

WASTE MANAGEMENT: A KEY TO SOLVE CLIMATE CHANGE AND SUSTAINABLE LIVING.



According to the World Bank report Solid waste generation in world cities is around 1.3 billion tons per year and this volume is expected to increase up to 2.2 billion tons by 2025. Out of this amount nearly 70% of our solid waste is landfilled, around 19% is recovered through composting or recycling, and the remaining 11% is converted to energy through incineration or other waste-to-energy technologies.

In South Asia, the total municipal waste generation amounts to 50 million tons/year, out of which 33 million tons/year are organic waste.(ADB,2011) . The region practices three main MSW treatment options namely landfilling, composting, and incineration. All these waste disposal options eventually decompose organic materials into simpler carbon molecules, such as carbon dioxide and methane, a greenhouse gas with an impact more than 20 times that of carbon dioxide (CO₂).

This has resulted in identifying waste management as a global as well as a national issue. And addressing waste management as a global priority is expected to facilitate meeting the Post-2015 Development Agenda which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030.

The main goal of municipal solid waste (MSW) management is to treat the waste in an environmentally and socially acceptable manner, with appropriate clean technologies. However failure to achieve this goal results in serious local, regional, and global public and environmental health problems, including air pollution, soil and groundwater contamination, and emissions of greenhouse gases (GHGs).

Climate impact of waste management practices

Emissions from landfill, account for almost five per cent of total global greenhouse gas emissions and 12 per cent of the world's emissions of methane (CO₄). Every Methane emissions from landfill are generally considered to represent the major source of climate impact in the waste sector, therefore

there is a great potential for addressing methane emissions by reducing the amount of waste that ends up in a landfill..

According to IPCC inventories Methane from wastewater management is the second largest source of GHG emissions from the waste sector. Controlled burning, in waste incinerators, also generates CO₂ emissions. Where incinerators generate energy, GHG may also be credited. Where incinerators do not generate energy, they will be net energy users, which will also contribute to their total GHG emissions. However advanced thermal treatment technologies, such as gasification and pyrolysis, emit fewer emissions compared to mass-burn incineration. But as these are emerging technologies they cannot be considered 'established' technologies for the treatment of bulk mixed waste.

Aerobic composting processes directly emit varying levels of methane and nitrous oxide, depending on how the process is managed in practice. Closed systems, such as enclosed maturation bays or housed windrows, reduce emissions through use of air filters to treat air exiting the facility. Anaerobic digestion (AD) systems are enclosed in order to capture and contain the biogas generated by the digestion process. GHG emissions from AD facilities are generally limited to system leaks from gas engines used to generate power from biogas, fugitive emissions from system leaks and maintenance, and possible trace amounts of methane emitted during maturation of the solid organic output. Such systems also consume energy, however plants are generally self-sustaining if appropriately operated .

As seen below, the Global Waste Management Goals are already explicit or implicit within the Sustainable Development Goals (SDGs) and Addressing waste management as a priority will facilitate early progress against more than half of the sustainable development goals (SDGs).

Global waste Management Goals in relation to SGD's

GLOBAL WASTE MANAGEMENT GOALS		RELATED SDGs	
Ensure by 2020	W.1 Access for all to adequate, safe and affordable solid waste collection services	3 – Health for all	11 – Safe cities
	W.2 Stop uncontrolled dumping, open burning	3 – Health for all 11 – Safe cities 12 – Sustainable consumption and production (SCP)	6 – Clean water and sanitation 14 – Marine resources 15 – Terrestrial ecosystems
Ensure by 2030	W.3 Achieve sustainable and environmentally sound management of all waste, particularly hazardous waste	12.4 – Managing all waste 13 – Climate change	7 – Access to energy
	W.4 Substantially reduce waste generation through prevention and the 3Rs (reduce, reuse, recycle) and thereby create green jobs	12.5 – The 3Rs 8 – Growth & employment	1 – End poverty 9 – Sustainable industry
	W.5 Halve per capita global food waste at the retail and consumer levels and reduce food losses in the supply chain	12.3 – Food waste	2 – End hunger; food security

(Source: Global Waste Management Outlook, UNEP)

Waste Management can be of help to curb the issue of Climate Change and in order to achieve that the waste management tools should be directed towards the effective mitigation of Green House Gases (GHG) and the provision of sustainable co-benefits. Moreover, waste prevention, minimization, material recovery, recycling and reuse represent a growing potential for indirect reduction of Green House Gases (GHG) emissions, through decreased waste generation, lower raw material consumption, reduced energy demand and fossil fuel substitution or avoidance.

There are plenty of important things that we should know about waste management and disposal in order to ensure that we are safe, as well as keeping the environment safe. Hence It is our choices and tasks to know how we will dispose our waste and to do so it is necessary to take a look at all of the options that we have available before making the choice of sustainable living.

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