



## Waste control to boost GHG reduction targets

**Greenhouse gas (GHG) emissions** from municipal waste in Europe could be reduced by 62 million tonnes, or 1.23% of total emissions in 2008, by 2020 if the diversion targets of the EU Landfill Directive are fully met, according to a recent report. This could be largely achieved through reducing methane emissions from landfill and increased recycling levels.

**In Europe**, 17% of municipal waste is recycled, 23% is composted and 20% incinerated, but the largest proportion (40%) goes to landfill. The breakdown of organic material in the absence of oxygen releases large amounts of methane, which is a powerful GHG.

The environmental impact of waste management has been reduced significantly in recent years. Driven by the Waste Framework Directive<sup>1</sup> and the Landfill Directive<sup>2</sup>, the proportion of municipal solid waste (MSW) that is recycled has increased between 1995 and 2008 from 17% to 40%. The proportion of MSW sent to landfill sites has also decreased from 68% to 40%.

While progress has undoubtedly been made, not all EU Member States fully meet EU Landfill Directive targets yet. The report, from the European Environment Agency, estimated the potential for further emission reductions if all Member States (plus Norway and Switzerland) fully met the requirements for diverting biodegradable municipal waste from landfill. To do this, the researchers modelled the net GHG outcomes of different management options for each country, in which they varied the proportions of recycled, incinerated and landfilled municipal waste.

The model takes into account direct emissions, i.e. methane released from landfill, GHG emissions from incineration and recycling operations and waste transport, and emissions 'avoided' by recycling waste or using it as an energy source. Anaerobic digestion (without oxygen) of kitchen and garden waste can produce biogas for use as fuel and a 'digestate', which can be used as agricultural fertiliser. Although there is a small net GHG emission from composting, both methods of recycling waste as well as incineration have significant climate benefits compared to landfilling.

Assuming a business-as-usual scenario, which follows current trends and planned policy measures, the net emission reduction in 2020 compared to 2008 is estimated to be 44 million tonnes of CO<sub>2</sub> equivalent.

Results reveal that fully implementing the Landfill Directive's targets to divert biodegradable municipal waste could reduce GHG emissions by 62 million tonnes of CO<sub>2</sub> equivalent compared to 2008. This is around 42% more than the business-as-usual scenario and represents a drop in the proportion of landfilled waste to 18% and an increase in recycling and composting to 54%.

If a hypothetical complete ban on landfilling of municipal waste were to be implemented, GHG emissions could be reduced by 78 million tonnes by 2020 compared to 2008. This is around 76% more than the business-as-usual scenario and equivalent to the GHG emissions for the whole of Hungary in 2008. The proportion of recycled and composted waste in this scenario is 61% and 39% for incinerated waste.

In this study, the model does not take into account emissions released during the production of products that end up as MSW. The researchers point out that the most significant decrease in GHGs from waste could be achieved by reducing the amount of waste produced in the first place.

1. See: <http://ec.europa.eu/environment/waste/framework/index.htm>
2. See: [http://ec.europa.eu/environment/waste/landfill\\_index.htm](http://ec.europa.eu/environment/waste/landfill_index.htm)

**Source:** European Environment Agency (EEA) (2011). *Waste opportunities: past and future climate benefits from better municipal waste management in Europe*. Report no. 3/2011. Downloadable from: [http://www.eea.europa.eu/publications/waste-opportunities-84-past-and-at\\_download/file](http://www.eea.europa.eu/publications/waste-opportunities-84-past-and-at_download/file)

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