



# Climate Change Mitigation and Solid Waste

## Reducing greenhouse gases through municipal solid waste management

The earth's climate system is changing in response to increasing concentrations of greenhouse gases (GHG). GHGs are emitted through a variety of human activities including electricity production, transportation, agriculture, and industry (i.e. processing and manufacturing of goods). Reducing and recycling solid waste can help to curb the emission of greenhouse gases in four important ways<sup>1</sup>:

**Reduced emissions from energy consumption** – Typically, goods manufactured using recycled materials are less energy intensive. Reusing items (i.e. water bottles or travel mugs) saves even more energy by eliminating the need to manufacture disposable goods.

**Reduced emissions from incinerators** – Recycling and reuse of materials diverts what would otherwise be burned in waste incinerators, thus mitigating greenhouse gas emissions.

**Reduced methane emissions from landfills** – Recycling and waste prevention diverts materials away from landfills, which produce large amounts of methane through the decomposition process.

**Increased storage of carbon in trees** – Trees sequester (absorb and store) carbon dioxide from the atmosphere. By recycling paper, we can help to keep more trees in the ground, which in turn can help to re-stabilize the climate system.

### Tribes and Solid Waste:

The U.S. Environmental Protection Agency (EPA) defines municipal solid waste, also referred to as solid waste, as consisting of “everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing,

bottles, food scraps, newspapers, appliances, paint, and batteries<sup>4</sup>.” According to EPA<sup>2</sup>, municipal solid waste, more commonly known as trash or garbage, is typically generated in homes, schools, hospitals, and businesses.

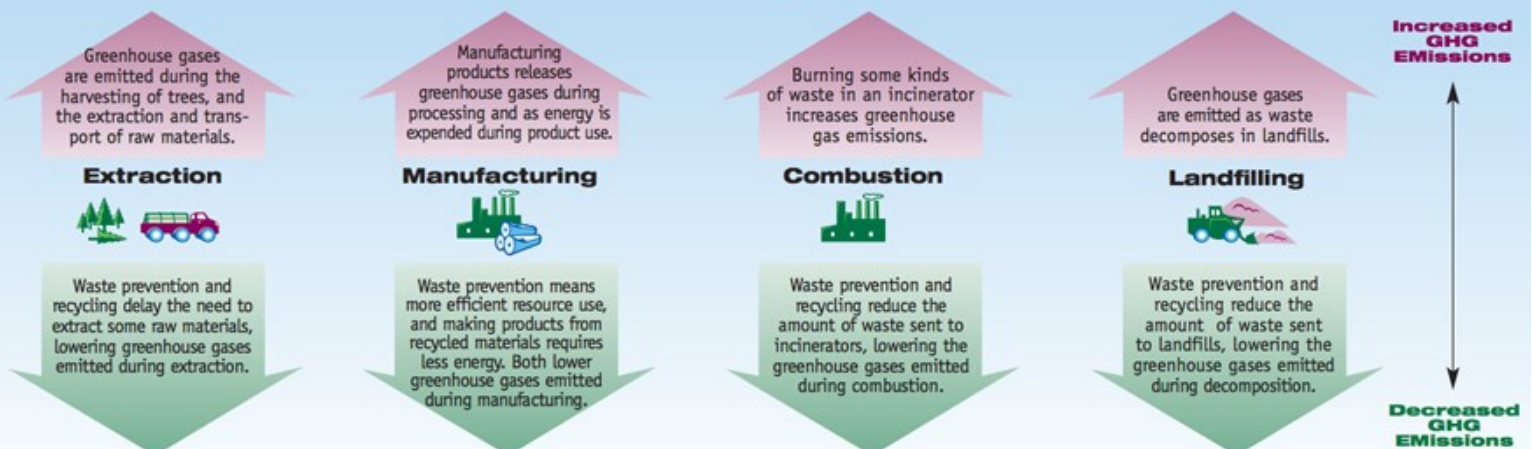
In Indian Country, tribes may manage solid waste activities within their jurisdictions. However, due to the fact that many tribal lands are characterized as rural, remote, or containing expansive boundaries, illegal dumping, burn barrels, and other improper solid waste disposal continue to be a challenge.

### **Example of the climate-health co-benefits of reducing waste incineration:**

Burn barrels are, regrettably, a common tool in some rural areas, including regions of Indian Country. In addition to generating greenhouse gases, burning trash produces dioxins (a highly toxic chemical), particle pollution, poly-aromatic hydrocarbons (some of which are cancer-causing), volatile organic compounds, carbon monoxide, hexachlorobenzene (a highly persistent and bioaccumulative environmental toxin), and ash<sup>3</sup> – all of which pose serious health concerns. These toxic pollutants can damage your health as well as the health of your neighbors and fellow community members.



## The Link Between Waste Management and Greenhouse Gases



## Climate Change and Solid Waste

According to the EPA, “waste prevention and recycling—jointly referred to as waste reduction... are potent strategies for reducing greenhouse gases<sup>1</sup>”. There are many co-benefits of implementing waste management plans in Indian Country beyond greenhouse gas reduction. These co-benefits include a healthier airshed, reduced illegal dumping, and community beautification.

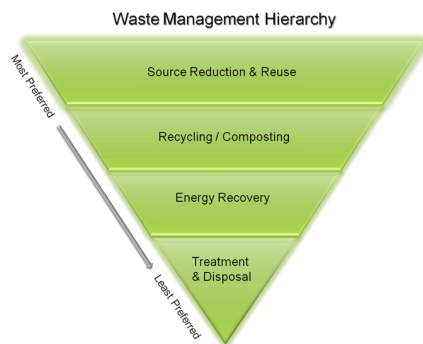
### What tribes can do:

The four main tenets of waste reduction are *REDUCE, REUSE, RECYCLE, COMPOST*<sup>5</sup>. For waste that cannot be prevented, tribes can provide recycling, garbage pickup, and self-haul options as safe and healthy means to managing waste disposal.

Waste reduction is a powerful tool for mitigating greenhouse gas emissions from the municipal waste sector. Integrated waste management plans (IWMPs) are an effective means of implementing important waste reduction strategies within communities. EPA’s Office of Resource Conservation and Recovery (ORCR) has developed a brochure to assist tribes, titled “3 Steps to Developing Tribal Integrated Waste Management Plan (IWMP)”<sup>6</sup>. Again, in addition to greenhouse gas mitigation from waste reduction, there are many benefits to developing and implementing IWMPs.

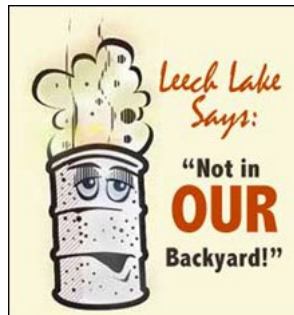
ORCR identifies several of these benefits:

- Lowers operating costs for waste management
- Increases program efficiency
- Reduces the use of open dumps
- Improves protection of human health & the environment



In Indian Country, transfer stations can be an excellent option for reducing greenhouse gas emissions from motor vehicles by creating citizen drop-off stations.

**Community outreach and education campaigns** are a critical element of any tribal solid waste management effort. Outreach and education can help to encourage individuals to be active stewards of their own communities by clarifying the connection between waste reduction as well as proper disposal, and climate change.



The Leech Lake Band of Ojibwe have developed a comprehensive website on illegal burn barrels as part of their Burn Barrel Clean-Up Project<sup>7</sup>. To learn more, visit: <http://www.llojibwe.org/drm/environmental/burnbarrels.html>.

**Tribal Example:** The Saint Regis Mohawk Tribe’s Environmental Division offers a transfer station and recycling program. The program is user friendly with several pick up options to choose from. Curbside recycling is offered through the Environmental Division and is available to interested parties. As part of the tribe’s monitoring efforts, audits are conducted. The audits are used to modify services in response to community needs. The tribe also offers hazardous waste collection, as well as waste reduction and product reuse tips. To learn more, visit: <http://www.srmtenv.org/index.php?spec=srmtswms>.

**Tribal Example:** The Leech Lake Band of Ojibwe Air Quality Program introduced the Burn Barrel Clean Up project in 2006<sup>7</sup>. For each burn barrel surrendered, two recycling bins were given in exchange. Similarly, the Red Cliff Tribe Burn Barrel exchanged one burn barrel for 10 trash bags to be used at the local transfer station. These small acts are part of a larger effort to reduce the use of burn barrels on tribal lands. Co-benefits include greenhouse gas mitigation from reduced waste incineration and healthier air quality.

### Resources

- 1) EPA - Climate Change and Waste, Reducing Waste Can Make A Difference <http://www.epa.gov/waste/nonhaz/municipal/pubs/ghg/climfold.pdf>
- 2) EPA - Tribal Compliance Assistance Center, Waste Management Resources <http://www.epa.gov/tribalcompliance/wmanagement/wmwastedrill.html>
- 3) EPA - Municipal Solid Waste, Human Health <http://www.epa.gov/solidwaste/nonhaz/municipal/backyard/health.htm>
- 4) EPA - Municipal Solid Waste (Feb 2014) <http://www.epa.gov/epawaste/nonhaz/municipal/>
- 5) Sandia National Laboratories - Reduce, Reuse, Recycle, Compost – It all works together to achieve Zero Waste [http://www.sandia.gov/about/environment/pollution\\_prevention/assets/documents/Reduce%20Reuse%20Recycle%20Compost%20Factsheet%20FY13.pdf](http://www.sandia.gov/about/environment/pollution_prevention/assets/documents/Reduce%20Reuse%20Recycle%20Compost%20Factsheet%20FY13.pdf)
- 6) EPA - 3 Steps to Developing a Tribal Integrated Waste Management Plan (IWMP) <http://www.epa.gov/epawaste/wvl/tribal/pdfxt/tribaliwmp.pdf>
- 7) Leech Lake Band of Ojibwe, Division of Resource Management, Illegal Burn Barrels <http://www.llojibwe.org/drm/environmental/burnbarrels.html>

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This fact sheet was developed with support from the USDA Forest Service’s Rocky Mountain Research Station.

