

Zero Waste Live!

18 February 2020 - 06.30 p.m. CET



CITIES AND CLIMATE: A SYSTEMIC GAME-CHANGER



Mariel Vilella

Director of Global Strategy at Zero Waste Europe



#zerowastecitiesforclimate

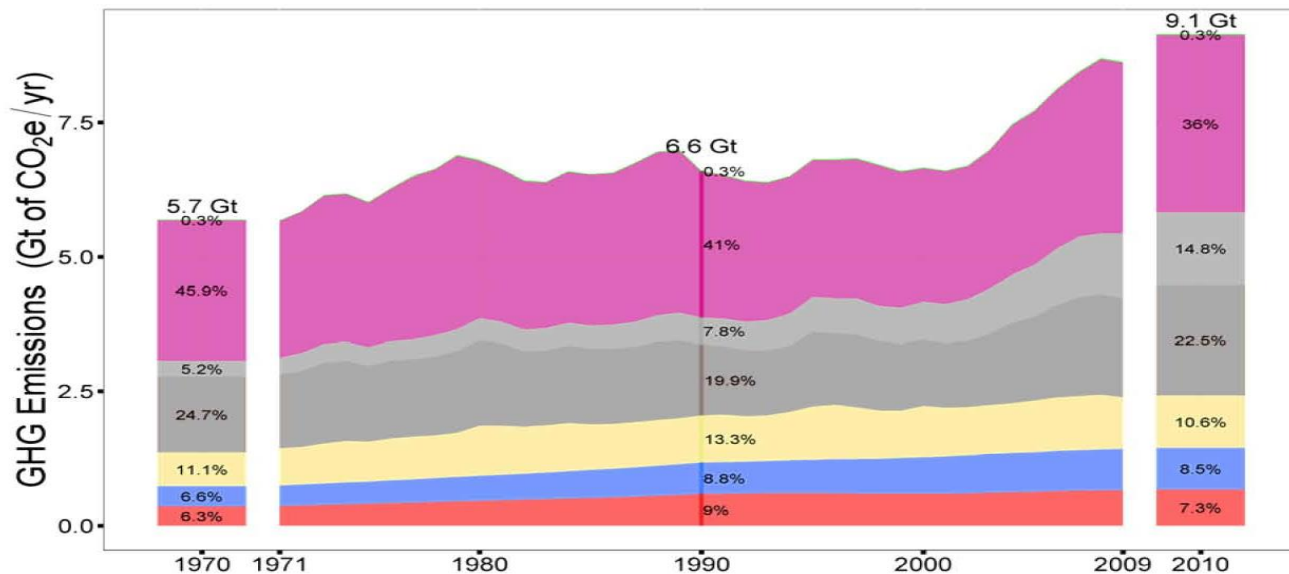
Zero Waste Cities for Climate

A systemic game-changer

Mariel Vilella
mariel@zerowasteeurope.eu

zerowasteeurope.eu

What's the contribution of the waste sector to climate change?



■ Indirect N₂O Emissions from Industry
■ Other industries
■ Cement production
■ Ferrous and non-ferrous metals
■ Chemicals
■ Wastewater treatment
■ Landfill and waste incineration

Sector	70s	80s	90s	00s
Total industry sector	2.1	0.5	0.4	3.6
Indirect N ₂ O Emissions from Indust	2.0	-0.1	1.1	3.4
Other industries	2.4	0.7	-0.5	3.4
Cement production	3.4	2.5	3.4	6.5
Ferrous and non-ferrous metals	0.7	-0.7	0.4	5.7
Chemicals	2.5	-1.0	0.9	1.0
Wastewater treatment	2.1	2.3	1.5	1.3
Landfill and waste incineration	2.6	2.3	0.0	1.4

Source of GHG emissions due to organic waste: Landfills



Source of GHG emissions: incineration

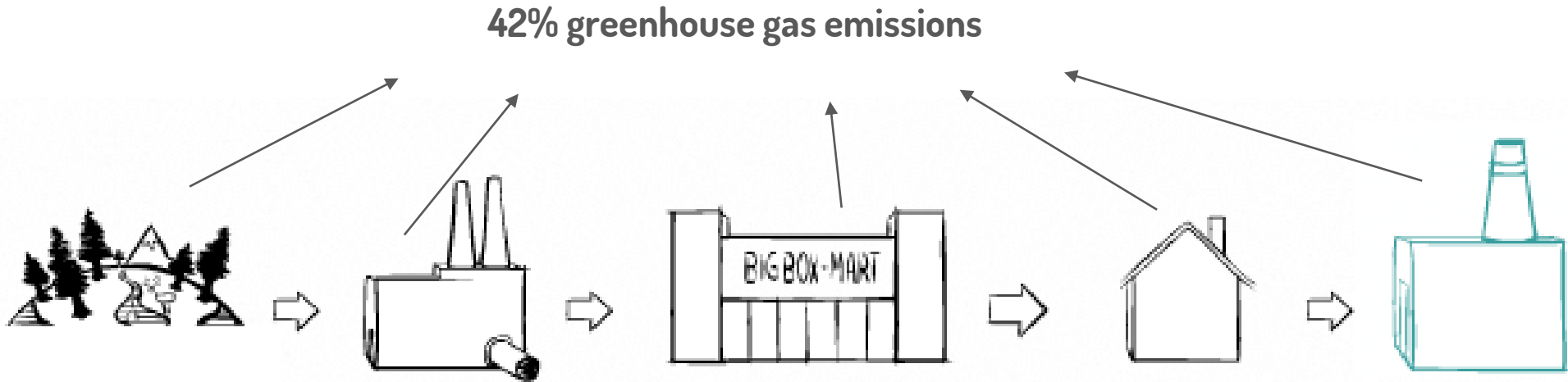
Per unit of electricity, an incinerator produces 2.5 times as much carbon dioxide (CO₂) than a coal plant.

U.S. Environmental Protection Agency, Emissions & Generation Resource Integrated Database, eGRID Version 1.0, 9th Edition, (2010 data), released February 24, 2014.
<http://www.epa.gov/egrid/> Data summarized and analysed by Energy Justice Network here:
<http://www.energyjustice.net/egrid>



How does waste contribute to climate change?

GHG emissions are embedded in all the life-cycle of products



Source: Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices. U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. September 2009

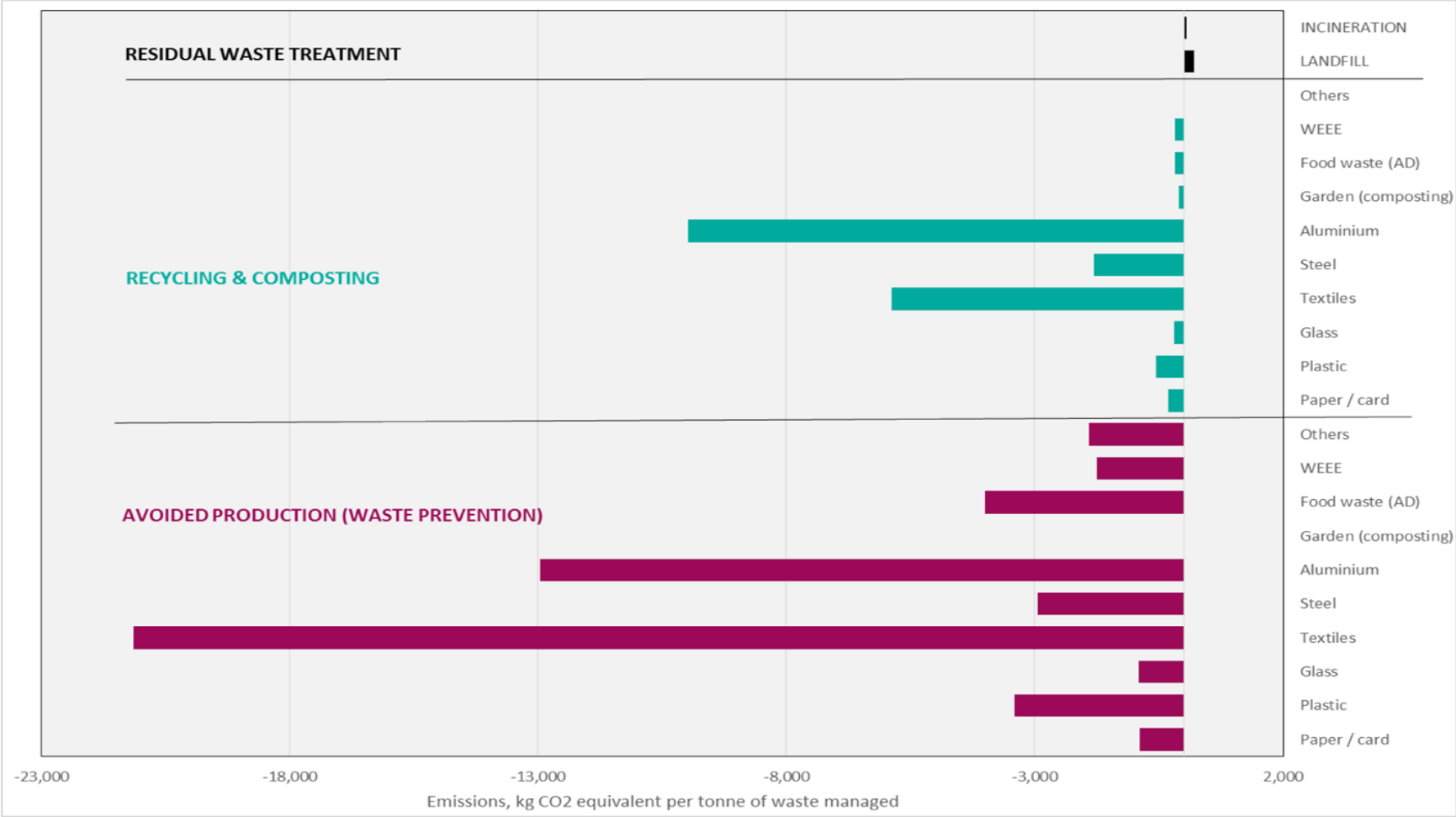
Report: The Potential Contribution of the Waste Sector to a Low-Carbon Economy

Waste Prevention, Reuse,
Recycling give significant benefits
in terms of emission reductions.

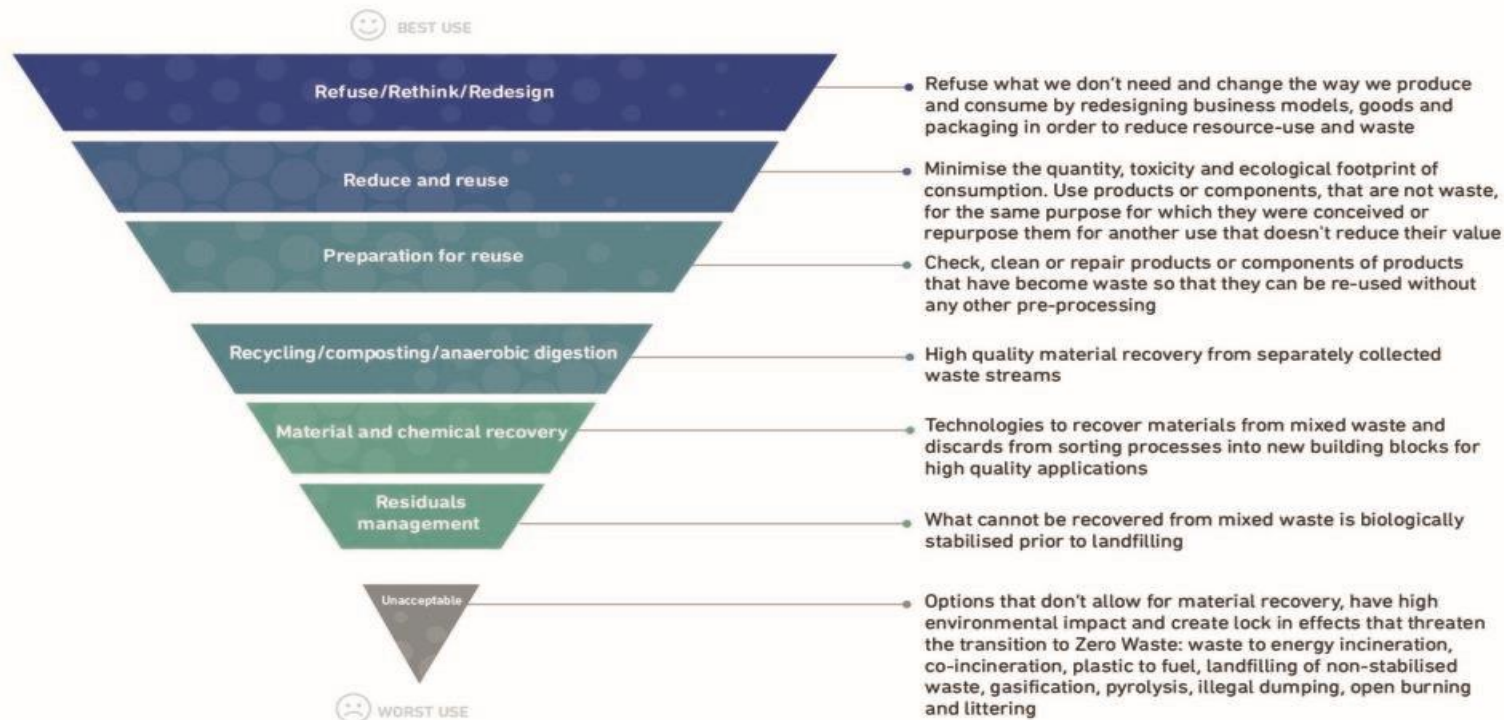
Whereas landfill and incineration are net contributors to our carbon budget.



Figure E- 1: Indicative Climate Change Impacts of Key Waste Management Activities (excl. CO₂ from biogenic sources)



Zero Waste Hierarchy



How to account GHG emissions from waste?

London: emission reduction objectives for waste related activities

The city of London has set emission reduction objectives in its waste-related activities using a carbon calculator that emission savings achieved from:

Waste reduction, recycling, renewable energy generated by organic waste, displacing virgin materials and fossil fuels, as well as accounting emissions from transport, landfill and incineration.

How does a zero waste city help the climate?

1. Reducing waste by refusing waste in the first place!

If growth in plastic production and incineration continue as predicted, their cumulative greenhouse gas emissions by 2050 will be over 56 gigatons CO₂e, or as high as 15 percent by 2050 of the total remaining carbon budget.

Source: CIEL, Plastic & Climate: The Hidden Costs of a Plastic Planet, 2019



How does a zero waste city help the climate?

2. Maximising source separation and separate collection, specially organics – sent to composting + increase carbon sequestration of the soil

Salacea, Romania: implemented a complete door-to-door separate collection system on five streams, including biowaste, and a comprehensive four weeks education programme.

After only 3 months the results were outstanding:

- Total waste generated fell from 106.7 tonne to 47.93, a drop of 55%.
- Waste that went to landfill dropped from 105 tonne (98%) to 26.3 (55%)
- Separately collected waste rose from 1% to 61%,
- Rates of local citizen engagement increased from 8.4% to 97%

How does a zero waste city help the climate?

3. Engaging with the local recycling community and helping local economies thrive

Informal recyclers represent 1% global population.

It is estimated that informal waste pickers collect over 90% of the waste recycled from households in South Africa.



How does a zero waste city help the climate?

4. Moving away from incineration and similar thermal treatment

Parma, Italy: instead of investing in an incinerator, the city invested in a zero waste program. Two main measures were taken:

- The introduction of door-to-door separate collection system
- The introduction of a Pay-As-You-Throw (PAYT) scheme

In only 4 years, Parma achieved:

- Total waste generation reduced by 15%
- Separate collection went from 48.5% to 72% in 4 years
- Residual waste rate decreased by 59%
- Reduction in the overall annual costs
- Increase in the number of jobs connected to waste management

Europe: moving away from incineration

Key legislation and financial institutions leaving incineration behind:

Renewable Energy Directive: revision agrees that mixed waste is not RE and therefore no subsidies for WTE if separate collection targets are not met (June 2018)

Sustainable finance – Taxonomy Report: the EU excluded waste-to-energy incineration from a list of economic activities considered ‘sustainable finance’ (2019)

European Investment Bank: the EIB has published its [Circular Economy Guide](#), in which it excludes incineration as a contributor to a Circular Economy (January 2019).

At the city level, in October 2019, the EU’s bank has pulled out of funding a controversial waste incinerator in Belgrade, Serbia, after the European Commission warned it could threaten environmental targets.

Conclusions

Zero Waste can be a game-changer for Climate Change

1. Traditional **GHG emission accounting of waste management** does not provide an accurate picture of the potential emission savings in the waste management sector
2. **Waste prevention, reuse, recycling, organic waste separation** show the most significant **benefits towards climate change mitigation** in comparison to downstream solutions like incineration and landfill.
3. Zero waste cities across the world are showing that these solutions can be successfully implemented with **added benefits** towards the environment and the communities.



#zerowastecitiesandclimate

Thank you!

Zero Waste Cities and Climate

Mariel Vilella -
mariel@zerowasteeurope.eu

zerowasteeurope.eu