

Advancing Towards Zero Waste Declaration

Technical Note

The aim of this Technical Note is to provide detailed guidance on definitions and terminology to better understand the scope of the Advancing Towards Zero Waste Declaration as well as identify actions that are consistent with implementation of those commitments. The Advancing Towards Zero Waste Declaration aims to help cities accelerate the transition towards a zero waste and more regenerative future by taking ambitious, measurable and inclusive actions to reduce municipal solid waste generation and improve materials management.

The main commitments/targets in the declaration are:

- **Reduce the municipal solid waste generation per capita by at least 15% by 2030 compared to 2015.**
- **Reduce the amount of municipal solid waste disposed to landfill and incineration by at least 50% by 2030 compared to 2015, and increase the diversion rate away from landfill and incineration to at least 70% by 2030.**

What is zero waste?

Zero waste is a philosophy that refers to waste management and planning approaches that emphasize waste reduction and prevention, as opposed to end-of-life waste management.¹ This vision promotes the redesign of resource lifecycles so that most materials can be reused and waste generation is continuously minimized. Rather than being an absolute term, zero waste is one of continuous improvement with the ultimate goal of progressively reducing the maximum amount of waste sent to landfills and incinerators as possible.²

What is municipal solid waste?

Different jurisdictions may have slightly varying definitions for Municipal Solid Waste. In general terms, Municipal Solid Waste refers to waste generated by the public at households, offices, commercial establishments and public space. Most jurisdictions do not consider hazardous, industrial, medical or construction waste as part of the Municipal Solid Waste stream, but this may vary.

¹ <http://www.zerowaste.co.nz/assets/Reports/TheEndofWaste.pdf>

² http://www.rcbc.ca/files/u3/PPI_Zero_Waste_and_Local_Govt.pdf

What is waste diversion?

Waste diversion is the process of avoiding waste being sent to disposal in landfills and incinerators, with materials being put to more beneficial uses such as: composting, recycling, anaerobic digestion, filling, etc. Post-treatment residues, such as, bottom ash or landfilled compost, that need to be disposed of at the end of the treatment should not be considered as diverted. Waste that is shipped outside of the jurisdiction and for which the municipality has no certainty of its destination or treatment should not be considered as diverted.

Is diversion the same as recycling rate?

Whether or not the recycling rate equals the diversion rate depends on local legislation and policy. Some jurisdictions do not count organics treatment, such as composting or anaerobic digestion, as recycling while others may count metal recovery from incineration bottom ashes as recycling. In simple terms, diversion should be understood as materials that otherwise would have been sent to disposal that are instead being put to more beneficial uses. Cities will be responsible for implementing their own measurement methodologies to establish their baselines and progress, which should be explained in the actions template as part of endorsing this commitment .

Why is new incineration infrastructure incompatible with Advancing Towards Zero Waste? Why is incineration not considered diversion?

Both landfilling and incineration (with or without energy recovery) are usually end-of-life solutions for residual waste. Thermal treatment (incineration) can recover a fraction of the energy required to produce the materials. However, when looked at from a systems perspective , and particularly considering the carbon impact, , incineration does not produce clean or renewable energy. Even when all the hazardous exhaust pollutants are cleaned (at great expense), thermal treatment technologies release carbon to the atmosphere through the combustion process, rarely offsetting fossil fuels carbon emissions.

While energy recovery has been successfully integrated in regions with high segregation rates, with high power and heat demands, and extremely high land costs which make landfills cost-prohibitive, developing incineration infrastructure should not be seen as a climate-friendly solution. The Zero Waste philosophy calls for an end to the idea that waste is a renewable resource. It is estimated that we will deplete many of the essential resources from the Earth, like aluminium or phosphorus, before the end of this century, making systemic shift in how we use and recycle those resources a matter of urgency.

Landfilling and incineration have different climate impacts and timeframes of impact, however, both solutions end up adding carbon to the atmosphere. Additionally, as we need to significantly improve our materials management for a climate-safe world, more effort needs to be focused on: keeping materials in the productive system for longer; reducing the proliferation of single-use and non-recyclable materials; and avoiding the development of new infrastructure that requires waste generation to sustain it, thereby inhibiting reduction and recycling efforts and locking-in carbon emissions for decades.

Thus, for all of these reasons, and especially because of the lock-in effect of incineration infrastructure, financially bounding the city to keep producing (or importing) waste for years to come to feed the incinerator, investing in new incineration infrastructure is incompatible with the goals of the declaration even if the new infrastructure is more efficient and a smaller scale than the previous disposal technology being utilized.

How to measure waste generation?

To establish the amount of waste generation at the baseline, cities should consider all municipal solid waste that has been collected through the different mechanisms that the municipality has, which may include door-to-door residential collection, public bins and containers, private collection services, recycling drop-off points, transfer stations, green points, etc. Generally, goods captured through re-use fairs or establishments are not considered part of the amount of waste generation.

How to measure waste generation per capita?

In the simplest terms, cities will divide their overall waste generation amount by the permanent population of their jurisdiction. As many cities have a significant floating population, they may choose to use the numbers that apply to their metro areas, but the methodologies should remain consistent for the progression reporting, and should be described in their actions template.

How should waste diversion be measured?

The measurement of waste diversion should include all initiatives that prevent municipal solid waste from being sent to disposal or incineration (either locally or externally), which may include recycling programmes, organics treatment through composting or anaerobic digestion, drop-off points, donation, repair and reuse programmes where one can reasonably justify that without those, the materials would have ended being disposed, etc. Many cities already have methodologies to measure their diversion rates and the same methodologies should be used to measure at the baseline and in their progression, as will be detailed in their actions template.

How have the targets been established?

The Advancing Towards Zero Waste Declaration is an extremely ambitious commitment intended to showcase the collective efforts of leading cities and accelerate the progression towards zero waste. By using relative targets on waste generation per capita and disposal and diversion rates it strives to ensure both an absolute reduction in the amount of waste generated and to continuously improve how cities approach waste and materials management in a locally relevant and globally significant way, delivering a cleaner, healthier and more resource-efficient, climate-safe world.

The specific targets were created and agreed by a core group of the most active cities in the C40 Waste To Resources Network and global leaders in waste and materials management, supported by research on waste reduction achievements and refinements in the

understanding of the contribution of waste and materials management towards the low carbon development of cities.

Further resources

The link to the [C40 Advancing Towards Zero Waste declaration webpage is here](#) which includes the full text of the declaration signatory cities, and action templates, providing an overview of how each city intends to deliver against their commitments.