

SOLID WASTE AND VECTORS

Tribal solid waste management tools to address vector issues

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Region 9 Zero Waste Section – Tribal Solid Waste Team

This session will cover:

- How to complete an updated Open Dump Survey Form
- How to provide a plan for outreach and education around a cleanup event to cover vector-borne disease and prevention of future dumping
- How to provide a budget for cleanup by site which may include both cleanup costs and prevention-related costs

1. COMPLETING OPEN DUMP SURVEY FORMS

-- and how to include vector-borne disease analysis

How are survey forms used?

- Developing site universe information
- SDS and OMDS Lists
- Site-specific review by EPA HQ for GAP funding

Open Dump Survey Form

OPEN DUMP SURVEY FORM

Refer to OMDS field guide for definitions of terms

Version 12/05/2012

Site Name:	<input type="text"/>		
Community:	<input type="text"/>	Tribe:	<input type="text"/>
Site Status:	<input type="radio"/> Active (Open dump that is in use); <input type="radio"/> Inactive (Open dump that is no longer in use)		
Latitude: N	<input type="text"/>	(Decimal degrees format)	
Longitude W	<input type="text"/>	(Decimal degrees format)	
Land Status:	<input type="radio"/> Private <input type="radio"/> Trust (Individual) <input type="radio"/> Trust (Tribal) <input type="radio"/> Allotted <input type="radio"/> Fee		
Date Site was Surveyed: (MM/DD/YY):	<input type="text"/>		
<i>When Applicable - Date Site</i> <input type="radio"/> <i>Cleaned-Up</i> , or <input type="radio"/> <i>Closed: (check one)</i> (MM/DD/YY) <input type="text"/>			
<i>Note: Site cleaned-up indicates waste was removed and site is no longer used as a dump.</i>			
<i>Site closed indicates waste was left in place, properly covered and site is no longer used as a dump.</i>			

[Open Dump Survey Form \(PDF\)](#)

Open Dump Survey: Estimate Site Size

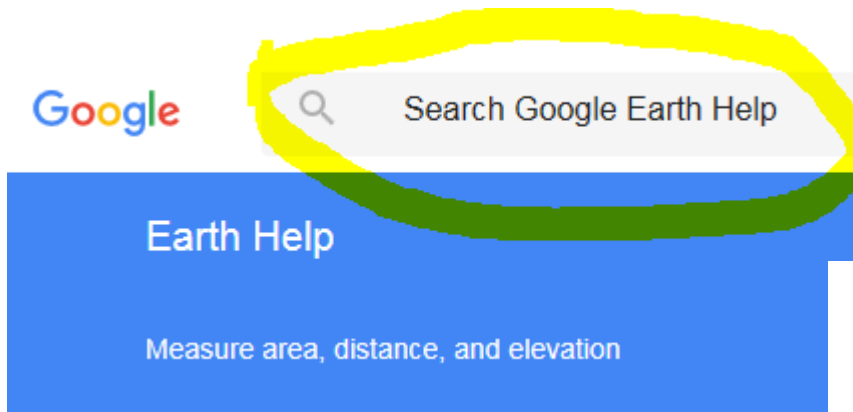
HQ approach

Area of a football field...?

Site Characteristics

1. Surface Area (Acres)
 # of Acres (1ac. ~ 90% football field)
2. Surface Volume (Cubic Yards) (1yd ~ pickup bed)
 # of Yd³





[Google Earth Guide: Measure distances and areas in Google Earth.](#)

Measure distances and areas in Google Earth

Use lines and shapes to check distances and estimate sizes of different features on Earth.


Find out what you can measure

In computer versions of Google Earth & Earth Pro, you can measure the length of the ground with a line or path.

In Earth Pro, you can also measure:

- Circumferences using circles
- Other areas using polygons
- 3D buildings

Take a measurement

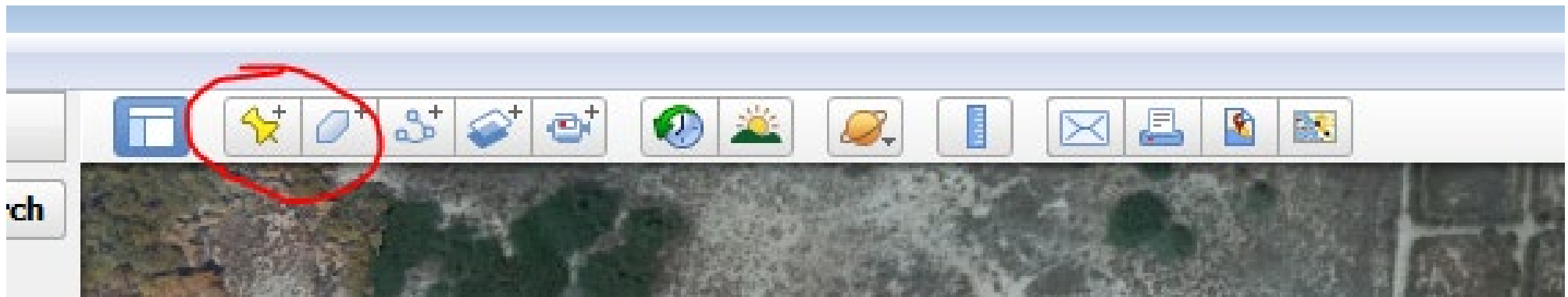
1. Open Google Earth.
2. [Navigate to a spot on the globe](#) .
3. In the menu bar, click **Tools>Ruler**. A box will appear.
4. In the bottom left corner of the Ruler box, make sure that **Mouse Navigation** is checked.
5. Click the tab for what you want to measure:

Find latitude/longitude

- What do you want to find? If you know roughly where your dump is, use Google Earth to find the site.
- Zero in on tribe location, then use roads and natural features to find where you want to be.
- Example: an unauthorized landfill site



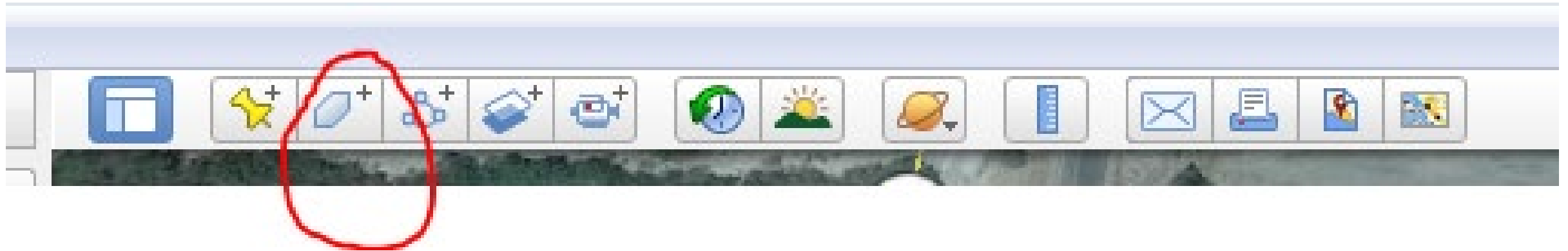
Use the pushpin in the tool bar to set a location, then ---



-- in lower right hand screen you find latitude & longitude



Use the polygon function in the toolbar to draw the area around the site – the finished shaped will calculate the area for you (next slide)



33.549722, -116.113055

Pierce St

Ruler

Line

Path

Polygon

Circle

3D path

3D

Measure the distance or area of a geometric shape on the ground

Perimeter:

0.11

Miles

Area:

0.51

Acres

☒ Mouse Navigation

Save

Clear

More uses for GoogleEarth

- Allows you to send photos of your site along with your site descriptions
- Allows you to go 'back in time' and view earlier photos of your site to show how site may have changed (although photos are updated with different frequency depending upon your area)

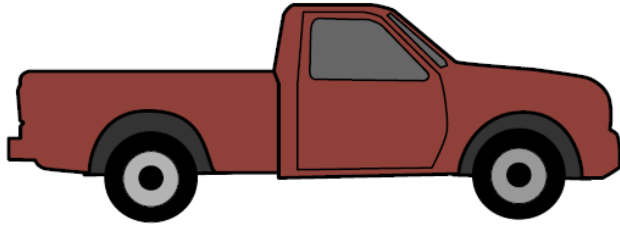
Open Dump Survey: Methods to Estimate Site Volume

- Provide information in cubic yards
- A cubic yard can be estimated
- What about the volume of material you're dealing with? Various online resources can help you estimate a number.

Resources available to estimate volume based on truck bed size:

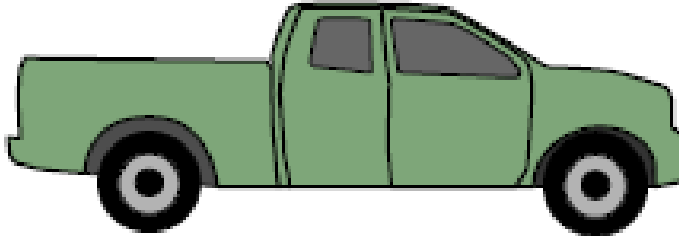
- <https://www.klickitatcounty.org/DocumentCenter/View/931/Pickup-Truck-Capacity-Brochure-PDF>

Estimating Volume Based on Truck Bed Size



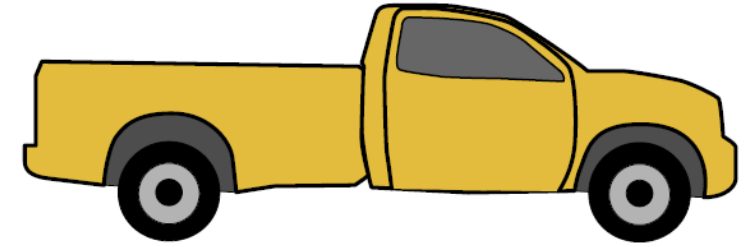
Compact Pickup: 4'x6' bed
filled to top of bed = 1.33 CuYd
filled to top of cab = 2.66 CuYd

Compact Pickup: 4' x 6' bed.
Filled to top of bed = 1.33 CuYd
Filled to top of cab = 2.66 CuYd



Full Size Pickup: 5'x7' bed
filled to top of bed = 1.94 CuYd
filled to top of cab = 3.89 CuYd

Full Size Pickup: 5' x 7' bed.
Filled to top of bed = 1.94 CuYd
Filled to top of cab = 3.89 CuYd



Full Size Pickup: 5'x8' bed
filled to top of bed = 2.22 CuYd
filled to top of cab = 4.44 CuYd

Full Size Pickup: 5' x 8' bed.
Filled to top of bed = 2.22 CuYd
Filled to top of cab = 4.44 CuYd

Another tool to estimate volume of dump

Online Cubic Yard Calculator from
<http://www.todayshomeowner.com/cubic-yard-calculator/>

Cubic Yard Calculator

<input type="text"/>	Length of area in feet
<input type="text"/>	Width of area in feet
<input type="text"/>	Height of area in inches
<input type="button" value="Calculate"/>	

Hazard Factors

Hazard Factors (check all that apply)

1. Contents

- ☐ Abandoned automobiles
- ☐ Abandoned trailers
- ☐ Animal carcasses
- ☐ Appliances/white goods
- ☐ Construction and demolition waste
- ☐ Drums/containers of unknowns/pesticide containers
- ☐ Electronics
- ☐ Flourescent light bulbs
- ☐ Furniture
- ☐ Lead acid batteries
- ☐ Medical wastes
- ☐ Meth-lab wastes
- ☐ Municipal solid waste
- ☐ Scrap tires
- ☐ Sewage sludge/septic-tank pumpings
- ☐ Suspected asbestos or lead containing materials
- ☐ Suspected RCRA Subtitle C hazardous wastes
(treated wood, paints, solvents)
- ☐ Waste oil/oily wastes
- ☐ Yard/green wastes

Site Drainage & Leachate Potential

What are the risks to groundwater/surface water?

- field) ☐ High (>25 in/yr)
- bed) 3. **Site Drainage and Leachate Potential** (Leachate is water escaping from a dumpsite which, if not collected, can contaminate natural water sources.)
- ☐ Site drainage protects ground or surface water
 - ☐ Limited ponding, drainage effects are largely neutral
 - ☐ Site drainage increases ground or surface water contamination
4. **Flooding Potential**
- ☐ No potential for flooding
 - ☐ Debris movement from flooding unlikely

Other Factors

4. Flooding Potential

- ☐ No potential for flooding
- ☐ Debris movement from flooding unlikely
- ☐ Debris movement from flooding likely

5. Frequency of Burning

- ☐ Burning does not occur
- ☐ Burning less frequently than weekly
- ☐ Burning more frequently than weekly

6. Fenced site

- ☐ Yes
- ☐ No

7. Controlled Access

- ☐ Effectively controlled access
- ☐ Ineffective controls or poorly restricted access
- ☐ Unrestricted access

8. Public Concern

- ☐ No concern voiced
- ☐ Little concern voiced by the public
- ☐ Concern frequently voiced by the public

Other Factors: Proximity Factors

Proximity Factors

1. Vertical Distance to Drinking Water Aquifer (check one)

- ☐ Greater than 600 feet
- ☐ 51-599 feet
- ☐ Less than 50 feet

2. Horizontal Distance to Surface Water Bodies (check one)

- ☐ Greater than 1,000 feet
- ☐ 51-1,000 feet
- ☐ Less than 50 feet

3. Distance to Homes (check one)

- ☐ Greater than 5,000 feet
- ☐ 1,000-5,000 feet
- ☐ Less than 1,000 feet

General Description of your site: example

Edit your general description, as necessary. The following is just an example and should not be copied verbatim.

A Community member was allowing two non-Community members to dump [REDACTED] for [REDACTED] and household waste on his home site. On Tuesday, February 23, 2016, the [REDACTED] Police Department seized the truck and trailer belonging to the waste dumper. The [REDACTED] waste was illegally burned by the dumper and Community member shortly after the truck and trailer were seized. The [REDACTED] waste dumper has not been caught but likely will not return to the site, thus leaving a pile of solid waste [REDACTED] approximately 60 feet long and 8 feet high. The piled waste is a risk to human health and the environment, and may become a fire hazard as summer weather approaches. Community members have complained about the waste pile and have expressed concerns of associated hazards. The site is on [REDACTED] Lane between [REDACTED] and [REDACTED], north of [REDACTED].

Example Site description: 'Backforty dumping area'

The Backforty dumping area are mounds of discarded materials approximately 7 feet high at the highest point, and a 25' x 10' trenched area containing burnt debris where garbage has been burned in the past. There are 4 residences in the area immediately around the site, the closest being 0.6 miles from the northeastern end of the Wash. The Backforty Dump is no longer used since an open top bin was made available in the town of Appaloosa in January of 1995. Household solid waste is accepted there for a fee. Because of the fee and the fact that there is no convenient alternative disposal for special wastes such as tires and white goods, casual disposal at Backforty Dumping Area still occurs from time to time. There are seven discrete waste disposal areas within the Backforty Dumping Area. They extend for approximately 1.5 miles along the length of Water Wash. The average width of the disposal areas is 50 feet and the average depth is 20 feet. There are no wells or other water sources within one mile, however, this area has the potential to become a watercourse after heavy rains. There is no sewage sludge or industrial waste at any of the disposal areas. See attached table for the area, volume of waste, distribution, and type of waste present for each disposal area. See also attached site photos.

Helpful Descriptive Elements

- Describe features of surrounding land: near arroyo, wash, canyon, intermittent stream or riverbed, pond, or lake? On or near hillside or hilltop? Distance from the site to these nearby features?
- Take pictures from each of the four sides of the site showing surrounding topography. Do any of the surrounding surface features show signs of wastes being wind blown or washed down from the disposal site?
- Identify and take pictures of any stressed vegetation near or down gradient from the site (possible sign of contamination). Identify and take pictures of any areas of stained soils (e.g., soils stained by used oil dumping, etc.).
- Characterize and describe any potential hazards or problems relating to clean up/removal in the vicinity of the site. Look for such things as water lines, gas lines, power lines, and accesses to the site. Will temporary roads need to be constructed to allow access for necessary equipment? What is the destination of excavated wastes and will they need to be hauled out through, or near residential areas?

Attach Vector-Borne risk assessment as a helpful descriptive element --

VECTOR-BORNE RISK ASSESSMENT

Use the questions below to help assess the risk of vector-borne illnesses in your community.

1. What is the distance between residential dwellings and/or public dwelling (i.e., tribal offices, schools, etc.), and the open dump?
2. Are there materials that collect or retain rainwater and/or moisture present at the residential dwellings and/or public buildings (i.e., pots, tires, equipment, fabric covered furniture, etc.)?
3. Have there been reported or confirmed cases in the past of vector borne diseases (e.g., Dengue, West Nile, Zika, Chikungunya, Rocky Mountain Spotted Fever, etc.)?
 - 3.a. If "yes", which apply (please list)?
4. If you answered "yes" to question 3: Are these cases new developments or have these cases been historically prevalent (explain)?
5. Does the Tribe have an Integrated Pest Management Plan?
 - 5.a. If "yes", explain how it is implemented.

OUTREACH + PREVENTION

Region 9 - Tribal Solid Waste Team:

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Shannon Davis

Causes of Illegal Dumping

- Convenience
- Cost
- Lack of Information
- Past Practice (i.e. routine)
- No Solid Waste Plan or infrastructure
- No codes nor enforcement



Developing a prevention + enforcement program



Understand

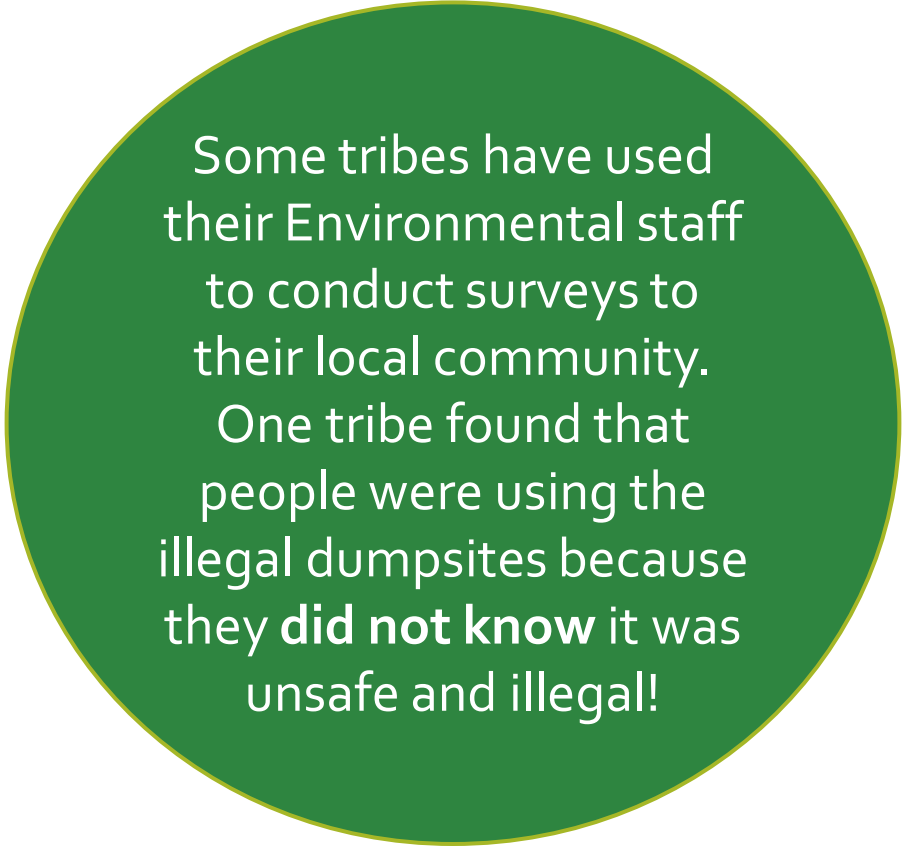
Community
Support

Develop
Strategy

Step 1: Understand the problem

- **Tools:**

- Door-to-door survey
- Hold a community gathering
- Survey the dumpsites



Some tribes have used their Environmental staff to conduct surveys to their local community. One tribe found that people were using the illegal dumpsites because they **did not know** it was unsafe and illegal!

Step 2: Gain Tribal + Community Support

- **Tools:**

- Maps
- Pictures
- Press coverage
- Tours
- Explanation of cost



Step 3: Choose your strategy

We'll cover more on this topic in the following slides, but keep in mind how the selected strategy/strategies...

- Reflects the values and goals of the tribe
- Provides for tribal control and sovereignty
- Involves tribal government and community members
- Builds on local knowledge, experience and expertise
- Allows for continuous feedback including a complaint mechanism (!)
- Is feasible

NON-ENFORCEMENT MEASURES

What you can do...

Overview

- Community Outreach and Education
- Cleanup
- Dump Tracking
- Posting Signs
- Lighting
- Barriers
- Hotlines
- Rewards
- Monitoring and Surveillance Cameras

Community Outreach + Education

Outreach and education may include:


- Press releases
- Publicity photographs
- Outreach materials
- Public hotline
- Presentations
- Cleanup days

For more information and tips on starting a tribal outreach/education program, see **Chapter 6** of the ***Tribal Decision-Maker's Guide to Solid Waste Management***



CDC Materials

Protect yourself and your family from mosquito bites (continued)




- Always follow the product label instructions.
- Reapply insect repellent every few hours, depending on which product and strength you choose.
 - Do not spray repellent on the skin under clothing.
 - If you are also using sunscreen, apply sunscreen first and insect repellent second.

Natural insect repellents (repellents not registered with EPA)


- EPA has not evaluated natural insect repellents for effectiveness.
- Examples of ingredients used in unregistered insect repellents include: citronella oil, cedar oil, geranium oil, peppermint oil, or soybean oil.

If you have a baby or child




- Always follow instructions when applying insect repellent to children.
- Do not use insect repellent on babies younger than 2 months of age.
- Dress your child in clothing that covers arms and legs, or
 - Cover crib, stroller, and baby carrier with mosquito netting.
- Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
 - Adults: Spray insect repellent onto your hands and then apply to a child's face.

Treat clothing and gear



- Treat items such as boots, pants, socks, and tents with permethrin or purchase permethrin-treated clothing and gear.
 - Permethrin-treated clothing will protect you after multiple washings. See product information to find out how long the protection will last.
 - If treating items yourself, follow the product instructions.
 - Do not use permethrin products directly on skin.

Mosquito-proof your home



- Use screens on windows and doors. Repair holes in screens to keep mosquitoes outside.
- Use air conditioning when available.
- Keep mosquitoes from laying eggs in and near standing water.
 - Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers. Check inside and outside your home.

www.cdc.gov/features/StopMosquitoes

PROTECT YOURSELF from MOSQUITO BITES
Mosquitoes spread chikungunya, dengue, and Zika viruses.




Mosquitoes that spread chikungunya, dengue, and Zika are aggressive daytime biters. They can also bite at night.



Use insect repellent.
Look for the following active ingredients:
• DEET • PICARIDIN • IR3535
• OIL of LEMON EUCALYPTUS
• PARA-MENTHANE-DIOL



Wear long-sleeved shirts and long pants or use insect repellent. For extra protection, treat clothing with permethrin.

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

For more information:
www.cdc.gov/chikungunya • www.cdc.gov/dengue • www.cdc.gov/zika

CS28001-4

Sick with CHIKUNGUNYA, DENGUE, or ZIKA?
Protect yourself and others from mosquito bites during the first week of illness.



Protect family and friends

- During the first week of illness, chikungunya, dengue, or Zika virus can be found in the blood.
- A mosquito that bites you can become infected.
- An infected mosquito can bite a family member or neighbor and make them sick.

Watch for these symptoms
See your doctor if you develop a fever with any of the following symptoms:

- Muscle or joint pain
- Headache, especially with pain behind the eyes
- Rash
- Conjunctivitis (red eyes)

Protect yourself from mosquito bites



- Wear long-sleeved shirts and long pants.
- Use door and window screens to keep mosquitoes outside.
- Use insect repellent.

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS28001-4

Mosquito Bite Prevention (United States)

Not all mosquitoes are the same. Different mosquitoes spread different viruses and bite at different times of the day.


Type of Mosquito	Viruses spread	Biting habits
 <i>Aedes aegypti</i> , <i>Aedes albopictus</i>	Chikungunya, Dengue, Zika	Primarily daytime, but can also bite at night
 <i>Culex</i> species	West Nile	Evening to morning

Protect yourself and your family from mosquito bites


Use insect repellent

Use an Environmental Protection Agency (EPA)-registered insect repellent with one of the following active ingredients. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women.

Active ingredient	Some brand name examples*
Higher percentages of active ingredient provide longer protection	
DEET	Off!, Cutter, Sawyer, Ultrathon
Picaridin, also known as KBR 3023, Bayrepel, and icaridin	Cutter Advanced, Skin So Soft Bug Guard Plus, Autan (outside the United States)
Oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD)	Repel
IR3535	Skin So Soft Bug Guard Plus Expedition, SkinSmart



* Insect repellent brand names are provided for your information only. The Centers for Disease Control and Prevention and the U.S. Department of Health and Human Services cannot recommend or endorse any name brand products.

 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS28043A February 17, 2016

Additional CDC Materials: https://www.cdc.gov/dengue/resources/factsheets/fs_mosqbitesus-508.pdf

Clean up + Dump tracking

- There are many considerations to be taken before a site clean up can occur, see:
 - **Technical Advice for Cleanup of Accumulated Waste Sites on Tribal Lands (2008)**
- Data collection should include, at least, the following:
 - **Location**
 - **Size & Contents**
 - **Responsible party (if known)**
 - **Enforcement actions taken**
 - **Resources expended**

Pinoleville Tribe converted a former dumpsite into a native garden. By beautifying the former dumpsite, the tribe is simultaneously reducing the likelihood that waste will again be left on the site and creating a special place on their tribal land for tribal members to experience nature!

Supplemental Language

Tribes can request for funds to host a community clean-up or to clean up an open dumpsite, **BUT** tribes must follow the procedures outlined in this presentation to clean up open dumps

Component 5. Supplemental Projects	<u>Outputs/Work Products</u> <u>Target Due Dates</u>
<p><i>Purpose and need:</i> <i>Aedes aegypti</i> are mosquitos known to carry the Zika virus and are common in Maricopa County. Aedes are crepuscular (active during twilight), so standard nighttime pesticide applications are not effective. The best control is removal of larval habitats. Rather than breeding on pools and ponds of stagnant water, <i>Aedes aegypti</i> are container mosquitos, meaning they prefer to breed in smaller areas such as tires, buckets, dog bowls, or cups. They have been known to breed in bottle caps holding just a small amount of liquid, and can produce up to 300 mosquitos in just one tablespoon of water.</p> <p>The Community has two large, active dumpsites consisting of household wastes, tires, buckets, toys, etc. which are prone habitats for Aedes and other disease carrying insects, scorpions, venomous snakes, rats and mice. Additionally, the Community has at least eight transient camps consisting of household and human waste, various-sized containers, buckets, furniture and debris. The dumpsites and transient camps are ideal habitats for <i>Aedes aegypti</i> and other disease-carrying mosquitos, venomous snakes, scorpions, mice and rats. In order to prevent cases of Zika virus, West Nile virus, and hantavirus, as well as bites and stings from venomous vectors, all wastes should be removed. In order to reach the transient camps to remove the wastes, brush will need to be removed.</p> <p><i>Commitment 5.5</i> Utilize a contractor to clean up the dumpsites and transient camps. Heavy equipment will be needed to remove the waste and haul trucks will be needed to haul the waste to the Salt River Landfill. The contractor will be certified for hazardous waste operations in the event any of the waste piles contain hazardous substances. Brush leading to the transient camps will be cleared and a chipper used at each site to mulch the brush, thus reducing disposal costs.</p>	<p>Landfill receipts of the disposed waste, contractor invoices, project photographs and the project report will be provided.</p> <p>July 1, 2017</p>

Signs + Lights + Barriers



Hotlines + Rewards

Example of a tribal
illegal dumping
prevention billboard
offering a reward



Monitoring

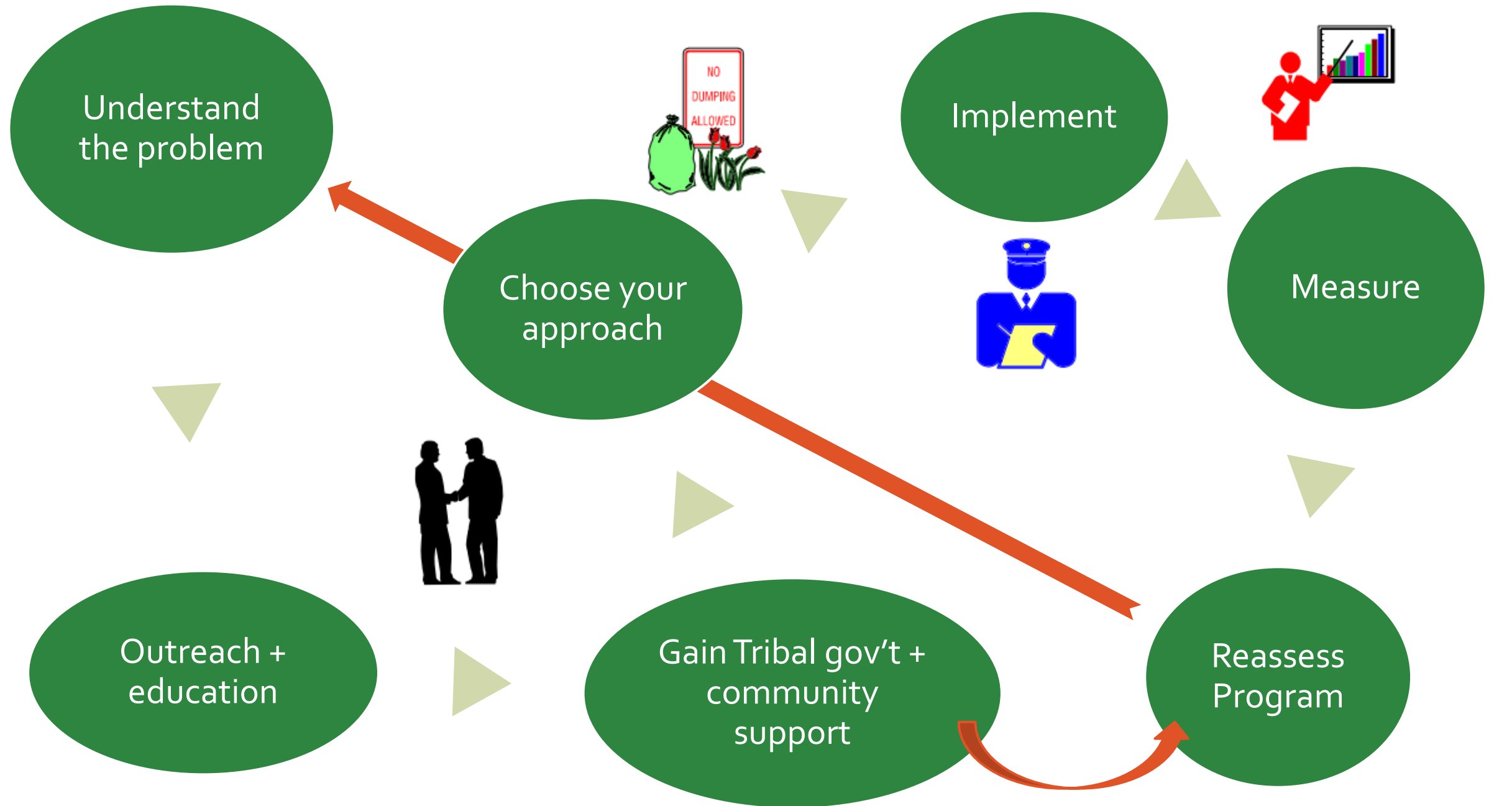
Monitoring can include:

- surveillance cameras
- motion sensing
- beepers
- patrolling by environmental rangers or police.



ENFORCEMENT MEASURES

What you can do...




Enforcement Measures Overview

- Illegal Dumping Codes
 - Penalties
 - Enforcement Body
 - Judicial Body
- Strategy for Enforcement
- Resources

Illegal Dumping Codes

Components to Illegal Dumping Codes

- Dumping Code Purpose
- Dumping Definition
- Dumping Sanctions
- Dumping Enforcement Responsibility
- Dumping Adjudicative Responsibility



Tribes have
extensive
authority to
create illegal
dumping codes!

Sample Language- Hopi (continued 1 of 4)

Purpose

"2.1. The open dumping and open burning of solid wastes shows disrespect for the natural resources of the Reservation, and for the Reservation community; it causes irreparable damage to the land and the environment; it is a threat to the health and safety of Hopland residents."

Definition

"6.1. It shall be unlawful for any person ... to dump, scatter, or place, or cause to be dumped, scattered or placed any solid waste material, hazardous or not"

Sample Language- Hopi (continued 2 of 4)

Sanctions

“9.1. Any person who violates any of the provisions of this Code is subject to an assessment of civil damages for such unlawful activities.... Any person who is found by the court to have committed the alleged violations shall be subject to ... a civil penalty in an amount up to \$500.00 dollars for each day of each violation.”

Common Sanctions Include

- Fines
- Legal action against property owners
- Property seizure and vehicle impoundment
- Community service
- Court-ordered cleanup and
- Exclusion from the tribe's land

Sample Language- Hopi (continued 3 of 4)

Enforcement Responsibility

“5.4. The [Tribal] EPA has a duty to investigate under this Code. Upon receiving a credible complaint or report, the EPA shall, on its own initiative, or in conjunction with Tribal law enforcement or other cooperating agencies, perform a thorough investigation of any violations alleged against any person or entity.”

Common Enforcement Bodies

- Tribal Enforcement
 - Tribal environmental agency
 - Tribal police
- External Enforcement
 - Another tribe's enforcement agency
 - State and local enforcement
 - Federal enforcement

Sample Language- Hopi (continued 4 of 4)

Judicial Responsibility

“8.1. If appropriate, the [Tribal] EPA, in its sole discretion, will attempt to resolve any unauthorized open dumping ... through its administrative process....”

“8.6. If, after receiving a citation, the alleged offender believes that he or she has not violated the terms of the Code, he or she may appeal the EPA’s finding in writing to the EPA Director.”

“9.1. The Director of the EPA is authorized to file a civil action against such person on behalf of the Tribe in Tribal Court”

Common Judicial Bodies

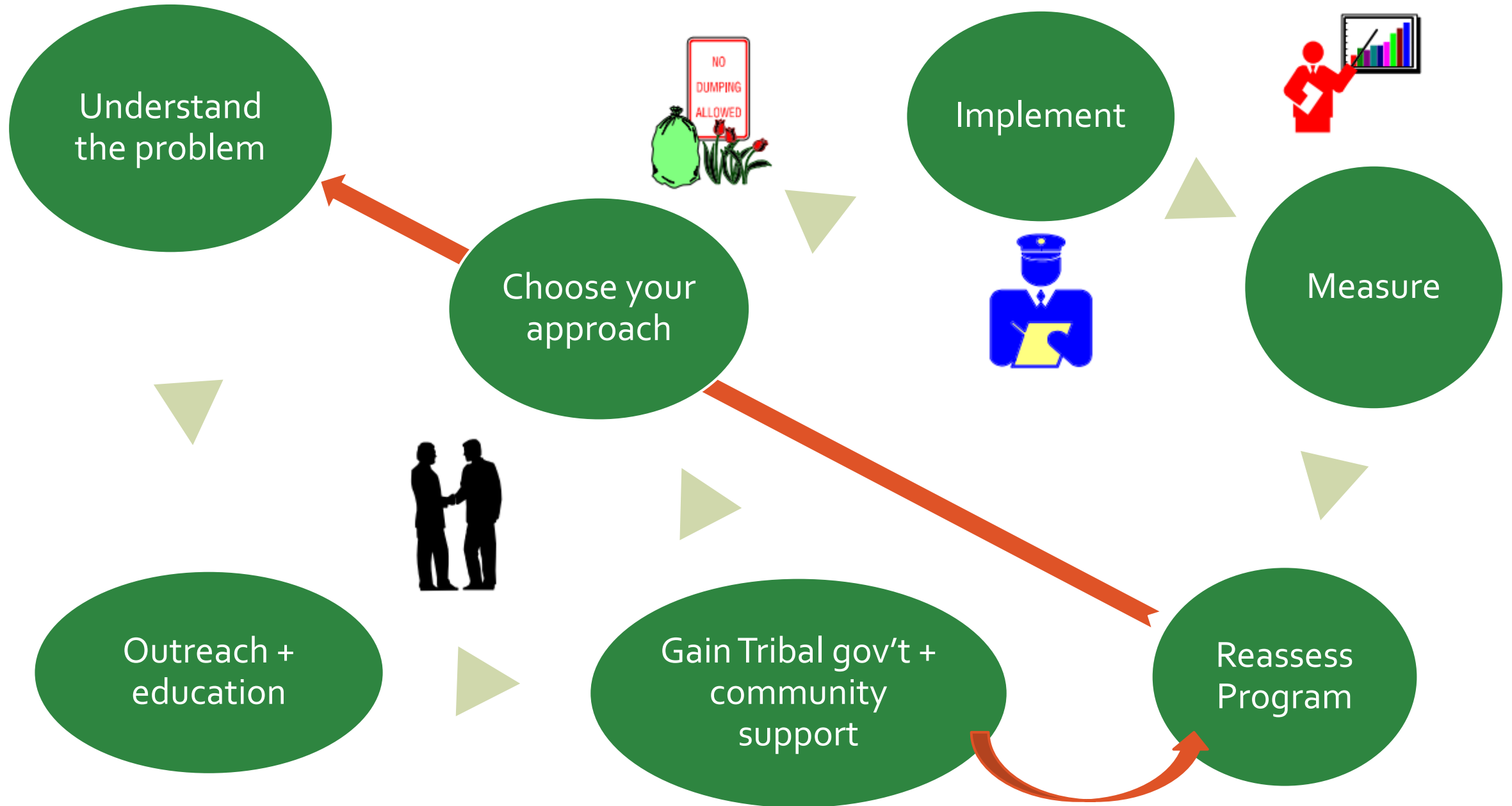
- Tribal
 - Tribal court
 - Tribal environmental agency
 - Tribal council
- Non-tribal
 - State courts (limited)
 - Federal courts (limited)

RELATIONSHIPS ARE KEY!

Government-to-Government

Government-to-Community

Neighbor-to-Neighbor



Important note!

Illegal dumpsites may not pose the most significant health threat to community members.

It's important that residential property is also properly maintained because they can be breeding grounds for vectors & are much closer to community population centers than potential dumpsites

Reduce mosquito breeding areas around your home

You can help reduce the risk of West Nile Virus. Eliminate stagnant water where mosquitoes lay their eggs. Mosquito larvae can develop in water that has been standing for more than four days. Follow these tips around your home.

Keep your yard clean

- remove discarded tire and clean up junk piles that collect water
- cover containers or use lids to prevent water from collecting in the bottom of garbage cans
- use screen or fine mesh to cover rain barrel
- clean pet food and water bowls and store indoors when not in use



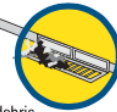
Clean out eaves, gutters and drains

- clear leaves, twigs and debris from eavestroughs, storm and roof gutters throughout the summer
- make sure drainage ditch is not clogged
- check flat roofs frequently for standing water



Maintain yards and lawns

- fill in low depressions in lawn areas
- eliminate standing water in gutters or storm drains to prevent small ponds
- install screens over catch basins
- grass clippings, leaves or other decaying debris such as apples or berries that fall from trees should be mulched to prevent organic matter from going into catch basins or storm sewers as food source for mosquito larvae
- turn over compost frequently



Always inspect swimming or wading pools and ponds

- remove water that collects on pool covers
- make sure the pool's pump is circulating water
- turn over wading pools when not in use
- use a pump to circulate water in your pond



Eliminate stagnant water

- clean up and empty water in toys, birdbaths, tires, flowerpots, wheelbarrows and other garden objects
- drill holes in the bottoms of containers so water can't collect
- change water in birdbath frequently



Fix faucets and hoses

- repair any leaks to faucets and hoses to prevent possible breeding sites
- prevent water from pooling around downspouts and air conditioners



Repair window screens and screen doors

- check window and door screens and repair any holes
- ensure screens fit tightly into to window or door frame to prevent mosquitoes from getting inside
- if you don't have screens, try and keep windows closed between dusk and dawn
- install screens on crawl spaces and attic vents



QUESTIONS?

3. DEVELOPING CLEANUP BUDGETS

The cost elements you'll want to consider....

Options for site cleanup

- Cleanup **performed by or assisted by outside contractor**: labor advantage, cost disadvantage. May be necessary if there is complexity or risk.
- Cleanup **performed by in-house staff** utilizing day labor hired within tribe: Advantages/disadvantages: **purchase or rental of equipment** (such as pickers, small vehicles, etc.) Hiring day labor.
- Cleanup performed as **a one-day cleanup event utilizing volunteers**: advantages /disadvantages. Recommended equipment. Recruitment tips. Safety issues with respect to volunteers. Mandatory H&S plan. EPA has information and tips on community cleanup events.

Budgeting for cleanups

Essential cleanup equipment can include the following depending on scale of effort. Consult with trained staff in planning cleanup and remember health and safety gear. Contact EPA if there are questions about approach.

- front loader / dozer / dump truck / backhoe (rental)
- Trash “pickers”, shovels, trash bags, etc. (purchase)
- Containers such as dumpsters and rollofs (rental or purchase)
- sanitation facilities including hand washing facilities
- first aid supplies , emergency eye wash facilities
- personal safety equipment such as dust masks, nitrile gloves, safety vests
- Hauling and dumping fees

THANK YOU

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