Emission Quantification (Tool)
„Decision-making“ EQT of MSWI

**Purpose:**
- Rapid assessment of current situation (by BAU) and identification of waste management alternative(s) from an emissions reduction perspective
- To address the decision-making level
- Feature impact of Black Carbon

**Life Cycle Assessment (LCA) Method:**
- Total direct and indirect GHG and SLCPs emissions, avoidance emissions and net emissions are calculated .... with respect to waste management technologies.
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• **Support for User:**
  - Default data or own (measured, estimated) data
  - Indicates if calorific value estimated from waste composition is inappropriate for incineration
  - Indicates if amounts entered are incorrect
  - Graphic display of results

• **Transparent proven emission factors**
Why quantifying GHG emissions by LCA approach?
LCA approach to identify potentials for emission reduction:
Example: specific GHG net results per disposal method (as CO₂eq per t waste) / EU28 / UBA study

- The system boundaries do not permit to feature avoidance of waste.
- Methane from landfill is a main contributor for debits.
- Recycling provides main benefits.
- Composting and fermentation seems insignificant, but is avoided landfilling!
- Incineration (credit electricity grid) has effects.
LCA Approach to identify potentials for emission reduction: GHG emissions for status quo / Emerging Economies and Developing Countries (Example India urban) / UBA study

Collection rate > 100%
How to use the „decision-making“ EQT
„Decision-making“ EQT of MSWI

Generated waste / uncollected + collected + informally collected waste

Net GHG/SLCP emissions = Total GHG/SLCP emissions from treatment technology - GHG/SLCP avoidance via resource recovery

GHGs/SLCPs emissions potentials

Technologies in waste management

- Composting ( Organic waste)
- Anaerobic digestion (Organic waste)
- Recycling (plastic, paper, aluminium, metal, glass)
- MBT (Mixed waste)
- Incineration (Mixed waste)
- Landfilling (Mixed waste)

Avoidance of materials and energy production through the conventional processes

In IPCC reporting accounted for other sectors (industry, energy)
Use of „Decision-making“ EQT results

• Demonstrate the climate impact of waste management decisions
• Raise the profile of waste management in the eyes of local decision-makers
• Help decision-makers to embark on climate friendly waste management solutions
• Support MSWI to identify projects with high SLCP reduction potential
• Support to attract climate finance to waste sector by showing the potential of the projects
Tool Package for the Quantification of Short Lived Climate Pollutants (SLCP) and Other Greenhouse Gas (GHG) Emissions from the Waste Sector (a.k.a. Emissions Quantification Tool)

On behalf of Climate and Clean Air Coalition (CCAC) Waste Initiative, the Institute for Global Environmental Strategies (IGES) developed an emissions quantification tool with support from the Institut für Energie- und Umweltforschung (IFEU, Institute for Energy and Environmental Research) for a rapid assessment of Greenhouse Gases (GHG) and Short-Lived Climate Pollutants (SLCP) such as Black Carbon (BC) associated with waste management. This emissions quantification tool will be useful for policy decision-making in selecting the most appropriate set of technologies for a city. By using this tool cities will be able to undertake a rapid assessment of the emissions (GHGs and SLCPs) associated with their current waste management practices (business as usual) and identify suitable alternative solutions. In addition, cities will be able to compare the emissions from the business as usual (BAU) scenario with alternative solutions to identify the most suitable set of waste management practices. Policy makers can then keep records and monitor their mitigation efforts from their selected waste management systems over time by using the monitoring and reporting module contained herein.

A user’s manual is also included in the tool package.

If you have any question on the use of the tool. Please post your question here.

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Example of a model city

Switch to excel tables
Essentials for “Decision-making“ EQT

– Results are only as good as data and information on waste composition and quantities, waste treatment and disposal paths.

– Not one tool will satisfy all needs. As your project is progressing, you need to apply different tools, e.g. for monitoring and reporting.

– Tools as well as data basis have to be improved, maintained constantly
„Decision-making“ EQT 2.0

- Include up to 5 landfills for selection
- Allow to include other categories of recycling materials
- Feature results for BAU and scenarios as emissions per ton of waste
- Shows which cells **must** and which **can** be filled for quantification
- **Alignment with city assessment and other tools**
- Visualization of waste amounts per treatment, disposal for BAU, scenarios
- Improve userfriendlyness
- Permit featuring data quality, year...
Monitoring and Reporting

Of projects at implementation level

• Standards in preparation process by different actors
• Each actor / donor might require to use their (future) standards
• City assessment and decision-making EQT usefully to improve data base for monitoring and reporting purposes (awareness raising on importance of data)