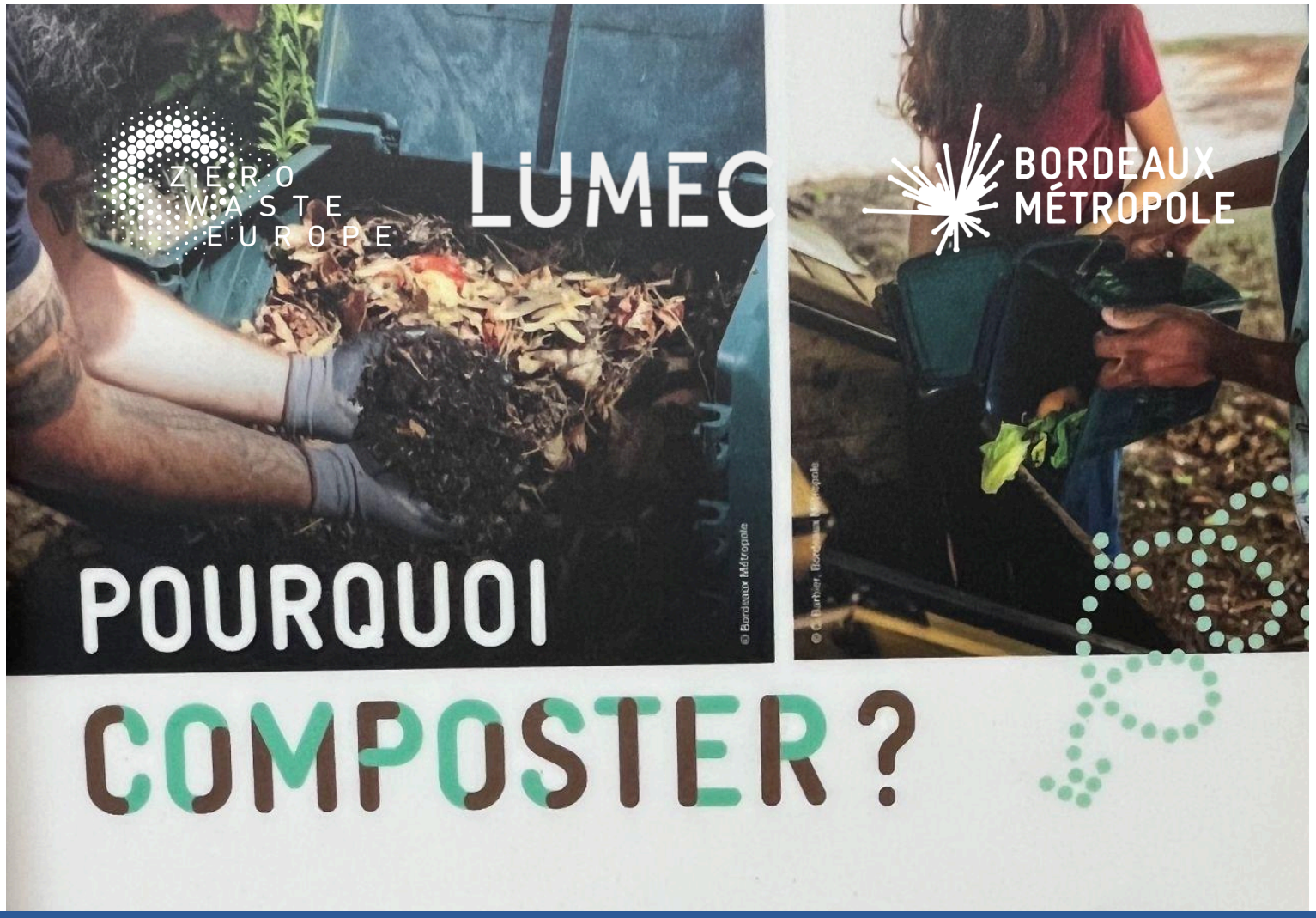

A cost-benefit analysis study on community composting in Bordeaux Metropole, France

Executive summary

May 2026

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Within the EU, 10% of food that is available to consumers is wasted, accounting for approximately 60 million tonnes annually.[1] This is estimated to cost the EU €130 billion.[2] Globally, food waste accounts for 8%–10% of greenhouse gas emissions,[3] while approximately 12% of the water used for food is wasted,[4] and 30% of agricultural land is used for food that is lost or wasted.[5]

To address food waste, municipalities across the world are adopting a 'circular' systems approach, attempting to reduce and prevent waste altogether. The vision of 'zero waste' provides a framework for how waste can be managed better and ultimately prevented, seeking to conserve natural resources and avoid environmental degradation. Guided by the waste hierarchy, food waste should be prevented, redistributed to people in need or recovered through biological treatment (e.g. converted into animal feed). The unavoidable food waste fraction should then be separately collected and processed to produce high-quality compost and/or digestate via anaerobic digestion.

In the Metropole of Bordeaux in France, currently, a third of all residual waste, which amounts to approximately 174,000 tonnes annually, is estimated to be food waste, which is sent for incineration. The Bordeaux Metropole is pursuing decentralised composting and anaerobic digestion as a way to divert food waste from disposal to recycling. It has initiated a range of initiatives, including food waste collection for anaerobic digestion within the inner-ring area[6], and the provision of household compost bins and community composting sites within the outer-ring area[7]. The outer-ring area covers approximately 30% of the total population of the Bordeaux Metropole.

During 2025, the Bordeaux Metropole established 100 community composting sites in the outer-ring area, and aims to establish another 300 sites by the end of 2026. This study seeks to determine the overall cost or benefit of establishing these 400 community composting sites to divert food waste from the residual waste stream, and ultimately from being sent for incineration. This research is done using a cost-benefit analysis (CBA) model, which measures the economic, social, and environmental costs and benefits of this initiative,

[1] European Parliament (2024), *Food waste in Europe: facts, EU policies and 2030 targets*.
[2] European Parliament (2024), *Food waste in Europe: facts, EU policies and 2030 targets*.
[3] UNFCC (2024), *Food loss and waste account for 8-10% of annual global greenhouse gas emissions; cost USD 1 trillion annually*.
[4] EU (2023) *COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT REPORT Accompanying the document Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste*.
[5] Geneva Environment Network (2020), *Reducing Food Loss and Waste for a Healthier Planet*.
[6] The 'inner-ring area' refers to the inner-city area or urban core and immediate surrounds which is characterised by densely populated, older, mixed-use neighbourhoods.
[7] The 'outer-ring area' refers to the outer suburb area or outer-most edges of a metropolitan area which is characterised by lower density, newer, suburban homes, greenfield developments and/or semi-rural zones.

compared to the status quo (prior to 2025), where this fraction was sent for incineration as part of the residual waste stream.

The CBA uses both primary and secondary research methodologies. Data and information were provided by the Bordeaux Metropole to understand the current waste management context, gather data specific to the implementation of the community composting initiative, and, through a site visit, view various community composting sites. Secondly, desktop research was conducted to review available reports, research and data to fill gaps in the primary research.

Two scenarios are considered in the study, namely:

- Scenario 1 ('status quo'): food waste disposed of as part of the residual waste stream that is sent for incineration.
- Scenario 2 ('diversion alternative'): food waste is diverted from incineration and channelled into community composting.

In the status quo, the main costs are related to waste management (collection, transport, and incineration), pollution tax charges for incineration, and the cost of emissions generated by incineration. The benefits in this scenario are the sale of electricity and heat produced as part of the incineration process, which is sold into the energy system. Within the diversion alternative, the main costs are those related to establishing and maintaining the community composting initiative, as well as the lost sales from electricity and heat produced. The main benefits are the savings from the compost produced, the avoided waste management costs, and savings from the avoided EU emissions trading system costs and emissions from incineration.

In defining the scope of the CBA, the amount of food waste that can be diverted into 400 community composting bins is used as a baseline to determine the costs and benefits in both the status quo and diversion alternatives. This is calculated as 1,815 tonnes per year, assuming that **65% of households served by the 400 community composting sites use these sites** instead of discarding their food waste in the residual waste. Therefore, only the portion of the cost associated with removing 1,815 tonnes of food waste would be considered in the analysis.

The analysis indicates that the **status quo generates a net cost for the Metropole** over a 5-year period, with a net present value[8] (NPV) of -2.4€ million (or -312€ per tonne of food waste). This is to be compared to the diversion alternative, **which generated a net financial benefit**, with an NPV of 193,595€ (or 25€ per tonne of food waste).

A sensitivity analysis was performed to test the effects of changes in a range of variables on the study's results. **The analysis indicated that the participation rate of households (i.e. the percentage of households that dispose of their food waste into the community composting bins) has the biggest impact on the results**

[8] Net present value (NPV) is a metric that is used in a cost-benefit analysis to calculate the difference between the current value of all future benefits and the current value of all future costs. By 'discounting' all future cash flows to current values, it allows one to compare different decisions (e.g. composting vs incineration of food waste) and determine if the project is considered profitable.

of the model. The cost of monitoring the community composting sites is the most significant cost variable. Since it accounts for more than 81% of total costs, an increase in monitoring expenses by 20% causes the diversion alternative (at 65% participation) to generate a net cost overall.

In a scenario where only 50% of households are participating, the diversion alternative with 400 community composting sites also generates a net cost. Yet, these costs are still lower than the status quo scenario, ultimately saving money compared to the costs of today's model. The benefits generated from potential savings from compost produced, as well as reduced costs for the collection and transport of food waste, also have a significant impact. When the compost price decreases by 1€ per 20kg bag, or when savings from collection and transport decrease by 60%, the diversion alternative generates a net cost.

The results of the study indicate that overall, the community composting initiative is economically preferable to sending food waste to incineration. Even though the community composting initiative has a greater overall cost than the status quo, the system still results in a net benefit over the 5-year timeframe. It is therefore recommended that the Bordeaux Metropole continue to prioritise decentralised community composting over incineration as a means to treat food waste. This further supports the French AGEC Law (i.e. Anti-Waste for a Circular Economy enacted in 2020), which prioritises waste reduction, reuse and recycling over landfill disposal and incineration.

Further, if the participation rate can be improved alongside the overall efficiency of maintaining and monitoring community composting sites (and, therefore, reducing costs), the diversion alternative could generate an even more significant net benefit. This will generate greater financial savings for the Bordeaux Metropole, environmental savings for the local community as well as a range of other co-benefits, such as building social connections and driving environmental awareness.

Zero Waste Europe (ZWE) is the European network of communities, local leaders, experts, and change agents working towards a better use of resources and the elimination of waste in our society. We advocate for sustainable systems; for the redesign of our relationship with resources; and for a global shift towards environmental justice, accelerating a just transition towards zero waste for the benefit of people and the planet. www.zerowasteeurope.eu

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