



Municipal Solid Waste Decision Support Tool

More Information

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Collecting and managing municipal solid waste (MSW) are essential utility services that city managers must address. City officials make better-informed investment decisions in MSW infrastructure and management strategies when accurate data and effective tools are readily available. To address the need for improved analytical tools to support decision making, RTI International—in collaboration with the U.S. Environmental Protection Agency—developed the MSW Decision Support Tool (MSW DST).

The Challenge

Proper MSW management requires initial financial investments and annual expenditures. The United Nations Environment Programme estimates that the environmental and social cost of inaction can be 5–10 times more costly than proper management. The technologies and strategies that will best meet cities' needs are not obvious when accounting for differences in waste quantity and composition, existing infrastructure, population density, economic conditions, regulations, local energy and material markets, and societal or community priorities. This can be particularly true for developing economies where, in many cases, basic solid waste management infrastructure and collection capacity do not exist, and dumping in uncontrolled sites results in public health and environmental impacts that are costly to remediate.

The MSW DST Solution

This customizable desktop computer model provides science-based, objective information about the cost and environmental aspects (including energy consumption, air emissions, and water emissions) of MSW management activities so that city managers can make more informed and defensible decisions.



The MSW DST was launched in 2012 to provide cities and solid waste planners with a standard approach and tool for evaluating the cost and environmental aspects of MSW management.

Applying the MSW DST has helped more than 100 government and commercial clients worldwide to identify and act on MSW management technologies and overall strategies to effectively manage MSW in cities that capture their unique conditions, including waste characteristics, economic considerations, environmental goals, and institutional and social factors.

MSW DST Features and Benefits

The MSW DST is designed for easy tailoring to city- and region-specific conditions. RTI offers clients objective, third-party analyses and studies to support the tool. Our experts advise clients in applying the MSW DST to their specific conditions and needs, and also provide resources to support data collection, customization, and scenario modeling. Customizable aspects include the following:

- Residential, multifamily, and commercial waste generation tonnage, composition, and collection attributes
- Waste collection, recycling, treatment, and disposal process design and operating specifications
- Economic, energy use, and emissions factors for waste transport and management activities
- Local energy, labor, and markets for recyclables and other waste-based products.

The MSW DST provides city managers with a tool to quantify and compare the cost and environmental performance among goal-driven scenarios—such as increasing materials recycling, incorporating organic waste management, and recovering energy from waste—to help determine opportunities for improving the current waste management system. Without this information, cities tend to fund ongoing maintenance and new infrastructure and activities on a case-by-case basis to meet ad hoc demands.

RTI's MSW DST and expertise can help cities accomplish the following:

- Quantify the costs and benefits of current and proposed future alternative MSW management systems
- Evaluate alternatives for meeting recycling targets, carbon emissions reductions, renewable energy, and other initiatives
- Identify opportunities to increase revenue and reduce cost and environment impacts
- Identify risks with respect to economic (e.g., energy price changes) and environmental attributes (e.g., facility carbon emissions)
- Train and equip solid waste staff members with knowledge for long-term usage of the MSW DST.

To best ensure sustainability, we promote capacity building with the MSW DST and program management training to allow city managers and their colleagues to assume control of the planning and operations process.



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