Introduction to Food Waste Recycling in Puerto Rico

Reed P. Hepperly
Hepperly Enterprises
Mayagüez, Puerto Rico
May 19th, 2010
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• Our goal
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Who we are

Hepperly Enterprises is one of the leading compost companies in the west coast of the Island. We receive yard and organic waste from municipalities, contractors, landscapers and industry in general in order to convert the “green waste” into a valuable product. Hepperly Enterprises also advises both private and government parties. We advise in how to implement effective in-house diversion of organic waste streams and develop finished products of wastes that have been traditionally deposited in the landfills.
Our goal

From waste...

...to a valuable commodity
The problem of food residues
Compostable material 40%

- Metal and glass 16%
- Plastics, rubber, leather & textiles 2%
- Paper 38%
- Misc. 4%
USA residue composition

http://www.epa.gov/epawaste/conserve/materials/organics/food/index.htm
In-house vs. Pick-up

In-House

• Advantages
  ✓ Reduces or eliminates transportation costs
  ✓ The finished product can be used within the facilities to substitute fertilizers and other inputs
  ✓ Long term savings

• Disadvantages
  ✓ The need of space for processing and storage
  ✓ Specialized training for personnel
  ✓ Permits
  ✓ Investment and cost
In-house vs. Pick-up

Pick-up

• **Advantages**  
  ✓ Very little initial setup  
  ✓ Pay as you go  
  ✓ No need for permits  
  ✓ No need for space or specialized equipment

• **Disadvantages**  
  ✓ Dependency on an established center  
  ✓ Higher long-term costs due to handling and transportation
Some technologies that can be implemented in Puerto Rico include:

- Windrow
- Aerated Compost Bins
- Rotary Drum Composters
- Industrial Composting Systems
- Small Scale Compost Bins
Windrow Composting

- Long, narrow piles agitated or turned regularly
- Natural/passive aeration
- Better suited to larger volumes
- Composting Time: 3 - 6 Months
Windrow system at Rodale Institute, Pennsylvania
Windrow Composting

- Equipment Needed
  - Grinder/Shredder
  - Tractor
  - Windrow Turner
    - tractor-pulled
    - self-propelled
  - Screener
Aerated Compost Bins

- Aeration through porous floor plates
- Composting Time: 2 - 3 Weeks
- Curing Time: 2 Months
- Equipment needed: front end loader
- Vector/vermin control
In-vessel composting
Rotating Drum
Prior to feeding drum with food waste, it must be ground and mixed with bulking agents.

- Rotation mixes and aerates compost mix
- Composting: 2 weeks
- Curing: 1 month
- Good vermin and odor control
Industrial Composting Systems

- Big capital investment
- Dependent on large volumes
- High energy consumption
- Quick turn around of material
- Good odor and environmental controls
Small scale composting

- Relatively small investment
- Modular design, batch operation
- Small capacity (average 1 restaurant)
- 2 months cycle
- Small footprint
- Easy operation
Factors To Consider In Selecting Technology

- Available capital
- Available space
- Available labor
- Available support: local consultants and experts
- Control of odors, vermin, and vectors
- Life-cycle costs of equipment
The current status of food waste recycling in Puerto Rico

What has been done?

• Not much…

  … although individual efforts have been consistently made. Perhaps the most commonly known is the diversion of food waste for pig farms.

Why?

• There is not a clear government policy about food and organic waste recycling. The laws that exist are not being emphatically enforced.

• There are no incentives nor penalties for food waste diversion from landfills, even though it is a large percentage of our solid waste.

• Waste management companies do not offer separate pick-up for food/organic waste.
What need to be done?

- The waste problem in Puerto Rico is alarming due to the limited landfill space. The private sector should not wait until the problem is critical and until the government establishes a coherent recycling policy.

- Private sector with high volumes of food/organic waste can pool their resources to fund their own recycling centers/programs. This sector include – yet is not limited to – hotels, restaurants, supermarkets, fresh vegetable markets (Plazas del Mercado).
What else can we do?

- Urge the government to take action by:
  - Promoting the use of empty industrial areas for food and organic waste recycling, especially in urban and metropolitan areas with high waste volume
  - Establishing incentives and penalties that stimulate food and organic waste recycling
  - Facilitate and/or cover permit costs for newly established recycling centers
Questions?

Thank you for your attention
REFERENCES

• Environmental Protection Agency:
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- Other photos taken by Kalia Toro Sepúlveda