special waste tables, which were developed based on techniques used by commercial solid waste



Photos courtesy of Zender Environmental Health Group.

engineers and scientists. These tables (available in Microsoft Word® or automated in Microsoft Excel®) take advantage of each tribe or native village's knowledge of their own communities. The user simply plugs in the number of households in the tribe along with a few other items, and the tables then calculate the total annual weight of special waste that may be generated by the tribe, such as waste from used vehicles, computers, etc. The resulting numbers are more accurate than a standard waste characterization and estimates from textbooks and other studies. Using the tables to develop these estimates provides Alaska tribes and native villages with a critical tool to address their unique waste management issues.

After tribes and native villages have used the tables to generate waste estimates, they can use the numbers to begin planning for recycling equipment, community participation in recycling programs, and the purchase of hazardous waste storage sheds. Tribes and native villages also can use the tables to plan for "haul-back" operations because barge and plane companies often have minimum weight requirements. In addition, some small plane companies may have maximum weight limits for free haul service. Furthermore, they can also calculate the number of storage containers needed to house waste using the data generated by the tables. By providing annual waste generation numbers and weights, these tables allow for the development of a more comprehensive solid waste program.





General Waste Management Information

To learn more about the tools and programs currently available to help reduce waste and develop successful Integrated Waste Management Plans, visit some of the following Web sites.

U.S. Environmental Protection Agency (EPA), Office of Solid Waste and Emergency Response (OSWER), Tribal Programs

OSWER created this Web site to improve outreach, consultation, and communication efforts with tribes by providing relevant information about EPA's tribal programs and current efforts. This site features links to information on various topics, including tribal initiatives, publications, laws and regulations, and events and important dates.

www.epa.gov/oswer/tribal

Cornell Waste Management Institute (CWMI)

CWMI serves the public through research, outreach, training, and technical assistance programs

in solid waste disposal, management, and planning. This Web site provides information on CWMI's activities, electronic access to its library, and online files of waste management publications.

<http://cwmi.css.cornell.edu>

Council of Energy Resource Tribes (CERT) Environmental Program

CERT, a nonprofit, multi-tribal organization, has undertaken environmental protection services that include environmental audits and needs assessments and technical assistance in the development of environmental quality control systems and solid and hazardous waste management systems.

www.certreearth.com

Earth 911

This Web site provides local listings of recycling options for various items by state, city, or zip code. The site also provides information on product stewardship, green shopping, and activities for students and teachers. The same service is available by phone at 1-800-CLEANUP.

www.earth911.org

EPA Tribal Solid Waste Management Program

This page provides links to more in-depth information on EPA's waste-related programs in Indian Country.

www.epa.gov/epawaste/wydc/tribal/index.htm



EPA WasteWise Program

WasteWise is a voluntary partnership that allows organizations to create their own waste reduction programs. This Web site provides detailed information on WasteWise, including case studies and publications, and a registration form to get started.

www.epa.gov/wastewise

The Institute for Tribal Environmental Professionals (ITEP)

ITEP provides assistance to tribes in promoting effective environmental resource management. This Web site includes information on education, training, information services, intergovernmental relations, and environmental program development.

www4.nau.edu/itep

Keep America Beautiful, Inc.

This national, nonprofit, public education organization is dedicated to preserving the natural beauty and environment in American communities and improving waste handling practices at the community level. This Web site contains the organization's calendar of events, links to member community home pages, and other resources on waste management.

www.kab.org

National Safety Council, Safety and Health Policy Center

This site from the National Safety Council promotes environmental health and safety through programs focused on several topics, including air quality, sun safety, lead poisoning, hazardous chemicals, and solid waste. The solid waste portion of the site contains a link to the Electronic Product Recovery and Recycling Project and transcripts of broadcasts of the radio program EnvironMinute that focused on solid waste issues.

www.nsc.org

National Tribal Environmental Council (NTEC)

NTEC is a membership group of tribes and Alaska Native Villages dedicated to the protection and preservation of tribal land. NTEC services include solid waste program mentors, environmental technical support, workshops on environmental issues, intergovernmental cooperation, a resource clearinghouse, newsletters, updates, and federal regulatory and legislative summaries.

www.ntec.org

Solid Waste Alaska Network

While this organization's efforts focus on Alaska, its Web site provides numerous tools and fact sheets that may be useful to all tribes.

www.ccthita-swan.org

Solid Waste Association of North America (SWANA)

SWANA is a membership organization that encourages environmentally and economically sound solid waste management practices. This site provides information on SWANA conferences, publications, and local chapters. It also features an electronic bulletin board, recent solid waste news, and information on training and certification.

www.swana.org

Tribal Solid Waste Advisory Network (TSWAN)

TSWAN, made up of 14 federally recognized tribes throughout Alaska, Idaho, Oregon, and Washington, shares technical expertise, information, and opportunities regarding solid waste management policies and principles.

www.tswan.org



Tips for Funding an Integrated Waste Management Plan

Long-term funding is vital to the development and implementation of a sustainable Integrated Waste Management Plan (IWMP). Detailed planning can assist tribes in determining the amount of funds needed to implement a sustainable waste management program. Below are some tips on how to fund the development and implementation of an IWMP.

Outline and estimate major program costs. Costs associated with managing solid waste include:

- Program planning
- Facility design and construction
- Equipment purchases
- Cleanup
- Operation and maintenance
- Personnel training and administration
- Landfill closure and post-closure care
- Supplies

Identify sources of funding. Tribes may want to apply for both internal and external funding.

- Internal funding sources could include allocations from the tribe's general fund, user fees for solid waste services, revenue from the sale of recyclable materials, and tipping fees for accepting waste at a transfer station or landfill.
- External funding sources could include state financial assistance, federal grants and loans, and funds from private and nonprofit organizations. Remember that most grant funds and loans are intended as start-up funds for waste management programs, not

to sustain long-term programs and facility operation and maintenance.

- To help identify these opportunities, review announcements from federal agencies, conduct Internet searches, and talk to other tribes and regional representatives from government agencies.

Build relationships. Share information with neighboring governments and tribes through informal conversation or networking at conferences and meetings. Sharing information as well as past experiences can be mutually beneficial. In addition, speak with regional representatives from EPA and other federal agencies.



Agency representatives may be able to assist you with the application process and ensure that all paperwork is completed properly. They also can provide feedback and other pertinent information on grant applications that were not selected for funding.

Leverage non-monetary assets. In addition to applying for funding, look for opportunities to share resources. Sharing resources can help strengthen your solid waste management program. Partner with neighboring tribes and villages, local governments, or businesses, and share resources such as information, equipment, labor, materials, services, or facilities.

Break larger projects into smaller phases. Some tribes have found that there is a greater chance of receiving grants by breaking big projects into discrete portions and seeking funds for the individual parts. For example, obtaining \$75,000 for a portion of a project, such as purchasing a collection truck, may be easier to access than \$600,000 for an entire project.

Be persistent. Attempts to secure funding may not always be successful at first. Follow up on any unsuccessful applications to find out how to improve them for the next time. Make revisions based on the feedback and resubmit the applications at the next funding opportunity.

Ask for assistance. Applications for funding are often lengthy and complex. Follow instructions carefully, but never hesitate to ask questions about information that is unclear. Agency and regional representatives can help make sure applications are properly completed.

Plan for the future. When requesting financial assistance after an IWMP is in place, it is recommended that you state that you have a plan in place. It is important to present descriptions of specific grant and tribal funds that will sustain the program and describe how the financial plan will overcome deficiencies. Also, include cost estimates and projected revenue based on population and waste generation rate projections. Ultimately, the tribe should be able to sustain the operation and maintenance once grant funding is spent.

Securing funding for the initial and long-term success of an IWMP requires planning and persistent efforts. By keeping these tips in mind, tribes will be better prepared to find and secure the necessary support.





Funding Opportunities for Integrated Waste Management Plans

The following list describes funding opportunities provided by various government agencies and other organizations in support of tribal environmental programs.

U.S. Environmental Protection Agency (EPA)

Indian Environmental General Assistance Grant Program

The General Assistance Program can fund solid waste implementation projects, including projects to characterize and close open dumps, purchase equipment, and pilot solid waste collection programs.

www.epa.gov/indian/gap.htm

Tribal Solid Waste Management Assistance Project (TSWMAP)

The TSWMAP is an interagency program that funds projects that support the development and strengthening of tribal or cooperative multi-tribal solid waste management programs. The agencies involved in this effort

include EPA; the U.S. Department of the Interior, Bureau of Indian Affairs; the U.S. Department of Health and Human Services, Indian Health Service; the U.S. Department of Agriculture, Rural Development; and the U.S. Department of Defense. Eligible entities may apply for funding under one of four categories: (1) proposals to characterize/assess open dumps; (2) proposals to develop integrated solid waste management plans and tribal codes and regulations; (3) proposals to develop and implement alternative solid waste management activities/facilities (including equipment acquisition); and (4) proposals to develop and implement cleanup, closure, and post closure programs for open dumps in Indian Country.

www.epa.gov/epaoswer/non-hw/tribal/finance.htm

Region 9 Resource Conservation Funds Program

Funds through this program are available to federally recognized tribes in the Region 9 geographic area, and can support development of Integrated Waste Management Plans and solid waste codes, waste reduction plans, community outreach and education programs, dump characterizations, waste management feasibility studies, and pilot projects to develop sustainable integrated waste management programs, including recycling and composting projects.

www.epa.gov/region09/funding/tribal-solid-waste.html



Hazardous Waste Grant Program for Tribes

The Hazardous Waste Grant Program for Tribes provides grants for integrated hazardous waste management practices that are protective of human health and the environment. Funding supports building tribal capacity for developing and implementing hazardous waste activities; developing tribal organizational infrastructure; achieving economic sustainability of tribal hazardous waste programs; and building partnerships among tribes, federal agencies, states, and local communities.

www.epa.gov/epawaste/wycd/tribal/finance.htm#hazard

American Indian Tribal Portal—Grants and Funding

This EPA Web site provides links to tribal grant resources and is intended to help tribes and individuals to find information on all topics in one location. It also includes links to EPA and federal grant resources, regulations, and policies that are helpful for the tribal grant program applicant.

www.epa.gov/tribalportal/grantsandfunding/index.htm

U.S. Department of Health and Human Services, Administration for Native Americans

Environmental Regulatory Enhancement Grant Program

This program provides financial assistance for tribes in planning, developing, and implementing projects that are designed to improve their capacity to regulate environmental activities.

www.acf.hhs.gov/programs/ana/programs/program_information.html

U.S. Department of Health and Human Services, Indian Health Service (IHS)

Tribal Management Grant Program

Grants from this program assist federally recognized tribes and tribally sanctioned organizations.

www.ihs.gov/nonmedical/programs/tmg/index.asp

U.S. Department of Agriculture, Rural Development

Rural Development, Water and Environmental Programs

This program provides loans, grants, and loan guarantees for drinking water, sanitary sewer, solid waste, and storm drainage facilities in rural areas and cities and towns of 10,000 or fewer people. Federally recognized tribes may qualify for assistance for grants or loans to construct, enlarge, extend, or improve rural water, sanitary sewage, solid waste disposal, and storm water disposal facilities.

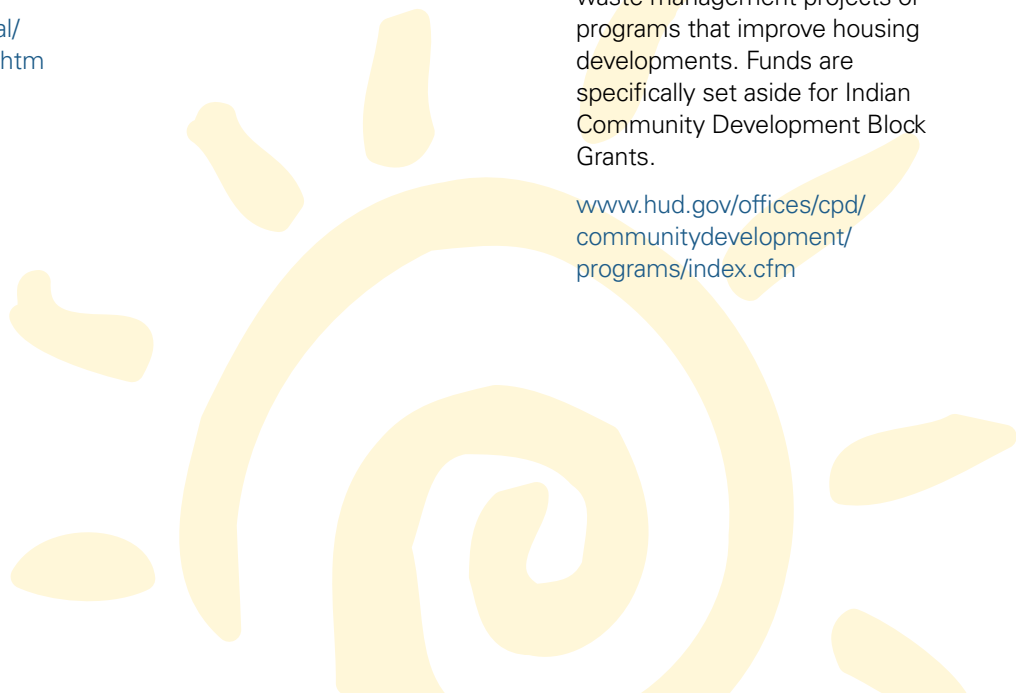
www.usda.gov/rus/water/index.htm

U.S. Department of Housing and Urban Development

Community Development Block Grants

This flexible program provides funding for a variety of community development projects. Several tribes have used these grants to fund solid waste management projects or programs that improve housing developments. Funds are specifically set aside for Indian Community Development Block Grants.

www.hud.gov/offices/cpd/communitydevelopment/programs/index.cfm





Today's Kids, Tomorrow's Recyclers

The average person in the United States creates approximately 4.6 pounds of waste per day, according to estimates from the U.S. Environmental Protection Agency. One way to reduce the amount of trash we produce is to teach the next generation about ways they can produce less garbage and reduce, reuse, and recycle (the 3 Rs).

Tips for Getting Kids Involved in Reducing, Reusing, and Recycling

Teach by example.

Kids learn a lot by observing their parents. If kids see that their parents recycle, they may be more inclined to do so themselves. For instance, you can set up recycling bins at home and explain how to use them. Then have all of the adults in the household recycle! Kids will quickly learn to identify items that can be recycled and in which bins the recyclable items should go.

Explain why it's important.

Make sure kids have an understanding of how their actions impact the environment. This will help them understand why recycling is important.

Be creative.

Develop creative ways to reach kids with messages about recycling. Create a poem or song about recycling, or hang pictures of recyclable items by trash cans.

Use the Internet (and other educational resources).

Many agencies and companies have created educational resources such as games, videos, Web sites, activities, and lesson plans to help teach children about recycling. These resources are geared toward children and most are available at no cost.

Create recycling activities.

Participate in hands-on activities to help teach kids to recycle. For example, organize a community activity, such as a nature walk, and pick up trash along the way. Let kids identify which items can be recycled and which cannot.



Produce Less Waste: Practice the 3 Rs With Your Kids

Reduce

We can throw away less stuff if we purchase long-lasting, durable goods and seek products and packaging that are as free of toxins as possible.

Reuse

We can use products, such as bottles, bags, and boxes, multiple times. Repair items when possible, donate items to charity, or sell them to someone who can use them.

Recycle

We can turn items that would be waste into valuable resources by recycling materials like glass, metal, plastics, and paper. Recycling facilities can process them into new materials and products.

Educational Resources For Kids

**U.S. Environmental
Protection Agency**

Environmental Kids Club

www.epa.gov/kids

Planet Protectors Club

[www.epa.gov/osw/education/
kids/planetprotectors/index.htm](http://www.epa.gov/osw/education/kids/planetprotectors/index.htm)

Recycle City

www.epa.gov/recyclecity

*Science Fair Fun: Designing
Environmental Science
Projects*

[www.epa.gov/enviroed/pdf/
sciencefair.pdf](http://www.epa.gov/enviroed/pdf/sciencefair.pdf)

Student Center

[www.epa.gov/students/
waste.htm](http://www.epa.gov/students/waste.htm)

Keep America Beautiful, Inc.

Clean Sweep U.S.A

www.cleansweepusa.org

**Wisconsin Department of
Natural Resources**

*EEK! Environmental
Education for Kids*

[www.dnr.state.wi.us/org/caer/
ce/eeek/earth/recycle/index.htm](http://www.dnr.state.wi.us/org/caer/ce/eeek/earth/recycle/index.htm)

*Waste Reduction: Thinking
More About Less*

[http://dnr.wi.gov/org/aw/
wm/publications/recycle/
publce-219-03.pdf](http://dnr.wi.gov/org/aw/wm/publications/recycle/publce-219-03.pdf)

**Humboldt State University,
The Center for Indian
Community Development**

*Environmental Protection
Native American Lands:
A Cultural Approach to
Integrated Environmental
Studies. Grades 1-12, Second
Edition (Curriculum)*

Phone: 707-826-3711

**The Association of
Postconsumer Plastic
Recyclers**

Kids Recycling Zone

www.kidsrecyclingzone.com



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