

US EPA ARCHIVE DOCUMENT

Food Scrap Diversion 101

Green Casinos Workshop September 2009





Outline

- Why Divert Food Scraps?
- How Do We Divert Food Scraps
- Composting Options
- Starting Your Own Program Basics
- Resources & Tools





Why Divert Food Scraps?

Climate Change and Resource Conservation

- Food scraps in a landfill = Methane Gas
 - Methane has a greenhouse gas potential that is 23 times that of Carbon Dioxide
 - 22% of man-made methane emissions are from landfills
- Food scraps are a resource
 - Feed hungry people
 - Feed Animals
 - Industrial uses Anaerobic Digestion and Biodiesel for Energy
 - Composting





Why Divert Food Scraps?

Food Scraps by Numbers

- 37.5% Of The Mohegan casino waste stream was food waste
- Update your ISWMP to include an analysis of your casino waste
- Review your hauling contract
 - Do you pay by weight?
 - Do you pay by container?
 - Does your hauler discount for green waste collection?



Mohegan Indian Tribe of Connecticut's Casino Waste Analysis



Source: Waste Reduction Tips For Hotels and Casinos in Indian Country, US EPA 2000

Why Divert Food Scraps?

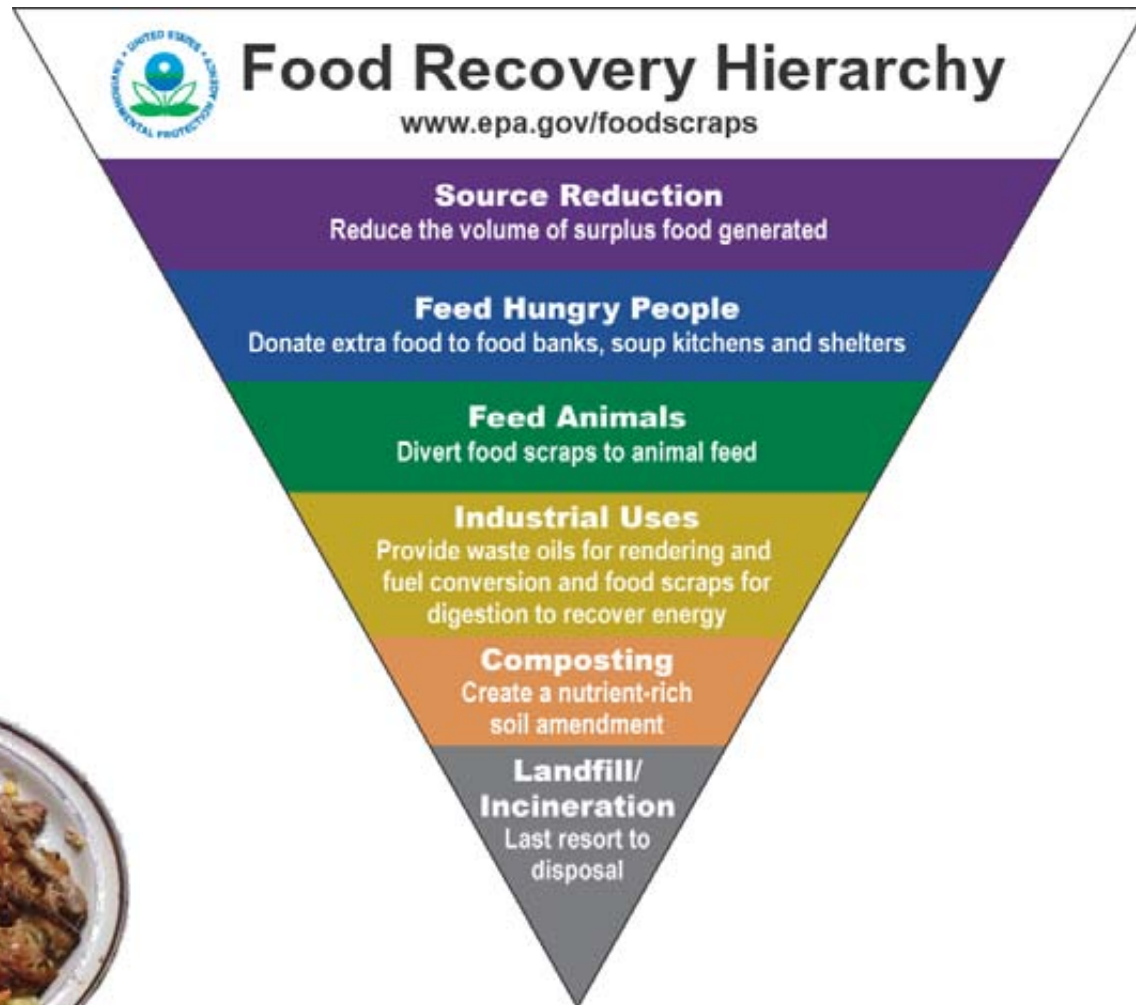
What Are Your Types of Food Waste?



- Pre-consumer
 - Food spoilage
 - Food preparation
 - Soiled paper, soiled cardboard, waxed cardboard
 - Fats, Oils, Greases
- Post-consumer
 - Plate leftovers, buffet leftovers, garnishes
 - Paper napkins, cups, wrappers
 - Stirring sticks, coffee grinds/filters, tea bags



How do we divert food scraps?



How do we divert food scraps?

Source Reduction



- Analyze your food waste stream
 - Pre-consumer food waste
 - Improve food preparation procedures in the kitchen
 - Reduce the use of garnishes
 - Keep an eye on inventory of perishable food
 - Post-consumer food Waste
 - Provide a wider selection of portion sizes
 - Have a tray-less cafeteria
 - It can reduce food needed by up to 30%



Source: Feeding America

How do we divert food scraps?

Feed Hungry People



- The Benefits of Donating
 - Reduce disposal costs.
 - Experience tax benefits for your food donation. (Consult your tax adviser)
 - Tracking your donations allows you to identify and make changes to prevent waste and generate greater awareness and responsibility for managing surplus food
 - Join the fight against hunger



Source: Feeding America

How do we divert food scraps?

Feed Animals



- Donating food waste for animal feed
 - Provides a nutritious feed
 - lower cost than traditional feed.
 - What you need to know
 - Federal and local requirements
 - Who will accept your food scraps?
 - What is the amount and type of food waste generated?
 - Where will the food can be stored until it is picked up?



How do we divert food scraps?

Industrial Uses



- Industrial Uses
 - Anaerobic digestion
 - Stand-alone food digestion
 - Co-digestion with sewage sludge or manure
 - Fats, Oils, and Grease (FOG) to new product
 - Biodiesel
 - Soaps



How do we divert food scraps?

Composting



- Composting
 - A controlled biological process by which organic matter (solid waste) is broken down by the action of bacteria, fungi, and other organisms



Composting Options

Systems



- Open composting systems
 - Generally referred to as compost piles or windrow composting
- In-vessel composting systems
 - Refers to a group of methods which confine the composting material within a building, container or vessel
- Vermicomposting
 - In this process, organic matter is eaten by earthworms (primarily), bacteria and fungi
- Off-site composting



Composting Options

Open Composting - Windrows

- Advantages
 - Large volumes
 - Diverse wastes, including yard trimmings, grease, liquids, and animal byproducts
 - Can be used in landscaping to save costs or sold
- Disadvantages
 - Requires space, equipment, and personnel to run facility
 - Facility must be managed to meet standards and control smell and vectors
 - Climate considerations
 - Requires water
 - Storm water management



Composting Options

Off-site Composting



- Advantages
 - No need to manage the food waste
 - Reduced tipping fees
- Disadvantages
 - Availability of local facility and hauler
 - You may have to coordinate with your local Community Supported Agriculture Farmers to set up collections



Composting Options

On-site Composting – In-Vessel

- Advantages
 - On-site no hauling of waste
 - Odor control
 - Limited Space requirements
 - Positive publicity from use of system on-site
 - Can be used in landscaping to save costs or sold
- Disadvantages
 - Capitol Investment required
 - Requires training of staff
 - Some equipment is single batch



Composting Options

On-site Composting - Vermicomposting

- Advantages
 - Can start at very small scale or be large scale
 - Initial start up costs can range from a few dollars to hundreds of thousands of dollars or more
 - Can be used in landscaping to save costs or sold
- Disadvantages
 - Worms have an effective temperature range
 - The worms will not compost dairy, bones, or fats



Starting Your Own Program

The Basics

- What system makes sense for your organization?
 - Education and training of staff and customers
 - Both the front and back of the operation
 - Procurement
 - Review items that might end up in trash – *is there a compostable alternative?*
- What waste stream(s) are you addressing?
 - Food waste
 - Soiled paper
 - Landscaping waste
 - Collection of the compostables
 - Containers
 - Signage
 - Locations
 - What system makes sense for your organization?





Resources & Tools

- Food Waste Hierarchy
[http://www.deq.state.ms.us/MDEQ.nsf/pdf/SW_PuttingSurplusFoodToGoodUse/\\$File/PuttingSurplusFoodtoGoodUse.pdf?OpenElement](http://www.deq.state.ms.us/MDEQ.nsf/pdf/SW_PuttingSurplusFoodToGoodUse/$File/PuttingSurplusFoodtoGoodUse.pdf?OpenElement)
- US EPA Organic Materials
<http://www.epa.gov/osw/conserve/materials/organics/index.htm>
- Municipal Solid Waste Recycled 2007
<http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-fs.pdf>
- California Integrated Waste Management Board
<http://www.ciwmb.ca.gov/FoodWaste/>
- WasteCap Wisconsin
<http://www.wastecapwi.org/documents/foodwaste.pdf>





Resources & Tools

- Feeding People
 - California Integrated Waste Management Board
<http://www.ciwmb.ca.gov/FoodWaste/Donation/>
 - US EPA(1996) Donating Surplus Food to the Needy
<http://www.ciwmb.ca.gov/WPIE/Food/DonateFood.pdf>
 - Rock and Wrap It Up
(<http://www.epa.gov/waste/consERVE/materials/organics/pubs/rockin.htm>)
 - Second harvest
http://feedingamerica.org/default.aspx?show_shov=1





Resources & Tools

- Feeding Animals
 - California Integrated Waste Management Board Food Scrap Management for Animal Feed Web page
<http://www.ciwmb.ca.gov/foodwaste/AnimalFeed/>
 - US EPA (1996) Managing Food Scraps as Animal Feed
<http://www.ciwmb.ca.gov/WPIE/Food/ManageScraps.pdf>
- Find a Composter
 - Biocycle Magazine <http://www.findacomposter.com/home>
 - CIWMB Permitted Facilities (CA)
<http://www.ciwmb.ca.gov/FoodWaste/Compost/Facility.htm>
 - Biocycle Magazine
http://www.jgpress.com/pdfarchive/bc08_foodsurvey.pdf





Resources & Tools

- Case Studies
 - Tribal Success Stories
 - <http://www.epa.gov/osw/wycd/tribal/pdftxt/twj-4.pdf>
 - US EPA
 - <http://www.epa.gov/osw/consERVE/materials/organics/food/fd-study.htm>
 - CA Integrated Waste Management Board
 - <http://www.ciwmb.ca.gov/foodwaste/CaseStudies/>
 - <http://www.ciwmb.ca.gov/lglibrary/innovations/FoodWaste/>





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Resources & Tools

- EPA's Waste Reduction Model (WARM)
 - Helps solid waste planners and organizations track greenhouse gas reduction of various waste management practices www.epa.gov/warm
- Sample Policies and Ordinances
 - From CA Integrated Waste Management Board <http://www.ciwmb.ca.gov/LGLibrary/LocalDocs/>
 - City of San Francisco Composting <http://www.sfgov.org/site/uploadedfiles/sfenvironment/meetings/coe/supporting/2008/MandatoryOrdinance.doc>





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