

Solid Waste Emissions Estimation Tool (SWEET)

Data Collection Worksheet

This printable worksheet was developed by the U.S. Environmental Protection Agency on behalf of the Global Methane Initiative (GMI) to accompany users in collecting data for use in the Solid Waste Emissions Estimation Tool (SWEET). SWEET is available online in the [GMI Resource Library](#).

Tool support is available by request. If you need further assistance to find specific information, please contact biogastoolkit@epa.gov or visit the [SWEET resource page](#) that includes informational videos.

Data Collection Instructions and Tips

Throughout this Data Collection Worksheet, users should:

- Write data in every empty cell except for those below noted as **'OPTIONAL'**.
 - *Note: Some inputs are marked as optional. SWEET has default values for these inputs if they are not provided. All other inputs are required for SWEET to run properly.*
- Make a note of the information source or any assumptions made in the 'Sources & Notes' column for every data point written down.

Other data collection tips include:

- In the SWEET Excel workbook, grey cells represent default values or assumptions. Users do not need to change these values but are encouraged to update data if local information is available.
- When recording values, be careful not to allocate more waste to composting, recycling, combustion, or digestion than your municipality is currently disposing of in landfills and dumps.
- If your municipality does not know the average composition of its solid waste, default values are available from the 2006 IPCC Report.
- Please ensure legible and distinct handwriting, especially for numerals such as 1, 5, 6, 7, and 9.

Data Entry Instructions

Once all necessary data has been collected, use these completed worksheets to input required values into the SWEET Excel file. Each of the worksheet tables below corresponds to sheets in the tool where the relevant data should be entered.

For reference, the corresponding Excel sheets are:

1. General Information
2. Collection – Transportation
3. Landfills and Dumpsites
4. Waste Burning
5. Waste Handling Equipment

1. General Information

Following data collection, enter the values written below into the relevant cells in the *General Information* sheet of the SWEET Excel file.

General	Value (Write-In)	Sources & Notes
City		
Country		
Global region		
Population in formal collection zones		
Population outside formal collection zones		
Current year		

Climate	Value (Write-In)	Sources & Notes
Average annual precipitation (mm/year)		
Mean annual temperature (°C)		

Waste Generation & Collection Rates	Value (Write-In)	Sources & Notes
Per capita waste generation rate <u>inside</u> formal collection zones (kg/capita/day)	1.64 or _____	
Per capita waste generation rate <u>outside</u> formal collection zones (kg/capita/day)		
Average annual % growth rate in quantity of waste collected – <u>historical</u> (%)		
Average annual % growth rate in quantity of waste collected - <u>projected future</u> (%)		
Percentage of waste generated <u>inside</u> formal collection zones that is collected (%)		
Percentage of waste generated <u>outside</u> formal collection zones that is collected (%)		

Collected Waste: Please enter percentages of the composition of collected waste, which must add to 100%. If your municipality collects data by different material classifications, estimate the total percentage that would fit in each category below:

Average Composition of Collected Waste	Percent (Write-In)	Sources & Notes
Food Waste		
Green		
Wood		
Paper/Cardboard		
Textiles		
Plastic		
Metal		
Glass		
Tires		
Other		
Total	Must equal 100%	

- Please enter the information below for existing and planned waste diversion facilities. If exact numbers are unknown, please estimate using collected waste data.
- *Composition of waste diverted to facility* should add to 100%.

Following data collection, enter the values written below into the *Waste Flow – Business As Usual (BAU)* cells in the *General Information* sheet of the SWEET Excel file.

BAU Waste Diversion Scenario		Value (Write-In)	Sources & Notes	
Composting	Composting facility opening year or planned opening year (diversion scenario start year)			
	Metric tons of waste delivered to composting facility per year			
	Composition of waste diverted from disposal to composting (%)	Food Waste		
		Green		
		Wood		
Paper/Cardboard				

BAU Waste Diversion Scenario		Value (Write-In)	Sources & Notes	
Anaerobic Digestion	AD facility opening year or planned opening year (diversion scenario start year)			
	Metric tons of waste delivered to AD facility per year			
	Composition of waste diverted from disposal to AD (%)	Food Waste		
		Green		
		Wood		
Paper/Cardboard				

BAU Waste Diversion Scenario		Value (Write-In)	Sources & Notes	
Recycling	Recycling facility opening year or planned opening year (diversion scenario start year)			
	Metric tons of waste delivered to recycling facility per year			
	Composition of waste diverted from disposal to recycling (%)	Wood		
		Paper/Cardboard		
		Textiles		
		Plastic		
		Metal		
		Glass		
Tires				
Other				

BAU Waste Diversion Scenario		Value (Write-In)	Sources & Notes
Waste Combustion	Combustion facility opening year or planned opening year (diversion scenario start year)		
	Metric tons of waste delivered to combustion facility per year		

2. Collection and Transportation

- Users should enter data for vehicles used in primary collection in addition to secondary collection fleet vehicles.
- If local *kilometers traveled* and *hours idling* data is unavailable, use the default values in SWEET.

Following data collection, enter the values written below into the relevant cells in the *Collection - Transportation* sheet of the SWEET Excel file.

Trucks in Operation	Value (Write-In)	Sources & Notes
Heavy-Duty Trucks		
Number of <u>heavy-duty diesel</u> trucks in operation each year		
Number of <u>heavy-duty gasoline</u> trucks in operation each year		
Number of <u>heavy-duty natural gas</u> trucks in operation each year		
Light-Duty Trucks		
Number of <u>light-duty diesel</u> trucks in operation each year		
Number of <u>light-duty gasoline</u> trucks in operation each year		
Number of <u>light-duty natural gas</u> trucks in operation each year		
Kilometers Traveled		
Kilometers traveled by typical <u>heavy-duty truck</u> per year		
Kilometers traveled by typical <u>light-duty truck</u> per year		
Hours Idling		
Hours spent idling for typical <u>heavy-duty truck</u> per year		
Hours spent idling for typical <u>light-duty truck</u> per year		

3. Landfills and Dumpsites

Instructions:

While many disposal sites receive waste from multiple cities, the user's inputs of waste received at the disposal site should only reflect the waste produced by the city being modeled.

Please see *Table 1. Characteristics of Solid Waste Disposal Site Types* of the *User Manual* for definitions of a dumpsite, controlled dumpsite, and a landfill.

There are four worksheets provided on the next pages for data entry.

Following data collection, enter the values written below into the relevant cells in the *Landfills and Dumpsites* sheet of the SWEET Excel file.

Tips:

- At least one disposal site must be operating in any given year for each scenario. If a city plans to close a disposal site in 2023, for example, it should add a new disposal site starting in 2024, even if the specifics of the future site are uncertain.
- If a site is older than 1960, please enter '1960' as the site opening year.
- Enter the information for your oldest landfill or dumpsite under *Landfill/Dumpsite #1*.

Detailed Disposal Site(s) Information #1	Value (Write-In)	Sources & Notes
Landfill/ Dumpsite #1 (Oldest existing site)		
Name		
Site opening year		
Site closure year (actual or expected)		
Annual disposal: most recent year data or estimate (metric tons)		
Landfill or dumpsite?		
Year of dumpsite upgrade to controlled dumpsite, or of controlled dumpsite upgrade to landfill?		
Average waste depth (m)		
Existing or planned active gas extraction and flaring or utilization system?		
<ul style="list-style-type: none"> • Active gas extraction and flaring or utilization system start-up year? 		
<ul style="list-style-type: none"> • Existing or planned gas-to-energy project? (landfills only, not dumpsites) 		
<ul style="list-style-type: none"> • Actual (or estimated future actual) methane recovery (m³ CH₄/year) 		
<ul style="list-style-type: none"> • Year of actual methane recovery data 		
<ul style="list-style-type: none"> • OPTIONAL: Site-specific collection efficiency starting in year with recovery data (%) 		

Detailed Disposal Site(s) Information #2	Value (Write-In)	Sources & Notes
Landfill/ Dumpsite #2		
Name		
Site opening year		
Site closure year (actual or expected)		
Annual disposal: most recent year data or estimate (metric tons)		
Landfill or dumpsite?		
<ul style="list-style-type: none"> Year of dumpsite upgrade to controlled dumpsite, or of controlled dumpsite upgrade to landfill? 		
Average waste depth (m)		
Existing or planned active gas extraction and flaring or utilization system?		
<ul style="list-style-type: none"> Active gas extraction and flaring or utilization system start-up year? 		
<ul style="list-style-type: none"> Existing or planned gas-to-energy project? (landfills only, not dumpsites) 		
<ul style="list-style-type: none"> Actual (or estimated future actual) methane recovery (m³ CH₄/year) 		
<ul style="list-style-type: none"> Year of actual methane recovery data 		
<ul style="list-style-type: none"> OPTIONAL: Site-specific collection efficiency starting in year with recovery data (%) 		

Detailed Disposal Site(s) Information #3	Value (Write-In)	Sources & Notes
Landfill/ Dumpsite #3		
Name		
Site opening year		
Site closure year (actual or expected)		
Annual disposal: most recent year data or estimate (metric tons)		
Landfill or dumpsite?		
<ul style="list-style-type: none"> Year of dumpsite upgrade to controlled dumpsite, or of controlled dumpsite upgrade to landfill? 		
Average waste depth (m)		
Existing or planned active gas extraction and flaring or utilization system?		
<ul style="list-style-type: none"> Active gas extraction and flaring or utilization system start-up year? 		
<ul style="list-style-type: none"> Existing or planned gas-to-energy project? (landfills only, not dumpsites) 		
<ul style="list-style-type: none"> Actual (or estimated future actual) methane recovery (m³ CH₄/year) 		
<ul style="list-style-type: none"> Year of actual methane recovery data 		
<ul style="list-style-type: none"> OPTIONAL: Site-specific collection efficiency starting in year with recovery data (%) 		

Detailed Disposal Site(s) Information #4	Value (Write-In)	Sources & Notes
Landfill/ Dumpsite #4		
Name		
Site opening year		
Site closure year (actual or expected)		
Annual disposal: most recent year data or estimate (metric tons)		
Landfill or dumpsite?		
<ul style="list-style-type: none"> • Year of dumpsite upgrade to controlled dumpsite, or of controlled dumpsite upgrade to landfill? 		
Average waste depth (m)		
Existing or planned active gas extraction and flaring or utilization system?		
<ul style="list-style-type: none"> • Active gas extraction and flaring or utilization system start-up year? 		
<ul style="list-style-type: none"> • Existing or planned gas-to-energy project? (landfills only, not dumpsites) 		
<ul style="list-style-type: none"> • Actual (or estimated future actual) methane recovery (m³ CH₄/year) 		
<ul style="list-style-type: none"> • Year of actual methane recovery data 		
<ul style="list-style-type: none"> • OPTIONAL: Site-specific collection efficiency starting in year with recovery data (%) 		

4. Waste Burning

Following data collection, enter the values written below into the relevant cells in the *Waste Burning* sheet of the SWEET Excel file.

Open Burning Rates	Value (Write-In)	Sources & Notes
OPTIONAL: Percentage of uncollected waste that is burning in the open by residents living <u>outside</u> formal collection zones		
OPTIONAL: Percentage of uncollected waste that is burned in the open by residents living <u>inside</u> formal collection zones		
OPTIONAL: Percentage of waste disposed at landfills or dumpsites that is ultimately burned <u>at the landfill or dumpsite</u>		

5. Waste Handling Equipment

- This sheet asks for annual data about waste handling equipment. This includes equipment used to handle waste at all facilities involved in waste management, such as those listed in the table below.
- Values are optional for *Number of Hours*, *Average Horsepower*, and *Gallons of Fuel* and users can either enter data if available or make use of default assumptions in the Excel tool.

Following data collection, enter the values written below into the relevant cells in the *Waste Handling Equipment* sheet of the SWEET Excel file.

Waste Handling Equipment	# Of Pieces of Equipment	# of Hours in Use Each Year (If Known)	Average Horsepower Rating (If Known)	Annual Gallons of Fuel Consumed (If Known)	Sources & Notes
Diesel Equipment					
Excavators					
Graders					
Forklifts					
Loaders					
Bulldozers					
Tractors/Backhoes					
Other					Describe:
Gasoline Equipment					
Excavators					
Forklifts					
Loaders					
Tractors/Backhoes					
Other					Describe: