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ENVIRONMENTAL JUSTICE PRINCIPLES

***For Fast Action on
Waste and Methane***



#ZeroWaste



Environmental Justice Principles for Fast Action on Waste and Methane

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Part 1. Preamble

A vision for systems change towards zero waste, climate justice, and quick action on methane

- At its seventy-seventh session on December 14th 2022, the United Nations General Assembly adopted a [resolution](#) to proclaim March 30th as **International Day of Zero Waste**. In proclaiming this annual celebration, the UN recognised that promoting zero waste initiatives would help advance the goals and targets in the 2030 Agenda for Sustainable Development, including [Sustainable Development Goal 11](#) and [Sustainable Development Goal 12](#). These goals address all forms of waste, including plastic waste, food loss and waste, natural resource extraction and electronic waste.
- **Zero waste** is defined as *the conservation of all resources by means of responsible production, consumption, sufficiency, reuse, and recovery of products, packaging, and materials without burning, and with no discharges to land, water, or air that threaten the environment or human health.*¹ Most importantly, zero waste strategies help societies produce and consume goods while respecting resource scarcity, planetary boundaries and the rights of communities; these are versatile strategies that aim to continually reduce waste through source reduction, separate collection, composting and recycling, ensuring that all discarded materials are safely and sustainably returned to nature or manufacturing. Practicing zero waste means moving toward a world in which all materials are used to their utmost potential, nothing goes to waste, and the needs of people—workers and communities—are met through a system that protects and does no harm to the environment.
- Importantly, waste management is a multidimensional problem. Its related issues incorporate political, institutional, social, environmental and economic aspects. **Effective action in the waste sector therefore needs to be designed from a systemic perspective**, taking into account the relevant factors of each different dimension. Whether the issue is methane emissions, plastic pollution or food waste prevention, effectively addressing these issues necessarily means being cognizant of, and strategizing for, the larger waste problem.

¹ Definition adopted by the Zero Waste International Alliance, December 2018. Available [here](#)

- Looking to methane emissions in particular: **the waste sector is the third largest source of human-caused methane emissions**, whose reduction will deliver rapid climate benefits through avoided warming. Methane's heat-trapping capacity is 86 times higher than carbon dioxide over a 10-year period. The waste sector could reduce methane emissions by 95% through a combined approach that prevents food waste, recovers edible surplus food, separately collects and processes organic waste and reduces emissions at disposal sites. This approach is a key part of any zero waste system.
- Our planet and peoples are facing multiple inter-related crises: extraction and exploitation of global ecological and human commons, persistent inequities, unregulated corporate influence, and lack of accountability and transparency among decision-making bodies globally. **We need a just transition**, moving away from these crises in a way that is fair and inclusive, that creates decent work opportunities and leaves no one behind. In the waste sector, environmental justice communities include the recycling informal sector, e.g. waste pickers, impacted communities from waste disposal facilities or dumpsites, and vulnerable communities that are disproportionately overburdened with impacts from pollution, e.g. women, children, elderly, low-income communities, non-whites, etc. Ultimately, it is important to conceive nature as a subject of rights, acknowledging the interdependence between societies, nature and ecosystems, as it was already recognised in the Constitution of Ecuador in 2008.
- History teaches us that environmental injustices result from systems of exploitation but are often addressed as a problem that can be resolved through technical or monetary means. Instead, it is essential to advance an approach to environmental justice founded on fundamental principles of **human, political, economic, social and cultural rights; democratic decentralization; and accountable governance**.
- **Zero waste solutions** are a fundamental part of the efforts to reduce greenhouse gas emissions, and build resilience and solutions to climate change while ensuring justice, equity and more. This global call for environmental justice is multi-dimensional, concerned with recognition of the diversity of peoples and cultures, and human rights-based participation in political processes which create, manage and implement environmental policy. These values and principles are in our solidarity with global movements of environmental and climate justice, and the struggles of disadvantaged local communities to secure their rights to a clean and safe environment.

Part 2. Environmental Justice Principles for the Waste Sector

Five Principles to Guide Action

(1) Respect planetary boundaries to ensure intergenerational equity

Recognising ecological limits, the waste hierarchy must be applied to reverse climate change and drive a just transition that ensures intergenerational equity.

Protecting future generations' right to a healthy environment requires respecting planetary boundaries.² Humankind is currently overshooting planetary boundaries, a trend that needs to be recognised and reversed to prevent further climate emergencies, biodiversity decline and mass extinction of species that threaten the stability of the planet. A perspective on addressing planetary boundaries with environmental justice and equity in mind acknowledges the absolute rights of everyone, especially the most vulnerable, to water, food, energy, health and a clean environment. A just transition towards intergenerational equity and sufficiency ensures a balanced approach to resource use, safeguarding everyone's well being, including that of future generations, while reducing our resource and carbon footprint.

In this context, addressing the waste sector's contribution to environmental and climate damage is critical and time-bound, and must follow the priorities established by the waste hierarchy – that is, giving priority to waste prevention, giving discarded materials the highest and best use and phasing out waste disposal technologies such as landfilling and incineration.

This principle involves governments, public and private institutions committing to self-transformation and moving towards sufficiency and reversing the ever-increasing trend of overconsumption and overexploitation of our common goods. Moreover, institutions must remove barriers to reducing consumption and strengthen and empower individual and family consumers to follow responsible and mindful consumption patterns.

² The [Maastricht Principles on the Human Rights of Future Generations](#) establishes equity between current and future generations with respect to human rights, including the right to a safe, clean, healthy and sustainable environment.

(2) Respect for all waste pickers and waste workers

Upholding and strengthening human rights, we must center equity and justice in all our actions, protecting the livelihoods of waste pickers and waste workers and ensuring no harm in the first place.

Policies related to waste management and implementation projects must adopt a do-no-harm approach, meaning that impacts to vulnerable or disadvantaged communities are recognized, avoided and addressed. These communities must not be worse off due to the impacts of any waste policies and/or projects. This approach involves recognising the legal, social and ethical rights of, and assessing the risks to, all stakeholders and rights holders with a special focus on vulnerable communities. In particular, the essential rights of identity, dignity and livelihood must be recognised for all waste pickers and waste workers, who are at the center of a just transition process in the waste sector. Waste pickers and waste workers must have a safe and healthy work environment without being forced to choose between a hazardous livelihood and unemployment.

States and governments at all levels have an obligation to protect individuals and groups against human rights abuses. It is important to honor the cultural integrity of all communities, providing fair access for all to the full range of resources, providing basic services like food and housing to all. Protection of the inherent rights and self-determination of Indigenous Peoples must also be ensured. This must include a view of the cumulative impacts that multiple polluting facilities cause in overburdened communities (sometimes called “sacrifice zones”). Overburdened communities are also particularly vulnerable to gender injustice and violence, which must be eliminated.

(3) Enhance inclusion and build from local knowledge

In decision-making processes, enhancing inclusion and meaningful participation is a must, along with building from local knowledge and expertise.

Policies and implementation projects related to waste and resource management must ensure inclusion and meaningful, equitable participation of all impacted rights holders, starting in development planning and throughout the lifecycle of a project. Free, prior and informed consent (FPIC) processes should be upheld for waste pickers, waste workers and fenceline communities so they can participate at every level of decision-making, including needs assessment, planning, implementation, enforcement and evaluation. There should be additional efforts to facilitate equal participation of groups marginalized on the basis of (but not limited to) race, ethnicity, caste, gender, disability, etc. Moreover, public policy impacting waste management must recognise and incorporate the expertise of local organizations and actors, including the informal sector. The policies and projects must seek to add value to existing local

work, not displacing existing local economies. Waste management should be locally-appropriate, low impact, small-scale, decentralized, climate resilient, and all communities should have access to technology, knowledge and skills.

(4) Respond to pollution and environmental harm with accountability

Any pollution or environmental harm caused must be addressed with accountability, putting means in place to compensate for damages and prevent further harm.

Private firms and others responsible for harming people or the environment through waste policies and projects must be held accountable. Impacted communities need to be provided with access to justice, compensation, quality health care and restoration of their livelihoods wherever harms occur, ensuring the same standards are applied across the world. Binding policies must be developed to limit corporate power and prevent further crimes at the national and global levels. In this sense, respecting the proximity principle is fundamental: waste should be managed as near as possible to its place of production and exporting waste to countries without effective waste management systems or environmental legislation and regulations – known as waste colonialism – must end.

The polluter pays principle, as a matter of international environmental law, is enacted to make the party responsible for causing the pollution (by action or omission) for cleaning it up. However, in order to make this strategy viable, the price must be high enough to be a deterrent to continuing pollution, which should be the ultimate goal. By NO means should this principle be considered as a right to pollute or a right to continue polluting, even if fines are paid.

The preventive and precautionary principles must also be applied. The first is addressing tangible risks, while the latter deals with scientific uncertainty. When there are threats of damage to people or the planet, then lack of full scientific certainty cannot be used to delay cost-effective measures to stop such harm.

(5) Support holistic solutions through systems change

A systemic point of view must be used to find solutions for interrelated crises like climate, public health, poverty, gender, racial and class injustice, inequality, conflict and war, and to ensure solutions in the waste sector meet and exceed Sustainable Development Goals and climate targets.

Policies and implementation projects on waste and resource management must be designed, developed and evaluated from a systemic point of view, ensuring alignment between environmental, social and economic benefits. Solutions cannot just focus on unilateral action.

Taking a particular climate action without an overall understanding of how mitigation, adaptation and sustainable development actions interact and reinforce each other can be counterproductive and exacerbate the root causes of climate change. In a world beset by poverty, hunger, gender inequality, war and climate change, waste management systems must strengthen and be aligned with larger systemic goals, recognising the interdependence between all humans and the planet, valuing and reorganizing care work and ensuring that basic public services like water, health, energy, education, food, etc. are provided to all.

Interventions in the waste sector must support the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature and ecology, avoiding toxic pollution, establishing virtuous circles for reuse and recycling, returning nutrients to soils and materials to society, protecting biodiversity and recognising the inter-dependence of humans with the planet. These policies, under the umbrella of a zero waste vision, provide further benefits such as clean air, better livelihoods, food security and others, which must be available to all communities, especially those who are currently harmed by the pollution.

A systemic perspective also means redesigning products and packaging without toxic materials, and ensuring consumption patterns are more healthy for people and the planet, codifying the right to repair and banning planned obsolescence implemented by companies to make more profit. A systemic perspective also recognises that there is an ecological debt owed from the global north to the global south, and that waste management policies and projects should not reinforce existing global inequities and injustices.

Part 3. Guidance for Policy Makers on Waste and Environmental Justice Principles

The Environmental Justice Principles for the waste sector outlined above provide a set of standards and criteria for decision-making processes in this field. For waste and environmental justice principles to become a reality, a conducive policy environment as well as a robust implementation system is required. Moreover, it is critical to have clear and practical implementation plans and toolkits to ensure the success of zero waste and methane reducing strategies.

Below are recommendations on how policy-makers can operationalise these principles. This guidance is for policymakers, sustainability professionals, environmental advocates and grassroots organizers seeking to reduce methane while striving for zero waste and environmental justice. As such, these principles need to be processed and applied into the design, development and implementation of environmental and waste policy at all scales.

(1) Respect planetary boundaries and move towards sufficiency

Recognising ecological limits, we need to apply the waste hierarchy to reverse climate change and environmental degradation towards sufficiency.

The waste hierarchy – as described below – provides guidance on the policy priorities for interventions in the waste sector. At its core, waste prevention is at the top of the waste hierarchy, and it normally involves a set of policies that are often conceived outside the specific realm of waste management.

Waste prevention involves reducing production of disposable products, the redesign of products to maximize their reusability and recyclability and enabling reduction of resource use overall. In this way, waste prevention policies are also beneficial for climate change mitigation and adaptation, and contribute to the goal of sufficiency: covering basic needs and well-being for all without lack or excess, and investing in reuse systems while reducing and avoiding over-consumption, particularly of single use products.

Policies on waste prevention should end programmed obsolescence and give consumers the rights to repair rather than reason to discard and buy new products; require batteries to be removable and replaceable, avoid software and hardware incompatibilities, codify the right to repair to reduce electronic waste, etc.

All these policy instruments can have a great impact on waste prevention, which is particularly important when it comes to food loss and food waste. Importantly, an increasing number of agroecology and composting networks have been organized in cities to recover organic waste and ensure community-based and decentralized management. These initiatives prioritize recovering food in good condition for food banks, feeding farm animals, and decentralized composting. These initiatives need to be further incentivised and replicated with measures along the lines of:

- ✔ **Prepare and adopt a holistic plan** that aims to reduce food waste within the frame of a wider transition to a sustainable food system;³
- ✔ **Stimulate the local food system** through community-supported agriculture and initiatives that reduce food loss at the primary level;
- ✔ **Create a local food environment** that encourages a wide-range of public and private actors to develop food waste prevention activities;

³ Zero Waste Europe and Slow Food (2021) *Reducing food waste at the local level: Guidance for municipalities to reduce food waste within local food systems*. [ONLINE] Available at: <https://www.slowfood.com/wp-content/uploads/2022/01/Guidance-on-food-waste-reduction-in-cities-EN.pdf>

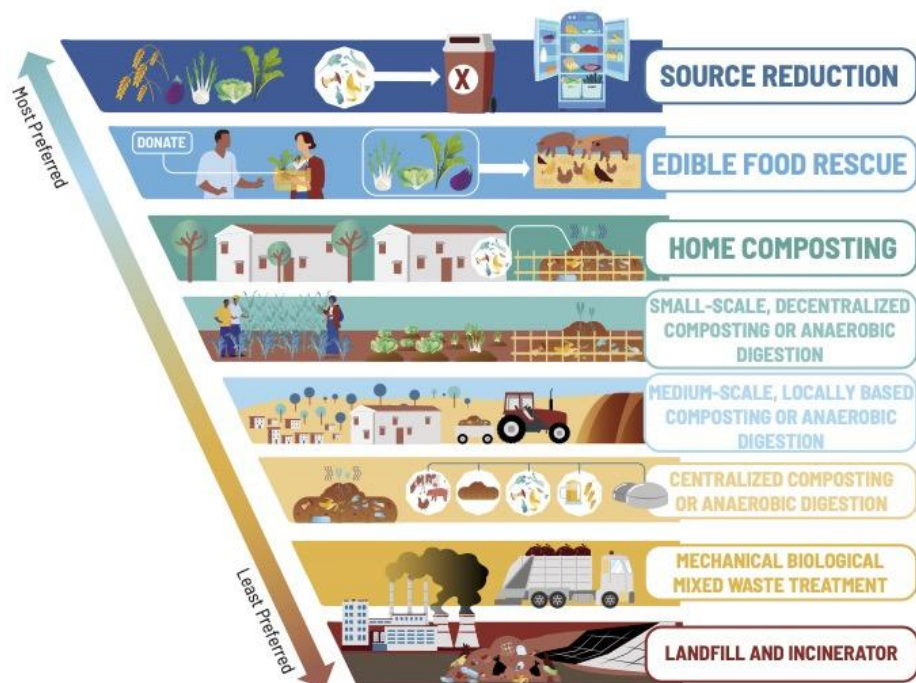
✔ **Raise awareness and educate** about the value of food through educational program or impacting campaigns stimulating citizens to reduce food waste;

✔ **Develop a proper bio-waste management system** to ensure food waste is valorised into fertilizer in the case it cannot be prevented.

Implementation of this principle also implies a commitment to institutional self-transformation, in line with staying within ecological limits. First, the development and implementation of waste and climate policies will often require training and technical capacity building to local authorities and organizations at the local level.

Then, institutions must follow green and sustainable protocols and practices and commit to sufficiency, removing barriers to reducing consumption, and strengthening and empowering individual and family consumers to follow responsible and mindful consumption patterns. Specific green procurement policies are necessary for public or private events of institutions, e.g. reusable tableware, use of compost in public green spaces, avoidance of single use plastic and control of food waste, etc. Institutions need to walk the talk and model a cultural shift towards sustainability and respect for the Earth's finite resources.

Organic Waste Hierarchy to Reduce Methane in the Waste Sector Following EJ Values and Principles



Source: Institute for Local Self-Reliance

1. Organic waste prevention: interventions available at every step of the supply chain, from production to transportation to consumption

- a. Waste prevention is the most important methane reduction strategy in the waste sector; every tonne of organic material that never enters the waste stream avoids the methane it would have generated in a landfill, as well as the upstream emissions involved in its production and transport.
- b. Food loss and waste is responsible for 10% of all GHG emissions worldwide⁴ and a majority of solid waste methane emissions,⁵ thus it is especially important to avoid. Furthermore, opportunities for food waste and food loss prevention are available at every step of the supply chain for organic goods, from amending subsidies that encourage food overproduction, to instituting demand-planning programs or food donation mandates in supermarkets, to educating consumers about waste prevention.^{6,7} France's recent food-waste-prevention law, for example, fines supermarkets that exceed a set cap for discarded food.⁸

2. Food recovery: Redistribution to people and reprocessing into preserved food products

Where direct prevention fails, recovery is the next best option – discarded food can be redirected to people in need or repurposed for preserved products like jams. Collaboration between food banks, grocery stores and local government in Milan, Italy, for example, has led to 130 million tonnes of food waste saved annually in just three years, putting the city well on its way to achieving its goal of 50% food waste reduction by 2030.^{9,10} Prevention of food losses and waste, including the promotion of programs that guarantee access to food for the poorest population with nutritional security and food sovereignty, is a positive step forward.

⁴ Gikandi, L. (2021) *10% of all greenhouse gas emissions come from food we throw in the bin*. [ONLINE] Available at: <https://updates.panda.org/driven-to-waste-report>

⁵ Brown, S. (2016) Greenhouse gas accounting for landfill diversion of food scraps and yard waste. *Compost Science & Utilization*, 24(1): 11–19. [ONLINE] Available at: <https://doi.org/10.1080/1065657X.2015.1026005>

⁶ Zero Waste Europe and Slow Food (2021) *Reducing food waste at the local level: Guidance for municipalities to reduce food waste within local food systems*. [ONLINE] Available at: <https://www.slowfood.com/wp-content/uploads/2022/01/Guidance-on-food-waste-reduction-in-cities-EN.pdf>

⁷ ReFED (n.d.) *Roadmap to 2030: Reducing US food waste by 50%*. [ONLINE] Available at: <https://refed.org/food-waste/the-solutions/#roadmap-2030>

⁸ Zero Waste Europe (2020) *Zero waste Europe factsheet: France's law for fighting food waste*. [ONLINE] Available at: https://zerowasteurope.eu/wp-content/uploads/2020/11/zwe_11_2020_factsheet_france_en.pdf

⁹ Bottinelli, S. (2021) The city of Milan's Local Food Hubs reduce 130 tonnes of food waste a year, and win EarthShot Prize. *Food Matters Live*, 18 October 2021. [ONLINE] Available at: <https://foodmatterslive.com/discover/article/milan-local-food-hubs-reduce-130-tonnes-of-food-waste-a-year-and-win-earthshot-prize>

¹⁰ Food Policy di Milano (2021) *"Milan Food waste hub" won Prince William's Earthshot Prize*. [ONLINE] Available at: <https://foodpolicymilano.org/en/milan-food-waste-hub-won-prince-williams-earthshot-prize/>

3. Food waste recovery: Redistribution to animal feed

Waste separation at source and separate collection is a fundamental policy that determines the quality of food waste recovery and other high treatments explained below. A key example of waste separation policy is the 2018 amendment to the EU's Waste Framework Directive that has set promising goals for organic waste management in all 27 EU member states. The Directive's mandate to separately collect all organic waste by the end of 2023 has already driven significant increases in separate collection rates and the European Commission is planning to adopt the additional goals of reducing food waste by 50% by 2030 and developing legally binding targets for food waste reduction.^{11,12}

Even with effective waste prevention programs in place, some organic waste will still be generated. For this discarded material, source separation – where organic discards are separated out from other waste at their point of generation (homes, businesses etc.) – is critical. Source-separated organic waste needs to be separately collected, ensuring a clean stream of organic material ideal for high-impact treatment methods such as composting, AD and diversion to animal feed, which can be done on site, at decentralized community-scale facilities, or at larger centralized facilities depending on local capacities and needs.

Similarly, diverting organic discards to feed livestock avoids landfill methane emissions and can displace conventional, energy-intensive feed crops (see section 2). Though estimates of the methane reduction potential of using organic discards for animal feed are lacking, one life cycle analysis found that the practice can deliver greater overall GHG reductions than composting or AD.^{13,14}

¹¹ European Union (2008) *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives*. [ONLINE] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0098-20180705>

¹² European Commission (2021) *A farm to fork strategy*. [ONLINE] Available at: https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en

¹³ Salemdeeb, R., Zu Ermgassen, E. K., Kim, M. H., Balmford, A. & Al-Tabbaa, A. (2017) Environmental and health impacts of using food waste as animal feed: A comparative analysis of food waste management options. *Journal of Cleaner Production*, 140: 871–880. [ONLINE] Available at: <https://doi.org/10.1016/j.jclepro.2016.05.049>

¹⁴ Broom, D. (2019) South Korea once recycled 2% of its food waste. Now it recycles 95%. *World Economic Forum*, 12 April 2019. [ONLINE] Available at: <https://www.weforum.org/agenda/2019/04/south-korea-recycling-food-waste/>

4. Material recycling: Composting and AD

Composting: unlike landfills, well-managed compost operations produce minimal amounts of methane, most of which is destroyed by bacteria.^{15,16,17} Composting can prevent as much as 99% of methane emissions that would otherwise be released from landfills,^{18,19} greatly reducing waste sector emissions. Decentralised, on-site management compost units are well-considered, but there are composting units and methods for all contexts.

Anaerobic Digestion (AD): where organic discards are intentionally broken down in the absence of oxygen to produce methane for fuel – can be a suitable complement or alternative to composting. Unlike landfills, which constantly leak methane into the atmosphere, anaerobic digesters are sealed vessels that collect methane until it is burned as fuel, converting it into biogenic CO₂. AD also generates a small proportion of residual organic matter, called digestate, which can be composted and used as soil amendment. AD is often well suited for dense areas with large amounts of organic discards and little room for composting facilities, but has higher capital costs and requires more technical training to operate.²⁰ Cheaper, small-scale AD units have also been employed with great success in remote communities with less-reliable access to energy grids in countries such as Bangladesh, India and China.²¹

However, it is worth highlighting foreseeable AD pitfalls such as landfilling AD digestate, flaring AD biogas instead of using it as fuel, burning fossil fuels to increase processing temperatures, digesting new, energy-intensive agricultural crops rather than organic discards and perceived or actual competition with renewable wind and solar energy. It is also critical to ensure the correct operation of AD facilities for achieving financial sustainability and avoid any leaks of methane into the atmosphere once generated. AD in the agricultural sector can also provide perverse incentives for continued manure or organic waste generation, undercutting other options such as waste reduction or

¹⁵ Cabanas-Vargas, D. D. & Stentiford, E. I. (2006) Oxygen and CO₂ profiles and methane formation during the maturation phase of composting. *Compost Science & Utilization*, 14(2): 86–89. [ONLINE] Available at: <https://doi.org/10.1080/1065657X.2006.10702269>

¹⁶ Jäckel, U., Thummes, K. & Kämpfer, P. (2005) Thermophilic methane production and oxidation in compost. *FEMS Microbiology Ecology*, 52(2): 175–184. [ONLINE] Available at: <https://doi.org/10.1016/j.femsec.2004.11.003>

¹⁷ Hermann, B. G., Debeer, L., De Wilde, B., Blok, K. & Patel, M. K. (2011) To compost or not to compost: Carbon and energy footprints of biodegradable materials' waste treatment. *Polymer Degradation and Stability*, 96(6): 1159–1171. [ONLINE] Available at: <https://doi.org/10.1016/j.polymdegradstab.2010.12.026>

¹⁸ Boldrin, A., Andersen, J. K., Møller, J., Christensen, T. H. & Favoino, E. (2009) Composting and compost utilization: accounting of greenhouse gases and global warming contributions. *Waste Management & Research*, 27(8): 800–812. [ONLINE] Available at: <https://doi.org/10.1177/0734242X09345275>

¹⁹ Zhao, H., Themelis, N., Bourtsalas, A. & McGillis, W. R. (2019) *Methane emissions from landfills*. Columbia University [ONLINE] Available at: https://www.researchgate.net/publication/334151857_Methane_Emissions_from_Landfills

²⁰ United Nations Environment Programme and Climate and Clean Air Coalition (2021) *Global Methane Assessment*.

²¹ Paul, A. S. (2021) Thanks to high LPG price, homemakers turn to biogas. *The Hindu*, 11 September 2021. [ONLINE] Available at: <https://www.thehindu.com/news/cities/Thiruvananthapuram/thanks-to-high-lpg-price-homemakers-turn-to-biogas/article36401902.ece>

composting.²² AD, therefore, can work well with a clean organic waste stream in certain areas with appropriate operational capacity, but, like composting, needs to be integrated in an overall zero waste system that prioritizes prevention.

5. Bio-stabilisation of residuals

Given that some organic discards will still remain in residual waste streams even after source separation and treatment of organics, residual waste should never be landfilled without first undergoing biological stabilization. This can include simple mixing and aeration techniques or more complex material recovery and biological treatment (MRBT) systems. In this way, bio-stabilisation provides a final screen for organic material, including contaminated or “dirty” organics still in the residual waste stream.

6. Remediation: Biologically active cover and landfill gas capture – to be implemented as a last resort

Even when complete diversion of organics is achieved, ongoing methane emissions from past discards buried in landfills will still need to be addressed, as landfills continue to emit methane for decades after they have stopped accepting new waste.²³ Fortunately, active landfills are responsible for the majority of emissions and emissions from closed landfills – also known as legacy emissions – only represent about 9% of the problem.²⁴ A growing body of research suggests that biologically active cover – a layer of compost or other organic material over landfills – can greatly reduce these emissions. By fostering communities of microbes that digest methane as it rises up from the landfill below, biologically active cover can reduce landfill emissions by 63% on average.^{25,26,27,28} Depending on environmental conditions, it can even generate “negative” emissions by drawing down methane from the

²² Zero Waste International Alliance (2017) *Choosing between composting and anaerobic digestion: Soil, fuel or both?* [ONLINE] Available at:

<https://zerowasteurope.eu/library/choosing-between-composting-and-anaerobic-digestion-soil-fuel-or-both/>

²³ Agency for Toxic Substances and Disease Registry (2001) *Landfill gas primer: An overview for environmental health professionals*. [ONLINE] Available at: <https://www.atsdr.cdc.gov/hac/landfill/html/ch2.html>

²⁴ Powell, J. T., Townsend, T. G. & Zimmerman, J. B. (2016) Estimates of solid waste disposal rates and reduction targets for landfill gas emissions. *Nature Climate Change*, 6(2): 162–165. [ONLINE] Available at: <https://doi.org/10.1038/nclimate2804>

²⁵ Boldrin, A., Andersen, J. K., Møller, J., Christensen, T. H. & Favoino, E. (2009) Composting and compost utilization: Accounting of greenhouse gases and global warming contributions. *Waste Management & Research*, 27(8): 800–812. [ONLINE] Available at: <https://doi.org/10.1177/0734242X09345275>

²⁶ Lou, X. F. & Nair, J. (2009) The impact of landfilling and composting on greenhouse gas emissions—a review. *Bioresource Technology*, 100(16): 3792–3798. [ONLINE] Available at: <https://doi.org/10.1016/j.biortech.2008.12.006>

²⁷ Stern, J. C., Chanton, J., Abichou, T., Powelson, D., Yuan, L., Escoriza, S. & Bogner, J. (2007) Use of a biologically active cover to reduce landfill methane emissions and enhance methane oxidation. *Waste Management*, 27(9): 1248–1258. [ONLINE] Available at: <https://doi.org/10.1016/j.wasman.2006.07.018>

²⁸ Barlaz, M. A., Green, R. B., Chanton, J. P., Goldsmith, C. D. & Hater, G. R. (2004) Evaluation of a biologically active cover for mitigation of landfill gas emissions. *Environmental Science & Technology*, 38(18): 4891–4899. [ONLINE] Available at: <https://doi.org/10.1021/es049605b>

atmosphere.^{29,30} On the other hand, financial support for biocover could potentially create a perverse incentive to dispose of low-quality compost at landfills as a mitigation strategy, which should be avoided.

A final method for remediating methane emissions – which should only be explored after the implementation of zero-waste strategies – is gas capture from existing landfills. In this process, landfills are equipped with tubes that allow some of the landfill gas (LFG), which is composed of 35–50% methane,³¹ to be collected and piped to the surface. From there it can either be flared or burned for energy, converting the contained methane to CO₂. Capture efficiencies can vary significantly, however, with 10–65% of the target methane escaping into the atmosphere³² and additional fugitive emissions arising from leaky pipes and transportation infrastructure.^{33,34} LFG capture is more carbon-intensive than composting and AD³⁵ and should be employed with caution. In some cases, financial incentives to collect LFG have motivated waste management companies or municipalities to redirect organic discards from diversion programs (such as animal feed or composting) back to landfills to increase LFG production.^{36,37}

7. Never acceptable: Incineration, co-incineration and other types of thermal treatments

Incineration should never be used to manage organic discards. Incineration is highly polluting, expensive and carbon-intensive, with large capital costs and high operational costs incurred from covering pollution control, air quality monitoring, wastewater management and ash disposal.³⁸ These costs often lead to incineration facility closures and have drained municipal budgets of hundreds of millions to more than a billion US

²⁹ Lou, X. F. & Nair, J. (2009) The impact of landfilling and composting on greenhouse gas emissions—a review.

³⁰ Stern, J. C., Chanton, J., Abichou, T., Powelson, D., Yuan, L., Escoriza, S. & Bogner, J. (2007) Use of a biologically active cover to reduce landfill methane emissions and enhance methane oxidation.

³¹ Johannessen, L. M. (1999) *Guidance note on recuperation of landfill gas from municipal solid waste landfills*. Washington DC, USA: International Bank for Reconstruction and Development/World Bank.

³² Stanisavljević, N., Ubavin, D., Batinić, B., Fellner, J. & Vujić, G. (2012) Methane emissions from landfills in Serbia and potential mitigation strategies: a case study. *Waste Management & Research*, 30(10): 1095–1103. [ONLINE] Available at: <https://doi.org/10.1177/0734242X12451867>

³³ The Landfill Gas Expert (2019) *Fugitive emissions of methane and landfill gas explained*. [ONLINE] Available at: <https://landfill-gas.com/fugitive-emissions-of-methane-landfill-gas>

³⁴ Inter-American Development Bank (2009) *Guidance note on landfill gas capture and utilization* [ONLINE] Available at: <https://publications.iadb.org/publications/english/document/Guidance-Note-on-Landfill-Gas-Capture-and-Utilization.pdf>

³⁵ Barton, J. R., Issaias, I. & Stentiford, E. I. (2008) Carbon: Making the right choice for waste management in developing countries. *Waste management*, 28(4): 690–698. [ONLINE] Available at: <https://doi.org/10.1016/j.wasman.2007.09.033>

³⁶ Global Alliance for Incinerator Alternatives (n.d.) *Clean development mechanism funding for waste incineration: Financing the demise of waste worker livelihood, community health, and climate* [ONLINE] Available at: <https://www.no-burn.org/wp-content/uploads/Clean-Development-Mechanism-Flyer.pdf>

³⁷ Global Alliance for Incinerator Alternatives (2013) *Recycling jobs: Unlocking the potential for green employment growth*. [ONLINE] Available at: <https://www.no-burn.org/wp-content/uploads/2021/03/Recycling-Jobs-Unlocking-Potential-final.pdf>

³⁸ Global Alliance for Incinerator Alternatives (2021) *The high cost of waste incineration*. [ONLINE] Available at: www.doi.org/10.46556/RPKY2826

dollars in some cases,³⁹ compared with composting, which tends to have lower waste management costs and has very low capital costs.^{40,41,42} Incineration also fares very poorly from a climate perspective. While it can save methane emissions from organic discards, it generates huge amounts of fossil-based CO₂ when plastics and synthetic textiles burn in mixed municipal waste.⁴³ When used for energy production, so called “waste-to-energy” incinerators generate more GHG emissions per unit of energy produced than any other energy source.⁴⁴ Finally, organic waste content in residual waste is not desirable from the operator point of view, since organic waste is high in moisture and lowers the temperature of the flare which drives up the generation of pollutants that need to be abated at a high cost. For all these reasons, source separation and treatment of organic discards is always preferable to LFG capture and incineration.

(2) Respect for all waste pickers and waste workers

Upholding and strengthening human rights, we must center equity and justice in all our actions, delivering a just transition, protecting the livelihoods of waste pickers and ensuring no harm in the first place.

Millions of people worldwide make a living collecting, sorting, recycling and selling materials that someone else has thrown away. In some countries and localities, waste pickers provide the only form of municipal solid waste collection and recycling, providing widespread public benefits and achieving high recycling rates. Waste pickers contribute to local economies, to public health and safety and to environmental sustainability. While recognition for their contributions is growing in some places, they face low social status often on the basis of occupation, race, caste, etc., deplorable living and working conditions and get little support from local governments. Increasingly, they face challenges due to privatization of waste management systems. It is important to raise the visibility of waste pickers and other workers under informal and cooperative settings and recognise their fundamental human dignity, and their historic contribution and continuing role.

A just transition for the waste sector means reducing methane emissions in a way that is fair and inclusive to everyone. It must move society towards an environmentally sustainable

³⁹ Global Alliance for Incinerator Alternatives (2021) *The high cost of waste incineration*.

⁴⁰ The New School Tishman Environment and Design Center (2019) *US solid waste incinerators: An industry in decline*. [ONLINE] Available at: https://grist.org/wp-content/uploads/2020/07/1ad71-cr_gaiareportfinal_05.21.pdf

⁴¹ Tavernise, S. (2011) City council in Harrisburg files petition of bankruptcy. *The New York Times*, 12 October 2011. [ONLINE] Available at: <https://www.nytimes.com/2011/10/13/us/harrisburg-pennsylvania-files-for-bankruptcy.html>

⁴² Morris, J. (2005) Comparative LCAs for curbside recycling versus either landfilling or incineration with energy recovery. *The International Journal of Life Cycle Assessment*, 10(4): 273–284. [ONLINE] Available at: <https://doi.org/10.1065/lca2004.09.180.10>

⁴³ Tangri N (2023) Waste incinerators undermine clean energy goals. *PLOS Clim* 2(6): e0000100. Available at: <https://doi.org/10.1371/journal.pclm.0000100>

⁴⁴ Tangri, N. V. (2021). Waste incinerators undermine clean energy goals. *Earth ArXiv* [ONLINE] Available at: <https://doi.org/10.31223/X5VK5X>

economy, including elements of decent work for all, social inclusion, social protection, more training opportunities, appropriate technology transfer, support for infrastructure and organizing of workers, and greater job security for waste pickers and waste workers. The just transition framework should emphasize supporting waste pickers and other workers who are most vulnerable to occupational disruption from waste management investments and climate change.

Ultimately, waste management needs to be recognised as an essential public service that must be guaranteed by the state. Policies must aim to maximize the social and economic opportunities of ending pollution while minimizing and carefully managing any challenges – including through effective social dialogue among all groups impacted, and respect for fundamental human rights.

A government or local authority should consider the following potential approaches:

- ✔ **As the most vulnerable stakeholders in the waste system, waste pickers merit explicit mention and recognition**, so existing legal frameworks need to be taken into account: Universal Declaration on Human Rights, FPIC, UNDRIP (UN declaration on the rights of indigenous peoples) etc. and other relevant treaties such as the ILO on informal workers that cover the waste pickers and the waste recyclers.
- ✔ **Establish a mechanism to ensure an equitable, inclusive and just transition** for waste pickers and other workers affected by shifts in systems and policies in all countries – not just developing ones.
- ✔ **Improve working conditions for waste workers and waste pickers** in value chains, which includes providing legal recognition and support for informal waste pickers, such as access to health care, education and social security benefits.
- ✔ **Recognise the role of waste pickers** in value chains and promote a circular economy by establishing partnerships with waste pickers (associations, cooperatives and self-employed) for recovery of organic waste through just transition programs.
- ✔ **Ensure that the autonomy and aspirations of waste pickers**, and their associations and cooperatives are accounted for while planning a just transition through a universal survey of waste pickers and social dialogue. Waste picker surveys are essential for identifying who to bring to the table in the planning and implementation of new systems, and social dialogue is key to a just transition.
- ✔ **Reporting by member states and producers on engagement and partnerships** with waste pickers with regards to waste management, the extension of social welfare provisions and increases in waste picker income. Mandatory reporting will ensure that a

just transition is in place, and will help member states learn from one another about how to best support vulnerable workers in their waste systems.

✔ **Building capacities of government functionaries**, especially grassroot level officials, on considering waste pickers as one of the important stakeholders.

✔ **Design and develop recycling systems** that build upon and strengthen the existing informal sector rather than displacing it.

✔ **Do no harm: any intervention cannot make their situation any worse.** In short, this principle is about ensuring that interventions in one community do not harm another. In practical terms, this principle would provide a checklist of questions to be considered and answered around any potential harm to any other community.

Furthermore, this principle provides guidance on how to identify the relevant stakeholders and rights holders, following equity and justice criteria. This would involve prioritizing and ensuring that all historically marginalized organizations and community representatives are identified, informed and consulted appropriately. It would entail adopting and encouraging decentralized solid waste management systems for managing municipal waste, which allow for wider public participation and integration of the informal sector.

Centering justice and equity places focuses on identifying the right stakeholders through restorative justice criteria, so that the diversity of people and cultures is recognised, and that human-rights based participation in the political processes that create, manage and implement environmental policy are assured. Importantly, every and all waste management projects should be put forward with consultation and meaningful participation of all waste workers and waste pickers. This is particularly important in those contexts where waste pickers are unfortunately not guaranteed basic human rights such as the right to life and human dignity.

(3) Enhance inclusion and build from local knowledge

In decision-making processes, enhancing inclusion and meaningful participation is a must, along with building from local knowledge and expertise.

Rooting environmental interventions in their local context is a fundamental pillar. Respecting local knowledge is paramount: changes to waste management and to materials management in general should be built from the community's expertise and traditional practices. In seeking to add value to existing local work, instead of replacing it, waste management projects should be decentralized, replicable and adaptable to geographically and culturally diverse needs and situations.

This principle is about ensuring that the process is both properly inclusive and builds inclusion further in the decision-making process. It looks at what decisions need to be made, how they will be made, who will be at the table, how disadvantaged communities are enabled to participate, etc. The specific outworking in how a just transition process will look like will depend on local context and local consultation.

Some ideas on how inclusion and meaningful participation of local organizations and communities should be pursued are as follows:

- ✔ **Building capacity at the institutional level** with dedicated staff working on engagement/inclusion, taking the responsibility to hold local meetings and reach out through various ways to expand participation and ensure measurable community engagement
- ✔ **Setting up systems to support the participation** by a broader diversity of people or specific communities (considering timing of meetings, form of meetings, family support services, babysitting, languages, honorarium/ stipends, addressing accessibility issues, cultural training, providing translation – in meetings and of documents – having multilingual organizers and tech support for meaningful participation, etc.).
- ✔ **Designing discussions and consultations for inclusion**, in order to create conditions for voices to be heard, being aware of cultural circumstances and pre-existing inequalities including technology access, educational attainment and disability.
- ✔ **Building capacity and providing technical expertise** in local, vulnerable and impacted communities to ensure inclusion and meaningful participation with decision-makers.
- ✔ **Giving priority, emphasizing, and promoting the integration** of waste pickers and waste workers, outlining how local knowledge of waste pickers and waste workers must be brought into the process for learning. For example: informal recycling collection routes.
- ✔ **Recognising local expertise on the treatment of organic waste**, e.g. different ways of composting, or other types of wastes; empower the local community with skills and finance to design and implement customized waste management related projects at local level with the support of local self governments.

- ✔ **On-going relationship-building and resource investments** to develop trust with communities; assessment of successful community-based projects followed by scalability and financing – with promises to fulfill.
- ✔ **Strengthening the Environmental Impact Assessment (EIA)** process to incorporate EJ principles.
- ✔ **Ensure international finance is accessible at the local level**, so that implementation can be led by frontline communities and organizations.

(4) Respond to pollution and environmental harm with accountability

Any pollution and environmental harm must be addressed with accountability, putting means in place to compensate for damages and prevent further harm.

In terms of accountability, standards for financial institutions and project promoters must adopt a clear set of criteria and guidelines for developing methane reduction projects including mechanisms that will ensure compliance and accountability. Before a project begins, a plan for complying with all project-related obligations must be developed including both incentives and sanctions. Steps should be taken to end corrupt practices.

Moreover, it is commonly accepted practice that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. In practical terms, effective tools will include setting up effective sanction mechanisms and making sure no parties can externalize social and environmental costs.

In this sense, developing Extended Producer Responsibility legislation ensures producers are responsible for the life cycle of products and should include waste prevention measures at the design stage of products. While EPR has not proven effective at reducing pollution, it can ensure that the polluter pays, with specific legislation setting targets, metrics, fees and penalties to keep polluters accountable.

In practical terms, basic tools to consider are:

- ✔ **Gaining public acceptance:** any methane reduction plan in the waste sector should demonstrate that it has “demonstrable acceptance” of the affected people, and the free, prior and informed consent of affected indigenous and tribal peoples.
- ✔ **Setting up feedback mechanisms and periodical reports.** This could create a committee with representation of the different right holders to supervise the proper

application of the EJ principles in the decision-making process and to interventions in the waste sector in a given context.

✔ **Setting up mechanisms** to ensure that those responsible for environmental harm and pollution are held accountable.

✔ **Where governments have allowed an area to become a “sacrifice zone”** – an area where public health is harmed by levels of pollution exceeding the government’s own limit of acceptable risk, a revisioning process must be put in place acknowledging the ongoing harmful development.

✔ **Making the proximity principle a priority:** waste should be managed as near as possible to its place of production and exporting waste to countries without effective waste management systems or environmental legislation and regulations – known as waste colonialism – must end.

✔ **Where pollution has impacted negatively** the value of homes and made moving elsewhere unaffordable, provisions need to be made to cover for the necessary relocation.

(5) Support holistic solutions through systems change

The waste and climate crisis are not only environmental issues and they are closely interrelated with other social and economic crises, thus solutions must be designed from a systemic point of view and including a multidimensional framework, building towards and exceeding the Sustainable Development Goals.

Waste policies and projects are not solely environmental – they have a significant cross-sectoral dimension and a great impact on social and economic dimensions, given that they are linked to critical issues such as poverty, gender injustice, inequality, conflict and war. Importantly, waste issues are the result of political decisions related to economics, governance, power dynamics and culture, amongst other factors.

In practical terms, this principle will encourage policymakers and practitioners not to work in silos and ensure that key performance indicators (KPI) for projects have multi-dimensional criteria, not only looking at the quantification of methane emission reductions, for example, but just as importantly looking at job creation, local economy, public health, community development, etc. Addressing methane emissions in non-systemic ways runs the risk of trading one problem for another e.g., exchanging methane emissions with carbon dioxide emissions resulting from waste-to-energy incineration.

Alliances and the development of common strategies between committed public authorities/institutions should be promoted. In practice, successful implementation of waste projects with EJ principles will be led by collaborations between civil society, local authorities, and governments, bringing together a wide range of stakeholders to build a political and visionary common ground that strengthens the quality of governance itself. Systemic solutions that address a community's problems as perceived by the community will win greater and more rapid acceptance and thus be implemented more quickly and fully.

Part 4. Final Summary: Checklist for Action on Waste and Climate Policy

Below is a checklist to support the development and implementation of a climate mitigation strategy in the waste sector, looking specifically at methane reduction but also addressing other cross-cutting factors involved in the materials economy. This checklist is primarily designed for policy makers, experts and project developers tasked with improving their national NDCs, but it can also be used for other climate and waste related policies at the regional, national and local level. Ultimately, this checklist is a tool for building a roadmap to a transformative waste sector rooted in environmental justice.

Does the policy....

General

- ✔ **Recognise the importance of the waste sector** as a key sector to drive mitigation, adaptation and other co-benefits
- ✔ **Include specific climate action measures** in the waste sector
- ✔ **Include GHG emission reduction targets** in the waste sector

Principle 1: Respect planetary boundaries to ensure intergenerational equity

- ✔ **Create legal recognition** to implement the priorities of the Waste Hierarchy as described in this document
- ✔ **Include specific measures** to reduce waste and resource use and move towards intergenerational equity, particularly in affluent contexts in developed countries. Include specific measures to divert and ultimately ban organic waste from landfills and maximize recovery through source separation and separate collection systems
- ✔ **Invest in composting systems**, anaerobic digestion, and other material recovery solutions
- ✔ **Introduce a moratorium for new incinerators** and set up a progressive phase out of existing waste-to-energy incineration facilities
- ✔ **Develop institutional green procurement strategies** that include avoidance of single use plastic, set up of reuse systems, requirements to use compost instead of chemical fertilizers in urban gardening and landscape, and overall shrink of resource use

Principle 2: Respect for all waste pickers and waste workers

- ✔ **Recognise that waste management is an essential public service** that needs to be guaranteed by state/governments
- ✔ **Recognise the principle of no-harm** – that is, the legal, social and ethical rights of, and assessing the risks to, all stakeholders and rights holders with a special focus on vulnerable communities
- ✔ **Commit to developing a just transition framework** in the waste sector with specific measures, focusing on supporting waste pickers and other workers who are most vulnerable to occupational disruption from waste management investments and climate change
- ✔ **Recognise the essential rights** of identity, dignity and livelihood for all waste pickers and waste workers
- ✔ **Improve working conditions** for waste workers and waste pickers in value chains including by providing legal recognition and support for informal waste pickers, such as access to health care, education and social security benefits

- ✔ **Establish partnerships with waste pickers** (associations, cooperatives and self-employed) for recovery of organic waste through just transition programs.
- ✔ **Ensure that autonomy and aspirations of waste pickers**, and their associations and cooperatives are accounted for while planning a just transition through a universal survey of waste pickers and social dialogue
- ✔ **Implement waste picker surveys**, which are essential for identifying who to bring to the table in the planning and implementation of new systems, given that social dialogue is key to a just transition
- ✔ **Introduce mandatory reporting** by member states and producers on engagement and partnerships with waste pickers in regards to: plastic waste management, the extension of social welfare provisions and increases in waste picker income; Mandatory reporting will ensure that a just transition is in place, and will help member states learn from one another about how to best support vulnerable workers in their waste systems
- ✔ **Build capacities of government functionaries**, especially grassroot level officials, on considering waste pickers as one of the important stakeholders and work more closely with them to ensure their integration in the overall local waste management system
- ✔ **Design and develop recycling systems** that build upon and strengthen the existing informal sector rather than displacing it

Principle 3: Enhance inclusion and build from local knowledge

- ✔ **Build capacity at the institutional level** with dedicated staff working on engagement/inclusion who take responsibility for holding local meetings and reaching out through various ways to expand participation and ensure measurable community engagement
- ✔ **Set up systems to support the participation** by a broader diversity of people or specific communities (timing of meetings, form of meetings, family support services, babysitting, languages, honorarium/ stipends, addressing accessibility issues, cultural training, providing translation – in meetings and of documents – having multilingual organizers and tech support for meaningful participation, etc.)

- ✔ **Design discussions and consultations** for inclusion, creating conditions for voices to be heard, and being aware of cultural circumstances and pre-existing inequalities including technology access, educational attainment and disability
- ✔ **Build capacity and provide technical expertise** in local, vulnerable and impacted communities to ensure inclusion and meaningful participation with decision-makers
- ✔ **Give priority to, and emphasize and promote the integration of**, waste pickers and waste workers, outlining how local knowledge of waste pickers and waste workers must be brought into the process for learning; For example: informal recycling collection routes
- ✔ **Recognise the local expertise on the treatment of organic waste**, e.g. different ways of composting, or other types of wastes; empower the local community with skills and finance to design and implement customized waste management related projects at the local level with the support of local self governments
- ✔ **Strengthen the Environmental Impact Assessment (EIA)** process to incorporate EJ principles
- ✔ **Create local access to international finance** so that implementation can be led by frontline communities and organizations

Principle 4: Respond to pollution and environmental harm with accountability

- ✔ **Adopt a clear set of criteria and guidelines** for developing methane reduction projects including mechanisms that will ensure compliance and accountability, incentives and sanctions and end corrupt practices
- ✔ **Develop EPR legislation** to ensure producers are responsible for the life cycle of products and include waste prevention measures at the design stage of products that can be effective measures; EPR must ensure that the polluter pays, with specific legislation setting targets, metrics, fees and penalties to keep polluters accountable
- ✔ **Commit to the preventive and precautionary principles:** the first addresses tangible risks, while the latter deals with scientific uncertainty – when there are threats of damage to people or the planet, then lack of full scientific certainty cannot be used to delay cost-effective measures to stop such harm, and policies to prevent use and

release of toxic chemicals (pesticides, PFAS, brominated fire retardants, etc.) must be put in place

✔ **Gain public acceptance:** any methane reduction plan in the waste sector should demonstrate that it has “demonstrable acceptance” of the affected people, and the free, prior and informed consent of affected indigenous and tribal peoples

✔ **Set up feedback mechanisms and periodical reports** to ensure that environmental harm and pollution are held accountable – this could take the form of a committee with representation of the different right holders to supervise the proper application of the EJ principles in the decision-making process and intervention in the waste sector in a given context

✔ **Implement a revisioning process** acknowledging the ongoing development that has been harmful in places where governments have allowed an area to become a “sacrifice zone” – an area where public health is harmed by levels of pollution exceeding the government’s own limit of acceptable risk.

✔ **Set up a global regulatory toolbox** to manage chemicals in material cycles (or circular economy by extension) that is binding, and implement globally harmonized requirements for transparency of information on chemical identities that can be traced and linked to individual materials and products

✔ **Make the proximity principle a priority:** waste should be managed as near as possible to its place of production and exporting waste to countries without effective waste management systems or environmental legislation and regulations – known as waste colonialism – must end

Principle 5: Support holistic solutions through systems change

✔ **Strategic planning, policy development and general decision-making** for implementation in the waste sector must recognise that the waste sector is not solely environmental but has a significant cross-sectoral dimension and a great impact on social and economic dimensions

✔ **Encourage policymakers and practitioners not to work in silos** and ensure that key performance indicators (KPI) for projects have a multi-dimensional criteria, not only looking at the quantification of methane emission reductions, for example, but just as

importantly looking at job creation, local economy, public health, community development, etc.

✔ **Establish alliances and the development of common strategies** between committed public authorities/institutions should be promoted

✔ **Implement waste projects with EJ principles** led by collaborations between civil society, local authorities and governments, bringing together a wide range of stakeholders to build a political and visionary common ground that strengthens the quality of governance itself

Who We Are

- Founded in 2000, GAIA is a network of grassroots groups as well as national and regional alliances representing more than 1000 organizations from 92 countries, whose ultimate vision is a just, zero waste world built on respect for ecological limits and community rights, where people are free from the burden of toxic pollution, and resources are sustainably conserved, not burned or dumped.
- In 2023, 99 GAIA member organizations from 41 different countries have come together in a process of consultation about the future of zero waste systems and environmental justice, analyzing the threats and opportunities that we see in front of us to respond to the multiple crises that we are facing as humankind. We've prepared this draft set of environmental justice principles for zero waste, to be discussed with the Global Methane Hub, social movements and policymakers, as we build toward a global gathering that brings together environmental leaders in the waste and food sector to both talk about an agenda for methane mitigation rooted in community organizing and justice and to **develop values, principles and plans for this work going forward.**

References

Practical roadmaps and guidelines on implementing zero waste strategies:

- [The Zero Waste Masterplan: A Guide to Building Just and Resilient Zero Waste Cities](#) (GAIA US and Canada, 2020)
 - [Companion Guide for Organizers](#) (GAIA, 2020)
- [The Zero Waste Masterplan: Turning the vision of the circular economy into a reality for Europe](#) (Zero Waste Europe, 2020)
- [Enabling sustainable cities through Zero Waste: A guide for decision- and policy-makers](#) (GAIA Asia- Pacific, 2019)
- [Reducing food waste at the local level: guidance for municipalities to reduce food waste within local food systems](#) (ZWE and Slow Food, 2021)
- [Back to earth: composting for various contexts](#) (GAIA, 2022)
- [Funding Zero Waste in Your Municipality: 3 Steps to Success](#) (GAIA, 2021)
- [Zero Waste City Manual. A Toolkit to Establish City and Community Zero Waste Systems](#) (Citizen consumer and civic Action Group (CAG), with GAIA and Break Free from Plastic, 2020).



about
GAIA

GAIA is a network of grassroots groups as well as national and regional alliances representing more than 1000 organizations from 92 countries.

We envision a just, zero waste world built on respect for ecological limits and community rights, where people are free from the burden of toxic and plastic pollution, and resources are sustainably conserved, not burned or dumped.



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