



CLIMATE FINANCE FOR THE WASTE MANAGEMENT SECTOR

**GUIDANCE FOR POLICY-MAKERS
AND PROJECT DEVELOPERS**

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INTRODUCTION

Amongst the global institutions committed to provide climate finance to mitigate and adapt to climate change, the Green Climate Fund plays a fundamental role. The Fund's mandate to "promote the paradigm shift towards low-emission and climate-resilient development pathways" should be read with the highest ambition to deliver mitigation and adaptation effectively.

Such effective climate responses greatly depends on the GCF's capacity to identify the best climate solutions, ensuring GHG emission reductions, but also contributing to sustainable development and addressing the needs of the most impacted people by climate change in developing countries. Such guidance needs to be provided on a sectoral approach basis.

This briefing aims at providing criteria to policy-makers around climate finance on the field of waste. It provides a framework to understand what are the more climate-friendly options in the field and a series of case studies to illustrate some of the best and the worst practices in the field.

The waste management sector is in a unique position to move from being a comparatively minor source of global greenhouse gas (GHG) emissions to becoming a major contributor to climate change mitigation. Preventing waste and expanding reuse, recycling, and composting programs — that is, aiming for zero waste — is one of the fastest, cheapest, and most effective strategies available for combating climate change.

The contribution of the waste sector to climate change mitigation

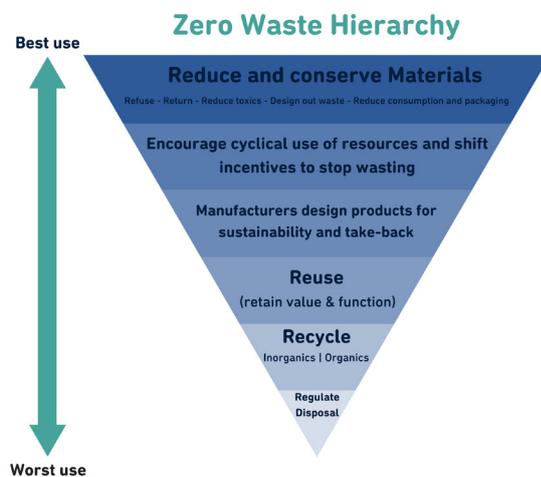
Generally, waste policies that move waste increasingly into the upper tiers of the Waste Hierarchy are the most beneficial for climate change, in contrast to the lower tiers dedicated to waste-to-energy incineration, incineration without energy recovery and landfill. In this sense, the waste management

hierarchy offers a reasonable guide to managing waste sustainably: waste prevention leads to the greatest gains, with recycling options, especially for the dry materials, following closely behind.

The table on the next page from the Eunomia's report *The Potential Contribution from Waste Management to a Low Carbon Economy*¹, shows that the main benefits come from waste prevention, and from recycling, particularly of dry materials.

Where residual waste treatment and disposal are concerned, these tend to make contributions to climate change emissions rather than helping to reduce emissions overall. In this sense, the benefits of switching from landfill to incineration are practically irrelevant - in fact, they have proved to be counter-productive from a social, economical and environmental perspective.

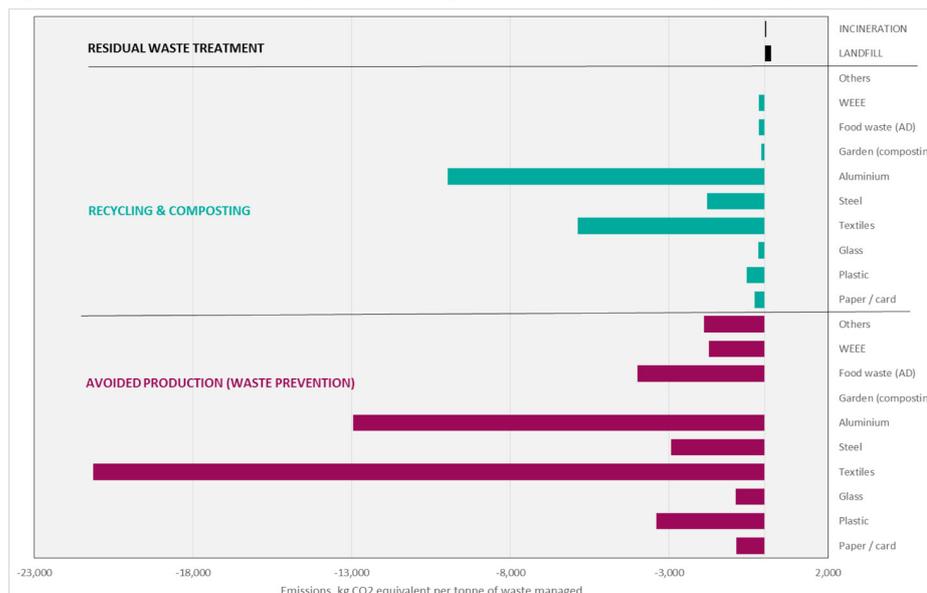
The emissions savings from recycling, reuse and waste prevention can be appreciated by looking at the overall chain of production.



When discarded materials are recycled, they provide industry with an alternative source of raw materials from which to make new products. This results in less demand for virgin materials whose extraction, transport and processing are major sources of GHG emissions. Recycling thus reduces emissions in

1. <https://www.zerowasteurope.eu/downloads/the-potential-contribution-of-waste-management-to-a-low-carbon-economy-executive-summary/>

Figure E- 1: Indicative Climate Change Impacts of Key Waste Management Activities (excl. CO₂ from biogenic sources)



virtually all extractive industries: mining, forestry, agriculture, and petroleum extraction. This is especially true for aluminium and steel, which are energy intensive and release significant amounts of GHGs during production (CO₂ and PFCs).

Moreover, handling the organic waste streams of municipal solid waste may be one of the most vital strategies for curbing greenhouse gas emissions. This is especially important in developing countries, where the largest waste stream in municipalities is organic.

Composting and anaerobic digestion systems treat biodegradable material such as food, animal industry wastes, green waste, wood, and agricultural residues. These techniques produce a range of organic soil amendment products that can replace manufactured fertilisers and/or peat, reduce the need for pesticides and therefore reduce the associated GHG emissions. Moreover, the application of composting to soil increases its capacity to act as a carbon sink, while improving the soil structure, reducing erosion and the need for irrigation.

While the agricultural soil is in increasingly desperate need of organic materials while we waste valuable nutrients and space in landfills by simply failing to compost food scraps and yard trimmings.

It is an age-old process whose success has been well demonstrated around the world. Composting facilities are far cheaper than landfills and inciner-

ators, and also take far less time to site and build; widespread implementation could take place within relatively short time.

Finally, waste prevention measures are today fundamental to prevent further erosion of the environment and preventing catastrophic climate change. It's the case of oceans and plastic pollution, for example - where inappropriate models of waste and resource management have resulted in a disproportionate presence of plastic in our environment and are degrading the ecosystems. Measures such as bans on single-use plastic items, return-deposit schemes, or redesign of products to ensure better reusability, recyclability and resource-efficiency are all efficient measures to reduce waste of resources and GHG emissions.

Climate champions in the field of waste

In cities around the world, recycling workers, visionary local leaders, and innovative practitioners are showing that recycling and composting create livelihoods, save public funds, and protect the environment and public health, in contrast with the outdated idea of incinerating Municipal Solid Waste. These practical strategies provide some of the best-decentralised urban solutions for reducing climate pollution and conserving energy and natural resources.



San Fernando, Philippines

The Philippines was faced up with a harsh reality in July 2000, when Payatas, the gigantic mountain of waste in northern Metro Manila, collapsed. At least 300 people — men, women and children who lived and worked picking up recyclable materials — were buried alive in the avalanche of waste.

Soon after, the government passed the Ecological Solid Waste Management Act, a law that seeks to manage Philippine's waste problem by reducing the amount of waste that needs to be disposed through recycling and composting programs.

According to this law, each barangay (district) is meant to create a Materials Recovery Facility, a place where food waste turns into compost, glass bottles and plastics are routed to the right facilities and residual waste (the small portion of actual waste that can't be recycled) is taken to the landfill. In this way, the system is based on decentralisation, with source-separation of waste, which ensures a high proportion of material recovery.

San Fernando, with 305,000 inhabitants, stands out as the city where the implementation of this law has been remarkably successful, achieving a 78% diversion rate for waste from landfill. The Mother Earth Foundation has been advising on the process and has helped to implement the decentralised system

of Materials Recovery Facilities. In the case of San Fernando, not only does barangay have an MRF but also many schools and business that have created its own. As a principle across the board, waste is not accepted if it's not properly separated, ensuring the maximisation of recyclables and composting.



Waste workers inside a materials recovery facility in a village in the City of San Fernando, Pampanga prepare recyclables for collection.

As a result, San Fernando has dramatically decreased the average cost of waste collection: it's 13 pesos (\$0.28) per person per week versus the 333 pesos (\$7.32) spent in Quezon City, or 900 pesos (\$19.95) in Manila.

Some other initiatives that are key for San Fernando's success are:

- The Fernandino Food Bank: based on the waste hierarchy, this is a voluntary program of matching edible food from restaurants and supermarkets to groups conducting feeding programs.
- The Fernandino Eco Savers Program: to further encourage recycling among the youth, the program awards points for every kilo of recyclable waste brought to school. Points can be used to redeem school supplies at the end of the school year.
- Used Tire Exchange: to discourage the hazardous recovery of metals from used tires and to further reduce the volume of residual waste, the Used Tire Exchange enables MRFs to ask for used tires to be used in composting (tower tires), fencing and beautification.
- San Fernando Waste Workers Association: the waste workers from the 35 barangays in the City are organized into a cooperative. The president of the coop sits as member of the City Solid Waste Management Board (CSWMB).

San Fernando is one of the best practices in the field of waste management and it shows how it's possible to apply the principles of the Waste Hierarchy and Zero Waste in the Global South. Such systems aim at transforming people's relationship with resources to ensure that everything that is produced and consumed comes back to nature or to society, closing the loop of materials. This is a critical strategy to reduce GHG emissions and toxic pollution from waste disposal, save public money, create jobs and transform local economies into circular economies and ensure resource-efficiency while developing community-based solutions.

More information about San Fernando story can be found here:

<https://www.dropbox.com/s/sxw827bh9ohf4zu/Learnings%20from%20CSFP%20ESWM.pdf?dl=0>

False solutions funded by the Green Climate Fund

Renewable energy projects are in principle welcome as part of the decarbonisation of economy and energy production. However, the case at hand shows that renewable energy projects are not always such thing, but rather a fossil fuels energy source in disguise.

The project Sustainable Energy Financing Facilities is funded by the European Bank for Reconstruction and Development and the Green Climate Fund, and it aims at funding over 20,000 scalable and replicable projects across industrial, commercial, residential, transport and agricultural sectors.

In the project proposal, available on the Green Climate Fund website, the project includes as an example of renewable energy technology: **“Advanced waste management with production of RDF (refused derived fuels)”**, side by side to solar panels and wind turbines.

Refuse Derived Fuel is produced by shredding and dehydrating municipal solid waste that due to lack of appropriate waste management systems, has not been properly separated and therefore contains a significant level of plastics and biomass. These com-

ponents, - plastic, papers, textiles, wood - make this waste attractive to be used as fuel, given its calorific value. In order to be used as fuel, mixed waste is converted into pellets aiming at ensuring homogeneous calorific value to burn in incinerators or in cement kilns.

RDF pellets are low-quality fuel made of mixed Municipal Solid Waste.

The composition of RDF is typically made of approximately one third of plastics (made of fossil fuels), another third of biomass materials such as paper, textiles or wood (which could have been recycled or reused), and a third unknown materials. In this sense, by using materials that could have been recycled or reused as fuel, RDF represents a subversion of the Waste Hierarchy. Furthermore, using plastics as fuels cannot in any circumstance be considered renewable energy.



RDF pellets are low-quality fuel made of mixed Municipal Solid Waste. (photo CC-BY-3.0 mdpi.com)

“By using materials that could have been recycled or reused as fuel, RDF represents a subversion of the Waste Hierarchy. Furthermore, using plastics as fuels cannot in any circumstance be considered renewable energy.”

The use of certain hazardous types of industrial waste or certain types of plastics as fuel are a key driver for the increase of air pollution and GHG emissions. These are typically used by the cement industry, which is a major contributor to climate change: the “Carbon Majors” study listed cement manufacturers as the only non-fossil fuel producers in the top 90 companies responsible for 63% of all GHG emissions.

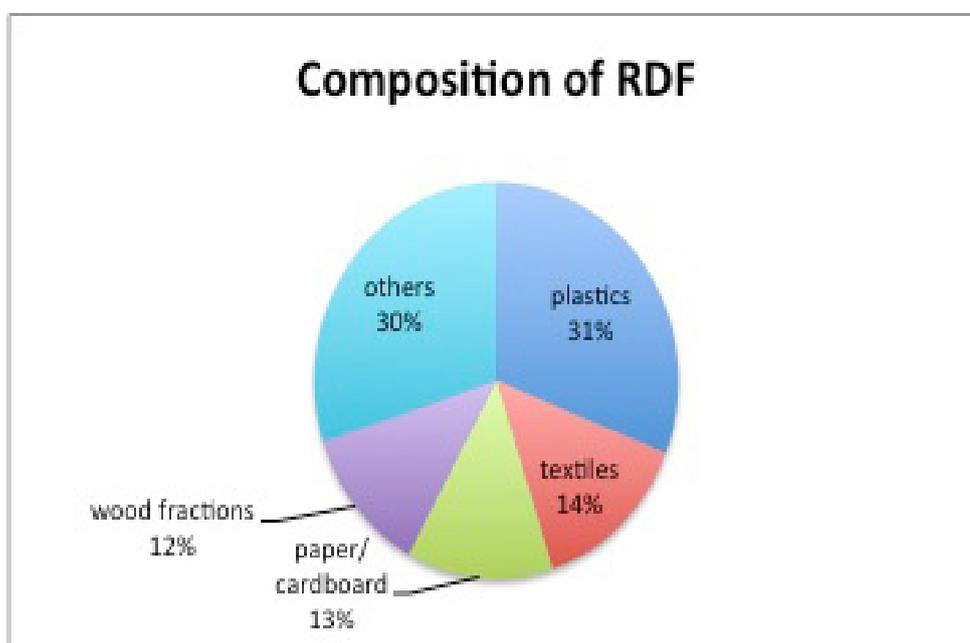
Incineration of RDF, waste and other “alternative” fuels do not only not reduce GHG and toxic emissions, but actually increase the climate and toxic emissions, especially when certain hazardous types of industrial waste or certain types of plastics are used as fuel.

Cement plants do not have the means to filter volatile heavy metals (mercury, thallium, cadmium, etc.) that are present in waste, neither they can filter the toxic emissions with persistent organic pollutants (POPs)

such as dioxins and furans (PCDD/PCDF), which are banned under the Stockholm Convention. POPs pose a global threat to human health and the environment due to their specific characteristics. They are toxic and persistent in the environment, can travel long distances and accumulate in the food chain.

The significant impact of the resulting pollution is felt first and worst in communities that neighbour cement kilns and waste-powered energy plants, where respiratory illness, skin disease, crop loss, and deadly industrial accidents have taken their toll. In 2015, scientific research started to devote attention to this situation and came up with eye-opening results in regards to cancer rates close to cement plants as well as mapping the environmental conflicts related to waste incineration in cement plants.

In conclusion, RDF is not a renewable energy project that deserves funding from the Green Climate Fund - it is a false solution that is preventing the application of the Waste Hierarchy and appropriate waste management systems, it's producing GHG and toxic emissions and impacting the public health and environment of vulnerable communities in clear exacerbation of climate injustice.



Policy Recommendations to the Green Climate Fund

In order to serve its mandate and ensure ambitious climate action, it's imperative that the Green Climate Fund develops appropriate sectoral criteria, along with social and environmental safeguards.

In regards to the waste management sector, it's critical to support the options that offer the greatest benefits to climate change mitigation, following the principles of the Waste Hierarchy and zero waste strategies.

In sum, the recommendations to the Green Climate Fund and to other entities channeling climate finance to the Global South in regards to the waste management field are as follows:

- Climate finance should give priority to the upper tiers of the Waste Hierarchy and support waste management systems that focus on waste prevention, reuse, recycling and redesign or bans of toxic and single-use products.
- Climate finance should explicitly exclude mixed Municipal Solid Waste, including Refuse-Derived-Fuels, along with waste-to-energy incineration as a source of energy.
- Climate finance projects should ensure appropriate consultation with local and civil society, transparency and inclusion of the most vulnerable communities in the process of decision-making.

Zero Waste Europe was created to empower communities to rethink their relationship with the resources. In a growing number of regions, local groups of individuals, businesses and city officials are taking significant steps towards eliminating waste in our society.
zerowasteurope.eu

