

Use of Holistic Approach to Evaluate Recovery, Ruse, and Recycling of Solid Waste

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Notice

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Disclaimer

The views expressed in this presentation are those of the authors and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency



Introduction

- Originally developed through EPA-RTI cooperative research agreement
- Built at request of cities to better understand tradeoffs and impacts
- Aid communities and solid waste planning to identify strategies to optimize cost and environmental performance



Key Data Inputs and Assumptions

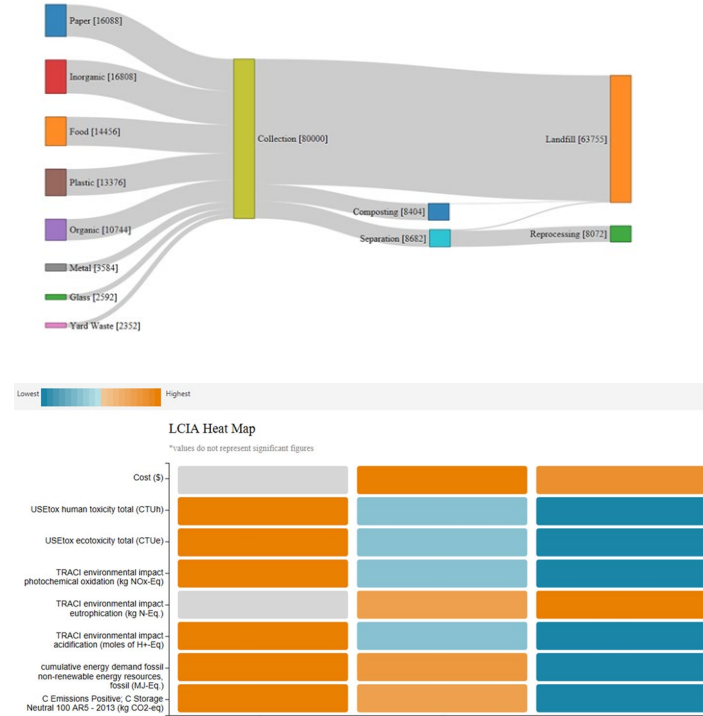
- Waste quantity and composition
- Electricity grid mix
- Transport distances
- Infrastructure design and operational parameters
- Market prices for energy, labor, land, materials, etc.
- US-based default data and assumptions built-in and tailorable
 - Sourced from US EPA, industry, facilities, equipment vendors, and laboratory analyses

The screenshot displays the 'Municipal Solid Waste Decision Support Tool v2' interface. The main section is titled 'Define Waste Composition'. It features two dropdown menus: 'Choose Sector' (set to 'Single Family 1') and 'Choose Category' (set to 'All Categories'). To the right of these are two buttons: 'Copy & Paste Values' and 'View All Sectors'. Below these is a table with two columns: 'Input Parameter' and 'Mass %'. The table lists various waste components and their corresponding mass percentages. At the bottom of the table, a total of '100.00%' is shown. Below the table are two buttons: 'Back' and 'Next'. The footer of the window shows 'Mode: Accounting' and 'Scenario: Test Case'.

| Input Parameter | Mass % |
|----------------------------|---------|
| Yard Trimmings, Leaves | 9.52 % |
| Yard Trimmings, Grass | 15.81 % |
| Yard Trimmings, Branches | 6.32 % |
| Food Waste - Vegetable | 5.06 % |
| Food Waste - Non-Vegetable | 2.53 % |
| Wood | 0.26 % |
| Wood Other | 0.05 % |
| Textiles | 2.1 % |
| 100.00% | |

Outputs

- Cost
- Energy consumption
- Air emissions
- Water emissions
- Health and environmental impacts
 - Based on EPA's TRACI model
- Results visualization tool back-end developed by EPA





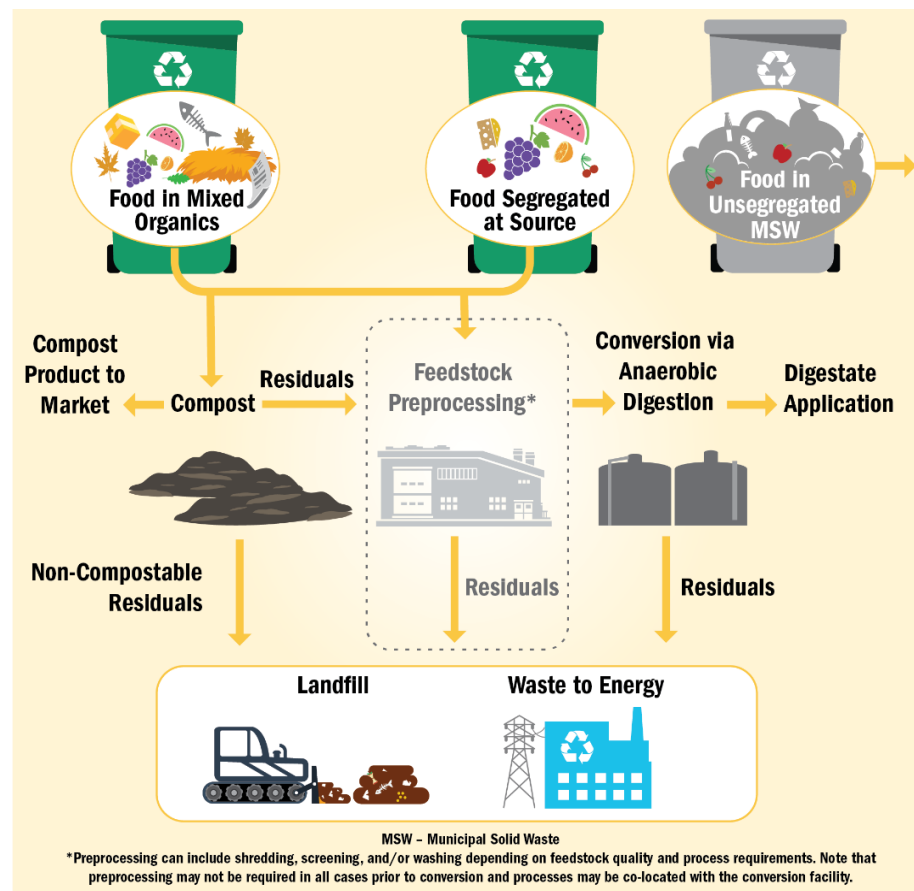
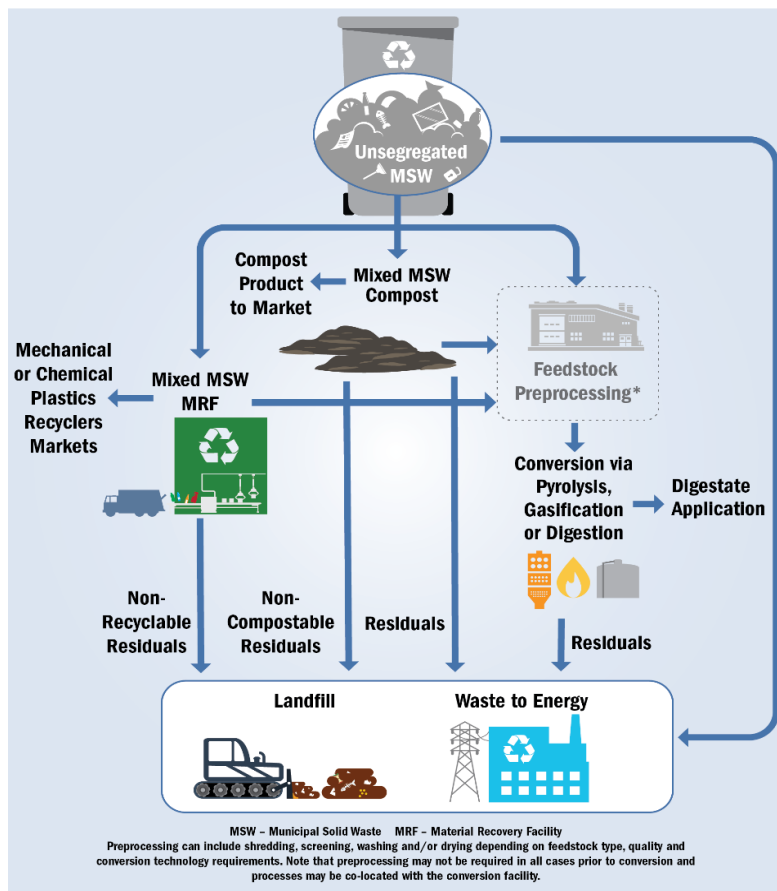
Getting Started

Opening the MSW DST v2





Solutions are Specific to the Waste Stream

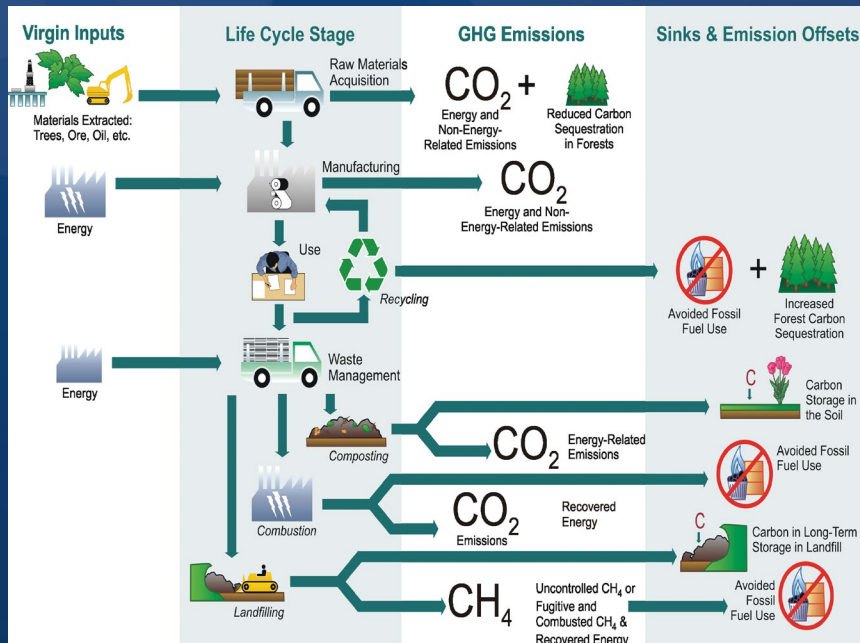


MSW DST – Municipal Solid Waste Decision Support Tool

- MSW-DST freely available with full documentation, publications and tutorials
- Developed via stakeholder driven process
- Designed to evaluate holistic management of materials in municipal solid waste
- Used as a detailed planning tool with optimization capabilities
- Place-based analysis with multiple options for solid waste management (SWM)
- Wide-range of use cases and users
 - e.g., universities, NGOs, state environmental departments, cities, international organizations, military bases
- Expertise through various case studies conducted with the tool

MSW-DST: <https://mswdst.rti.org/resources.htm>

MSW DST – Municipal Solid Waste Decision Support Tool



MSW DST features:

- **Lifecycle** emissions,
 - e.g., greenhouse gas (GHG), air, and water
- **Full cost** accounting,
- **Process models can be tailored** to represent local system
- Can evaluate options for more sustainable and resilient SWM