

# Food Scrap Diversion 101

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**Green Casinos Workshop September 2009**



# Outline

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- 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?*

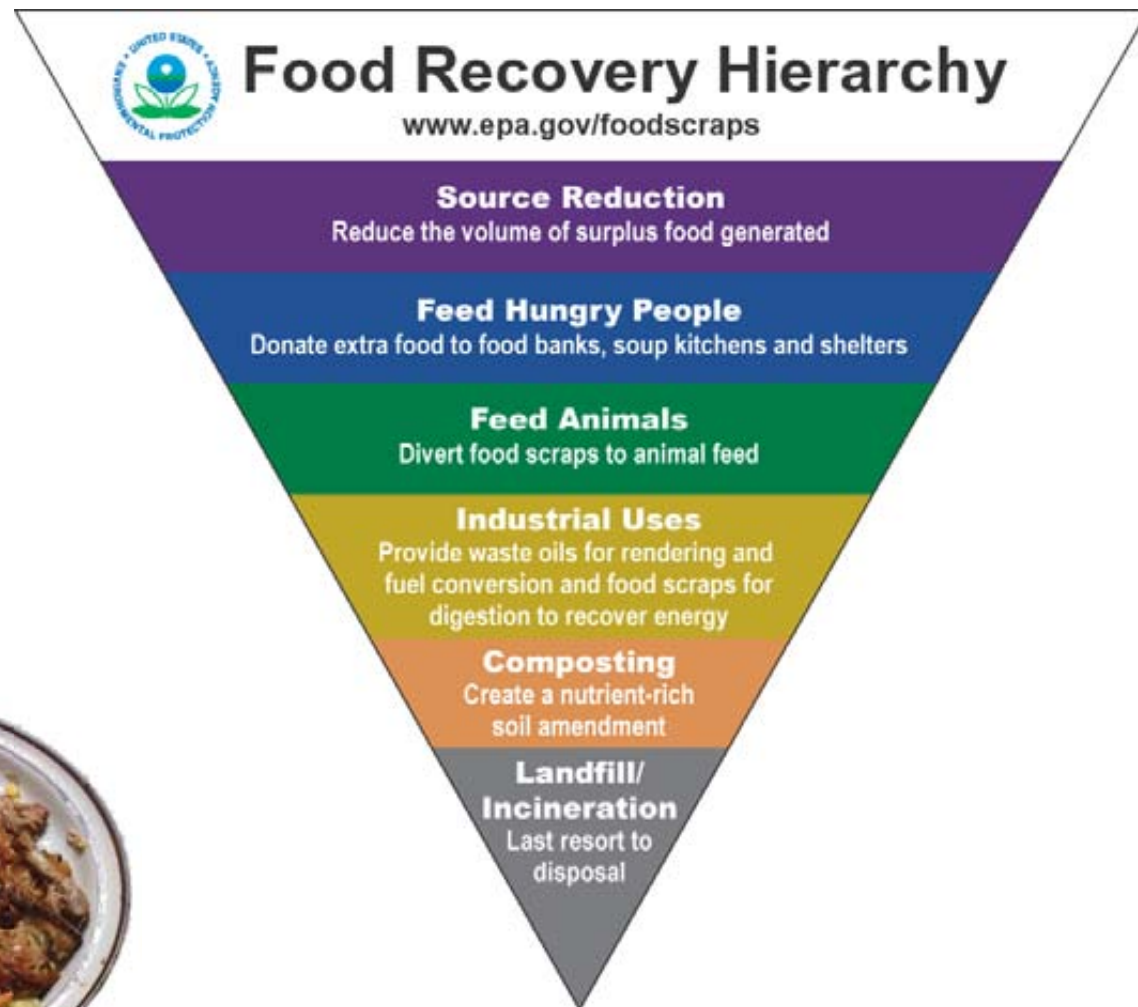
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- Pre-consumer
  - Food spoilage
  - Food preparation
  - Soiled paper, soiled cardboard, waxed cardboard
  - Fats, Oils, Greases
- Post-consumer
  - Plate leftovers, buffet leftovers, garnishes
  - Paper napkins, cups, wrappers
  - Stirring sticks,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

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- Food Waste Hierarchy  
[http://www.deq.state.ms.us/MDEQ.nsf/pdf/SW\\_PuttingSurplussFoodToGoodUse/\\$File/PuttingSurplusFoodtoGoodUse.pdf?OpenElement](http://www.deq.state.ms.us/MDEQ.nsf/pdf/SW_PuttingSurplussFoodToGoodUse/$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

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- 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](http://feedingamerica.org/default.aspx?show_shov=1)



# Resources & Tools

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- 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](http://www.jgpress.com/pdfarchive/bc08_foodsurvey.pdf)



# Resources & Tools

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- 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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  - CA Integrated Waste Management Board
    - <http://www.ciwmb.ca.gov/foodwaste/CaseStudies/>
    - <http://www.ciwmb.ca.gov/lglibrary/innovations/FoodWaste/>



# Resources & Tools

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- 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](http://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>



# Contact Information

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  - <http://www.epa.gov/region09/waste/solid/index.html>

