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From Commitments to Climate Impact: Are Current NDCs Enough to Deliver Substantial Methane Reductions in the Waste Sector?

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Abstract

Tackling methane emissions remains critical for achieving short-term climate stabilization. The waste sector accounts for approximately 20% of the global anthropogenic methane emissions, making it a target for mitigation efforts. With the adoption of the Global Methane Pledge, and, more recently, the COP29 Declaration on Reducing Methane from Organic Waste, the waste sector gained prominence in international climate action. This study assesses the level of ambition and policy clarity of current Nationally Determined Contributions (NDCs) commitments, its contribution to methane (CH4) emissions reduction and explores further mitigation potentials in the waste sector, especially food waste prevention actions and impacts on methane emissions. Using the Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model, waste sector commitments presented in NDC2.0 and NDC3.0 (as per mid-February 2026) submissions were translated into sector-specific mitigation actions and assessed through scenario-based modelling to estimate their potential impact on methane emissions. The analysis shows that while many countries include specific waste-sector measures, such as diverting organic waste from landfills, recovering landfill gas for flaring or energy use, generating biogas from organic waste, and improving wastewater treatment, these commitments generally lack quantitative targets and impacts. Results further indicate that methane emissions from the waste sector have increased by approximately 7% since 2020 and, under a baseline scenario, are expected to rise to 13% above 2020 levels by 2030. Full implementation of NDC2.0 waste-sector measures, as interpreted in this analysis, could limit this increase to around 10% by 2030. However, such reductions would be insufficient to reverse the upward emissions trend. The interpretation of NDC3.0 commitments is ongoing and final results will be presented at the conference.

Keywords: Methane, NDCs, organic waste, emissions