



Athens 2014
2nd INTERNATIONAL CONFERENCE
on
Sustainable Solid Waste
Management

MED Zerowaste Pro,

MAIN OUTPUT

CO₂ Calculator

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Projet cofinancé par le Fonds Européen
de Développement Régional (FEDER)
Project cofinanced by the European Regional
Development Fund (ERDF)





Capitalizing results of M other EU projects.



Developed by the Sostenipra Research Group (<http://www.sostenipra.cat>) with funding provided by the European Commission via the Zero Waste Project.



The promotion and enhancement of the tool.



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CO2ZW tool -Introduction



Global urban population is recognized as the major driver of global greenhouse gas (GHG) emissions.

EU energy and climate change has set goals to reduce GHG emissions by 20% in 2020 (European Commission, 2012).

Despite waste municipal solid waste is a low GHG contributor (3%-5% of the total anthropogenic emissions), this sector is in the unique position of becoming a major saver of emissions (UNEP, 2010).

Therefore, tools to calculate and monitor GHG are needed to achieve GHG reduction goals according to EU policies

Definition

Carbon Footprint CO2ZW is a tool developed to quantify and monitor GHG emissions from municipal solid waste (MSW) management.

CO2ZW contributes to EU policies and helps stakeholders to mitigate and reduce GHG emissions.

CO2ZW is a robust calculation process that must be supported by a Verification Process (VP).

To be used by municipalities, regional and local administration, private companies, etc.

Objective



References: The CO2ZW has been developed following the Intergovernmental Panel on Climate Change (IPPC) (2006), ISO 14040 and PAS 2050 (2011).

Objective: The tool calculates the GHG in carbon dioxide equivalents produced over the entire life cycle of the management of MSW.

Scope: CO2ZW is for municipal scale; moreover, it can be used in any scale (including state, country or region).

Boundaries: CO2ZW includes all stages involved in MSW management: collection, transport, and the different treatments currently conducted in Europe (sorting facilities, biological treatments, incineration and landfill).



Example of CO2ZW tool calculations

Results of GHG emissions are classified by type and treatment

Table of results

Results expressed in t CO2 eq

FLOWS OF WASTE	Quantity of waste (t/year)	DIRECT impact (A)	INDIRECT impact (B)	AVOIDED impact (C)	TOTAL EMISSIONS (A+B+C)	Sequestered emissions (informative)
TOTAL RECYCLING FROM SOURCE-SEPARATED COLLECTION		449	73	-5.548	-5.026	-10
Paper and Cardboard, Plastics, Glass and Metals	3.704	18	44	-5.497	-5.404	
Organic materials destined for aerobic compost production	2.607	418	19	-18	419	-10
Organic materials destined for anaerobic digestion	504	12	10	-33	-11	
TOTAL MIXED GENERAL WASTE TO MBT		3.394	692	-3.513	572	-134
Total waste processed at Mechanical Biological treatment (MBT) plants	99.549	9.094	692		4.085	
Mechanical Biological Treatment (MBT) outputs						
Credits for the recovery of materials and energy (without RDF production)				-3.513	-3.513	-134
Refuse Derived Fuels (RDF)			0	0	0	
TOTAL WASTE TO INCINERATION		3.235	164	-1.387	2.013	0
Incineration plant	3.843	3.235	164	-1.387	2.013	
TOTAL WASTE TO LANDFILL		77.829	454	-600	77.682	-20.551
Landfill	85.355	77.829	454	-600	77.682	-20.551
TOTAL		84.908	1.382	-11.048	75.242	-20.695



CO₂ equivalent



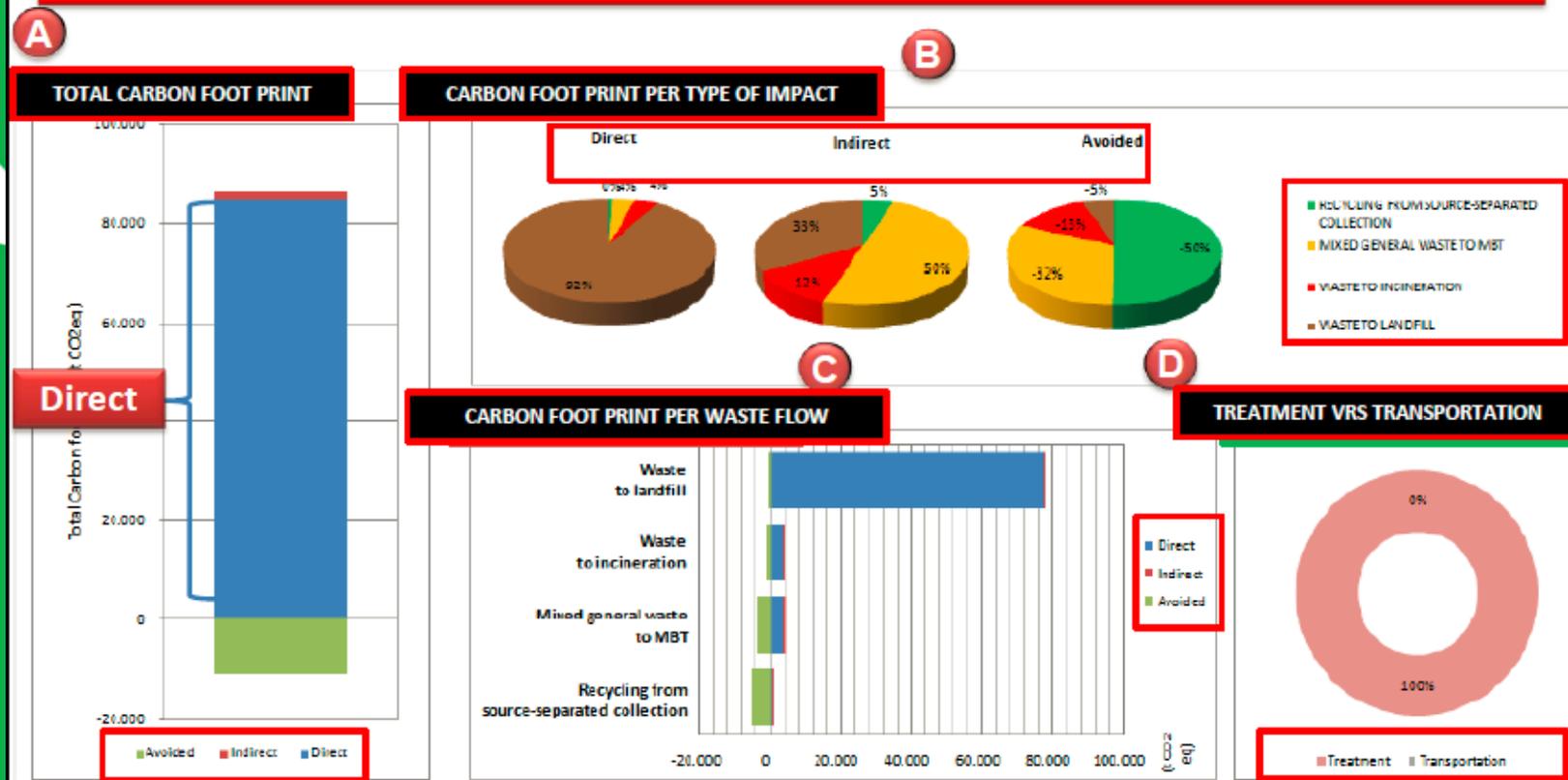
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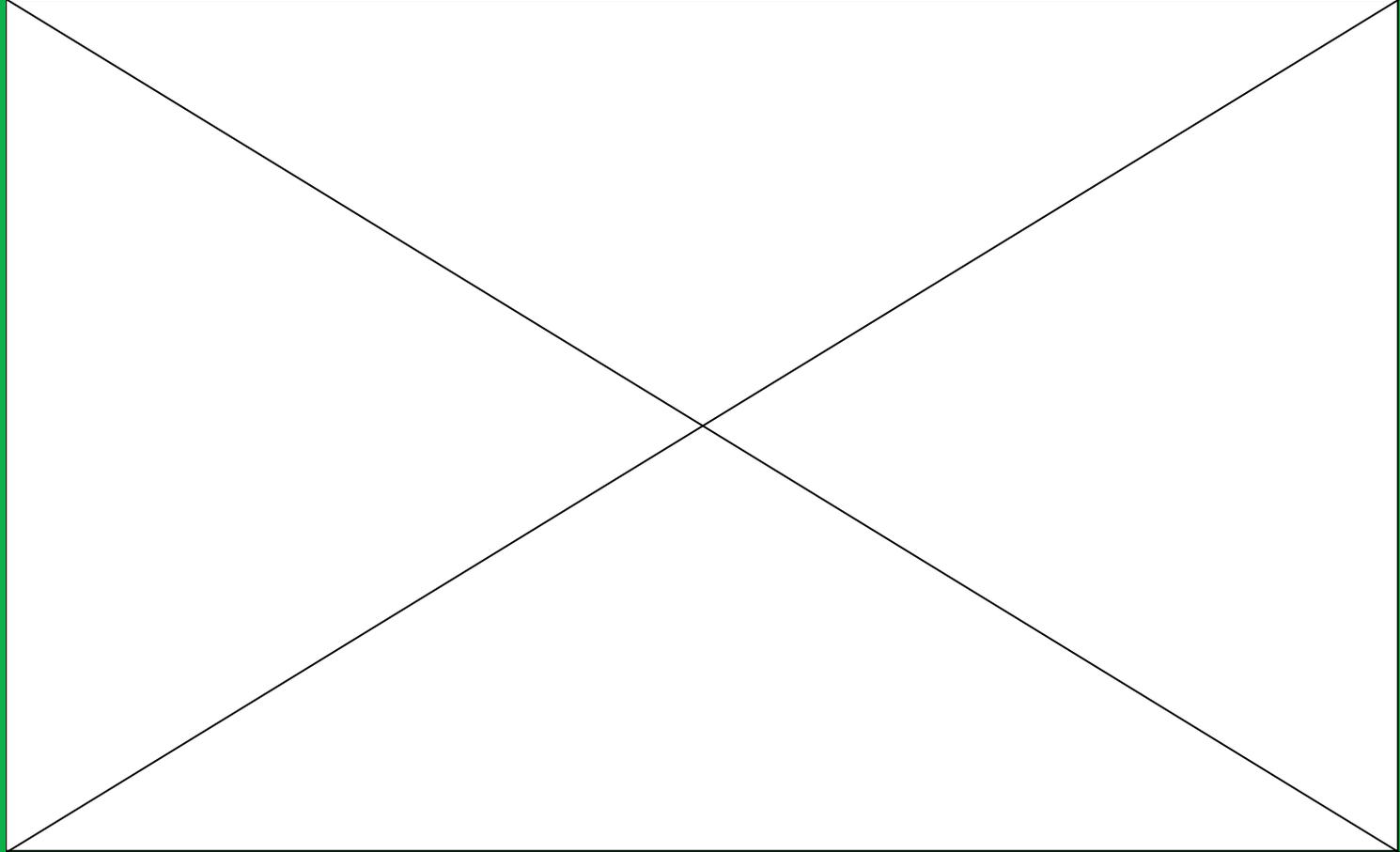
Example of CO2ZW tool calculations



Graphical module, emissions are classified by stages, waste flows etc



CO2 Footprint Calculator Tutorial





CONCLUSIONS

CO2ZW is a quantitative tool to track CO₂ eq. emissions of the municipal waste solid management.

CO2ZW contributes to performance the systems by CO₂ reductions.

Protocols are needed to monitor and certificate the GHG calculations.

Verification Process for CO2ZW is necessary in order to guarantee the transparency, consistency and accuracy of the GHG assertions.

Thank you for attention!



<http://www.med-zero-waste.eu/deliverables.html>

- <http://www.sostenipra.cat>
- <http://co2zw.eu.sostenipra.cat/>
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The Carbon Footprint Tool for Waste management in Europe (from now on, CO2ZW) was developed by the Sostenipra Research Group (<http://www.sostenipra.cat>) with funding provided by the European Commission via the Zero Waste Project (10-MED08-533). CO2ZW provides a means of calculating the greenhouse gas (GHG) emissions (in carbon dioxide equivalents) arising from the waste operations of European municipalities. The Tool in this version is an Excel®-based calculator which, with the input of municipality-specific waste data (or national data as a default), permits the user to obtain a municipality-level carbon footprint of waste treatments (Infrastructures are not included). The user will be able to use this calculator to support GHG monitoring and reporting initiatives as well as to provide an estimation of potential GHG reductions (or additions) associated with management and technological changes in local waste operations.

<http://sostenipra.ecotech.cat/>



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