

Call to national delegations to include methane emissions reduction in all National Climate Plans:

➤ Insist that **prevention of systemic food loss and waste (FLW)** be a priority action to reduce methane from both the agriculture, transport and waste sectors. Beyond methane, food loss and waste is responsible for 8 to 10 per cent of global GHG emissions.

Recognizing that reducing methane emissions from unavoided FLW and other organic waste depends on downstream sound waste management, as underlined in the UN Secretary-General's Call to Action:*

➤ **Phase out all open dumps and mismanaged landfills.** This requires providing populations with an alternative low-methane waste management solution.

➤ Upgrade all disposal sites to engineered landfills with the highest-performance **methane capture** systems and state-of-the-art operational practices. As decentralized recovery and prevention actions expand, these facilities will progressively receive less organic waste, and less waste overall — but they will remain necessary as safeguards of circular waste management systems and will generate methane for decades to come.

➤ **Recognize that circular, low-methane urban waste systems must be developed** for diversion from landfills to happen safely. Build those by leveraging the following enablers:

Propose alternatives to landfill systems: composting, anaerobic digestion, and other nutrient valorization facilities of all scales, that reduce fossil dependency by producing local energy and nutrients.

Rethink funding mechanisms to enable collection and separation at source, and community-scale facilities, which deliver these benefits at low cost and with small investments.

Recognize the climate and environmental benefits of the energy recovered from waste— whether from anaerobic digestion, waste incineration facilities with energy recovery or landfill gas capture, acknowledging the necessary preconditions to such projects. The recovered energy may replace fossil energy and the bottom-of-hierarchy facilities are safeguards to a safe circular waste management system, not an alternative to prevention, separate collection and recycling.

The main actions governments can take:

1. **Set a national plan and measurable targets.** Identify the main sources of waste methane, assign responsibilities and track emissions reductions.
2. **Prevent food waste and separate organics at source.** Introduce separate collection from households, markets and businesses.
3. **Give municipalities the means to deliver.** Provide the mechanisms and facilitate access to stable, long-term funding for collection and well-managed composting and anaerobic digestion, including suitable community-scale systems.
4. **Tackle existing dumpsites and landfills.** Phase out uncontrolled dumping alongside reliable collection and safe treatment alternatives; control methane from waste already deposited.
5. **Protect health while cutting methane.** End open burning and require treatment facilities to control pollution and manage residues safely.



Methane Mitigation in the Waste Sector

Briefing note by the International Solid Waste Association – October 2026

1. The Waste Hierarchy: ISWA's Foundational Policy Principle

ISWA is committed to sustainable waste management as expressed by the waste management hierarchy, which aims to prioritize health and environment protection while extracting the highest possible value. To do so, it prioritizes prevention actions first, followed by reuse and recycling. Only once these are exhausted does it turn to other recovery options followed by safe disposal in engineered landfills.

For methane mitigation, the most important is to recognize that the hierarchy is forward-looking, providing guidance on the management of waste not yet generated. This framing is key in structuring the transition to circular systems. To achieve such a transition in a manner that will protect health while tackling the current climate crisis in the short-term, adopting a methane-specific lens focused on timing is key. Indeed, each tonne of methane abated today reduces warming more than 80 times over the next two decades compared to the same tonne of CO₂. Supporting the hierarchy with a methane-specific lens is strategic because some of the highest-leverage short-term methane actions — ending open dumping and capturing landfill gas — concern the legacy stock already emitting today, at the hierarchy's disposal end. Combining this methane-specific reading with the hierarchy's resource-value logic is key to capture both long-term circularity gains and fast near-term climate benefits.

2. Why Methane Needs Its Own Lens

Methane is more than 80 times as powerful as CO₂ over a 20-year horizon and around 27 times over 100 years but persists in the atmosphere for only about a decade — so the climate benefit of cutting it is immediate². The waste and wastewater sector together account for roughly a fifth of human-caused methane emissions, in the order of 68 million tonnes per year, with solid waste disposal the larger part of that total³.

Methane mitigation in the waste sector must therefore be addressed on three fronts at once: **future waste**, where system design decides tomorrow's emissions; **existing waste**, where operating practice decides current emissions; and **legacy waste** already in dumpsites and landfills, which will keep emitting for decades regardless of how new waste flows are handled.

Methane from wastewater becomes methane from solid waste when biosolids are either dumped or sent to local landfills – in the many cases where land application is not implemented. These biosolids should be avoided, unlike other organic waste. They are the product of the necessary wastewater treatment to prevent the largest, often un-reported emissions from the water sector: GHG emissions from untreated wastewater discharged to the environment.⁴

3. Three Action Areas

ISWA reads the system through a mitigation lens that orders action by abatement leverage and urgency, following the logic of the CCAC waste methane mitigation hierarchy⁵. It does not reorder the waste hierarchy; it identifies where mitigation action is most impactful, applied simultaneously across the three entry points above.

Avoid. Preventing organic waste generation — food loss and waste, garden and other organic waste — is the first priority: waste that is never created can never emit methane, and prevention carries the widest co-benefits, from food security to lower system costs (*first key message*). This addresses mostly future waste.

Divert and valorize. Separately collecting the organic fraction so it never reaches final disposal and recovering its value through state-of-the-art composting and anaerobic digestion. Collection at source is the single most important operational lever, but



facilities must be well designed and operated: poorly run plants emit methane and nitrous oxide of their own (*fourth key message*). This addresses mostly existing waste.

Minimize the impacts of disposal. For organic matter that remains in residual waste: recover energy that would be waste and that replaces fossil energy use where preconditions allow (*fourth key message*) and provide all landfills with high-performance gas capture as an immediate mitigation action. Even where avoidance and diversion succeed, a low-methane final disposal facility remains needed as a safeguard for circular waste systems (*second and third key messages*). This addresses existing and legacy waste, recognizing that existing waste becomes legacy the moment it enters a landfill.

4. The Existing Toolbox

The measures that matter most for methane are, in many places, well-proven, comparatively low-cost, and routinely overlooked. What they require is enabling conditions: universal collection coverage, operational source separation, institutional capacity and enforcement, viable markets for compost, digestate and recovered energy, cost-recovering tariffs — including for landfill aftercare — and access to finance. Mitigation measures fail where these are absent, however sound the technology. They also require measurement, reporting and verification (MRV): credible baselines, direct measurement where feasible, verified capture performance rather than default factors, and long-term monitoring after closure which turns a methane commitment into a financeable project, and a claimed reduction into a verified one (*fourth key message*).

5. Residual Waste and Legacy Sites: A Basket of Solutions

Even where prevention, separate collection and recycling work well, residual waste remains, and will remain for decades. ISWA recognizes that sustainable waste management cannot be achieved with a one-size-fits-all solution: local waste composition, regulation, governance, financing and technical capacity necessitate a basket of solutions suited to each community.

Mismanaged disposal is the dominant source of waste-sector methane and the first issue to address everywhere. Mismanaged landfills, illegal open dumping and open burning are distinct problems needing distinct remedies, but all must end by providing an alternative to populations (*second key message*). Controlled engineered disposal with high-performance gas capture is the minimum standard.

Beyond prevention and diversion, the basket includes: **bio-stabilization** of organic matter before disposal, which reduces the methane generated; **engineered landfills** with high-performance gas capture systems, utilization or flaring, and oxidizing covers to reduce residual emissions; **waste incineration with energy recovery**, which ISWA recognizes as an important part of the transitional basket for residual and non-recyclable waste, preventing landfill methane formation from the fraction it treats — subject to its preconditions, and never displacing achievable prevention, separate collection or biological treatment; and, for **legacy sites**, gas capture, oxidizing covers, controlled closure and long-term monitoring and after-care — often the fastest and cheapest tonnes of methane a city can abate.

6. The Ask

Delivering these four actions in the waste sector would represent one of the fastest and most cost-effective contributions available to Parties under the Global Methane Pledge and the Nationally Determined Contributions under the Paris Agreement. ISWA stands ready to provide COP31 delegations with technical guidance to translate these messages into national commitments and bankable projects.



End Notes:¹ UN Secretary-General, Call to Action on Methane (un.org/en/climatechange/methane). ² IPCC AR6 (GWP20 ≈ 80; GWP100 ≈ 27). ³ UNEP, Global Methane Status Report (2025). ⁴ IWA Climate smart Utilities Programme. ⁵ CCAC Waste & Methane Mitigation Hierarchy.

Summary of ISWA's position

- **The waste hierarchy is ISWA's foundation** that determines the preferred order of treatment options. The **urgency-based** methane mitigation lens does not replace but complements it, identifying where methane action is most needed and where it works fastest.
- **Action must address future, existing and legacy waste simultaneously.** A strategy that only improves the handling of tomorrow's waste leaves today's largest methane source untouched.
- **Preventing organic waste and diverting** what is still generated to state-of-the-art-composting and anaerobic digestion, are the highest-leverage long-term methane actions. **Eliminating mis-managed landfills**, illegal dumping and open burning is the universal first step.
- **The tools are proven and often overlooked.** The barrier is rarely the technology, but the enabling environment.
- **Residual waste will be with us for decades, and managing it responsibly is an imperative** to safeguard health and the environment. Bio-stabilization before disposal, engineered landfill with high-performance gas capture system, and waste incineration with energy recovery each have a place in the basket of transitional solutions, subject to their preconditions and to local context. Waste prevention, separate collection and recycling are preferred options for organic waste.
- **Measurement, reporting and verification are integral, not an afterthought.** Credible baselines measured rather than assumed capture performance, and long-term monitoring are what make mitigation verifiable and financeable.
- **There is no "one size fits all".** ISWA promotes performance standards and environmental outcomes rather than prescriptive technological preferences, recognising differences in infrastructure maturity, economic conditions, regulation and waste composition.



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