

WASTE-TO-ENERGY HAS NO PLACE IN AFRICA

For centuries, self-sufficient agricultural societies had been zero waste by nature. This sustainable cycle broke when artificial materials – such as plastic packaging – began conquering the market. As the world’s fastest-urbanizing continent, Africa has encountered major challenges in implementing a sound solid waste management system, struggling with lack of political will and institutional framework as well as limited finance and infrastructure.

QUICK FACTS ABOUT WASTE IN AFRICA

Each person generates **0.78kg** of waste a day, much lower than the global average of **1.24 kg**. Yet, it is projected to reach **0.99kg** by 2025 with growing urban population

Only **55%** of waste is collected and 4% is being recycled in Africa

Sub-Saharan Africa is only responsible for **5%** of world-wide waste generation – islands show the highest rates, likely due to tourism

57% of the municipal solid waste is biodegradable organic materials

Data on waste streams in Africa is scarce. Amount and type of waste vary across the continent, depending on urbanization, income level, culture, etc.

Source: [World Bank \(2012\)](#), [UNEP \(2018\)](#)

ETHIOPIA’S WRONG-HEADED APPROACH TO ITS TRASH PROBLEM

In Ethiopia, littering, open dumping and burning is a common practice, resulting in constant odor, pollution, flooding, and outbreak of diseases due to the lack of a system to collect and process municipal solid waste. Addis Ababa’s only dump site, Koshe – or Repi or Reppie – served the city for the last fifty years, growing until it became a mountain. The dump site, a home to hundreds of waste pickers, had a tragic landslide in 2017 that ended the lives of more than 114 people.

The recent landslide prompted the government to accelerate the Reppie Waste-to-Energy Project, which is being implemented by a consortium comprising of Cambridge Industries Ltd (CIL) and its partners China National Electric Engineering Co (CNEEC), and Ramboll of Denmark. The 118-million-dollar project will convert 350,000 tons of

solid waste into 50MW of electricity annually, supplying 30 percent of household energy needs. With a plan to start operation of the trash incinerator in 2018, the consortium is expanding their plans to build biomass plants in Uganda, Kenya, Cameroon, Senegal and Djibouti.

The media and some international institutions including the [UN Environment Program](#) have repeatedly promoted waste incineration in Africa, without acknowledging incineration’s harmful impact on human health and the environment. What are the facts about the trash incinerators behind the PR of “Waste-to-Energy”?



THE TROUBLE WITH TRASH BURNING:

5 REASONS WHY “Waste-to-Energy (WtE)” HARMS PEOPLE AND PLANET



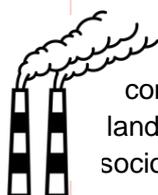
WTE IS EXPENSIVE AND INEFFICIENT: Waste incineration is the most expensive and least efficient way to generate energy. Due to the low calorific value of waste, WtE plants convert less than 25% of material energy in garbage into marketed electricity, even lower than other polluting systems – 35% for coal and 45% for natural-gas systems. Despite low energy production, incinerators are capital intensive. The general cost is twice the cost of coal-fired power plants. Operation and maintenance costs are also 10 times higher than coal. Investing \$150 million to \$230 million in large, modern facilities designed by European companies might be lucrative for the companies, but not for the nearby communities or for the local government – the waste incineration industry has the highest negative economic impacts from air pollution compared to the financial value added by the industry. According to UNEP and International Solid Waste Association (ISWA), waste incineration is especially unfeasible for low and middle income countries due to its cost-prohibitive nature and unsuitable waste composition.

WTE IS POLLUTING AND WORSENS CLIMATE CHANGE: Trash incineration emits large quantities of pollution including nitrogen oxides (NOx), mercury, dioxins, and ultra-fine particles that can cause cardiovascular risks, premature death, reproductive harms and cancer as well as respiratory diseases such as asthma. Even the most advanced pollution control devices can't eliminate toxins. About 30% of air pollutants still remain as fly ash, bottom ash, boiler ash, slag and wastewater treatment sludge, poisoning the soil and groundwater, deposited in landfills for generations to come. According to the US EPA, WtE facilities and landfills also release far higher levels of greenhouse gases such as CO₂, Methane (CH₄) and Nitrogen Dioxide (NO₂) throughout their life cycles than source reduction, reuse and recycling of the same materials.



WTE UNDERMINES SUSTAINABLE ZERO WASTE PRACTICES: Waste incineration is not compatible with zero waste solutions. Once built, WtE demands a guaranteed stream of waste to make a profit and repay investors, functioning as a major disincentive for waste prevention and zero waste. More than 90% of materials currently disposed of in incinerators and landfills can be reused, recycled, and composted. Zero waste practices, as well as renewable energies such as solar and wind, can serve to mitigate climate change by more efficiently contributing to building a closed-loop and circular economy.

WTE TAKES AWAY JOBS: Incinerators offer relatively few jobs when compared to recycling. For example, recycling creates 10-20 times more jobs than incineration in the U.S. In developing countries, incinerators take sources of income away from informal waste workers, as the materials burned in incinerators are often the same materials that sustain recycling, such as paper and plastics. In contrast, investment in recycling, reuse, and composting will create more green jobs and can enable informal workers to transition to more gainful employment.



WTE HARMS ENVIRONMENTAL JUSTICE: Throughout the world, communities have fought against WtE facilities because they tend to be disproportionately located in low-income communities, burdening residents with high toxicity, accidents and noise. Unsafe work environments, land grabbing, displacement and resettlement, and corruption in decision-making processes are other socio-economic issues that are associated with the placement of waste incinerators in communities.

LESSONS FROM OTHER REGIONS

Africa is now being openly targeted by European WtE industry as a potentially growing market for WtE facilities as key markets in Western Europe reach a saturation point. What's the motivation behind the attention? If WtE is truly a "high-tech solution" that was "proven to work in developed countries," why is the world moving away from incineration?



In the U.S., no new incinerators have been built since 1997 due to health risks and an ever-increasing number of emissions violations, explosions and fires, financial crises, worker safety issues and resistance from the public. By 2015, 10 major cities in the U.S. have declared a zero waste goal, pledging to achieve a diversion rate of 40-100% by 2020-2040. Among them, San Francisco, Austin, Seattle, and Dallas all process less than 1% of their waste through WtE and are striving to rule out incineration. In 2017, 250 mayors in the U.S. unanimously voted for a landmark renewable energy resolution that does not classify WtE as a renewable energy, despite intense lobbying from the industry.



Europe has also taken steps to remove subsidies for incinerators. In 2018, the European Parliament and the Council agreed on EU Renewable Energy Directive provisions that will require Member States to exclude subsidies for waste incineration. The European Commission put forward a legislative proposal that excludes funding for waste incinerators. Earlier in 2017, the commission issued a communication on WtE that recommends Member States to raise taxes on WtE, phase out public support schemes, decommission old facilities, and establish a moratorium on new ones. For so long, Europe has been experiencing air emission violations, toxic ash, financial restrictions. Some EU countries have over-invested in burning facilities, and are then locked into long-term contracts (40-50 years) with the incinerators that demand a constant flow of waste on a 24-hour basis to keep operating. Sweden even imports massive amounts of waste from abroad to keep feeding their facilities. Gasification, pyrolysis and plasma are also failing, as most of them have been forced to shut down for technical and financial issues even before reaching full operation.



In 2017, the Chinese government announced its intention to ban foreign waste after decades of dealing with waste shipped from the Global North. Effective as of January 2018, the nation's anti-pollution policy has put an end to China's undeserved role as the world's garbage dump. The largest waste exporters – primarily the U.S. and countries in Europe – benefited most from China's loose environmental regulations and less costly labor, and are now scrambling to find another outlet for their plastic waste. While the ban is a perfect opportunity to build a domestically sustained recycling system, unfortunately, many countries are keener to invest in "alternative" destinations that can accommodate their ever-increasing piles of waste, such as Indonesia, India, Vietnam and Malaysia. In response, Asian countries are following suit by announcing a similar ban to prevent their nations from becoming the world's next dumping grounds. In the face of a volatile global recycling trade, the need for immediate protective measures is gaining critical momentum around the globe, including Africa.



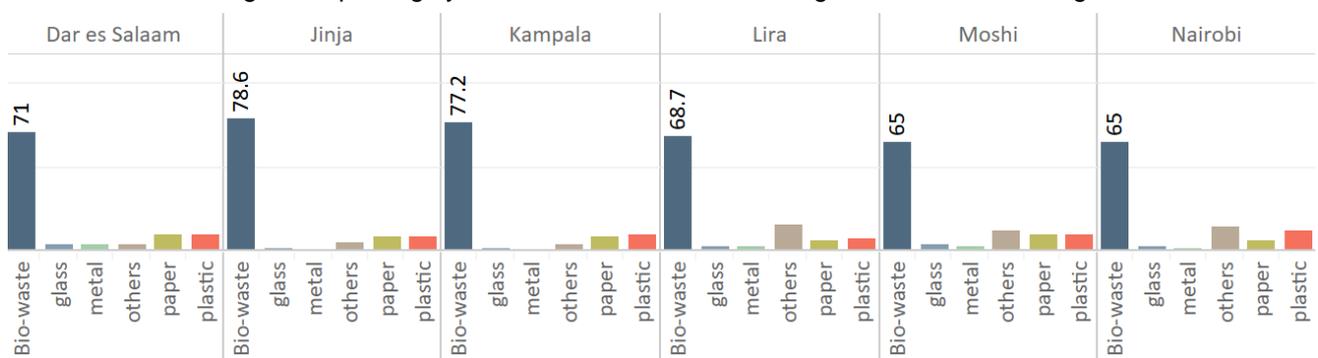
On the positive side, many communities in Europe have accumulated numerous best practices and working roadmaps for zero waste schemes that guide cities through feasible step-by-step action plans. For example, the Zero Waste Masterplan published by Zero Waste Europe is a great resource for city planners, policy-makers, and community leaders. The guidelines and toolkits highlight separate collection, deposit and refund systems, extended producer responsibility and pay-as-you-throw as some of the key steps toward a zero waste society.

THE PATHWAY TOWARD A SUSTAINABLE ZERO WASTE SYSTEM

The African Union has set ambitious goals to achieve inclusive growth and sustainable development as part of the continent's 50-year strategic socioeconomic transformation framework Agenda 2063: The Africa We Want (2013). For waste management, the Union calls for African cities to recycle at least 50% of the waste by 2023. Building a sustainable zero waste system is the fastest, least expensive, and most effective strategy to achieve such aspirations. Experiences and lessons learned by other communities suggest the following pathways.

INVESTIGATE CURRENT WASTE STREAMS TO IDENTIFY KEY CHALLENGES

Evaluating the current waste stream, existing waste collection and management systems, as well as defining what external/internal infrastructure investment is needed is a good first step to take. Since municipal solid waste in Africa is mostly composed of organic waste, with low calorific value and high moisture, cities can consider establishing a composting system with much a smaller budget instead of investing in wasteful WtE.



Percentage of organic waste in major city centers in Africa

USE ZERO WASTE POLICY INSTRUMENTS

Enforced legislative efforts and adequate budget allocation are key to a successful implementation of zero waste systems. Actions that are applicable to Africa include:



PRODUCTION

Extended Producer Responsibility (EPR) – In accordance with the “polluter pays” principle, producers should be held accountable for the end of life of their products with financial and/or physical responsibilities.



DISTRIBUTION

Bans on products that cannot be recycled easily such as polystyrene food containers and plastic bags are an effective way to reduce waste, as many African cities have already witnessed. Bottle bills that require deposits to be paid on beverages sold in bottles can ensure a high rate of recycling.



RECYCLING

Investment in source separation and collection can make waste recycling easier and better capture the value of recovered materials. Minimum recycled contents requirements as well as better labeling of recyclability function as an incentive.



DISPOSAL

Pay-As-You-Throw (unit pricing waste collection system) creates a direct economic incentive to recycle more and to generate less waste. Through disposal bans on recyclables, organics, electronics, and hazardous waste, cities can divert certain materials from landfills and incineration.



OTHER FINANCIAL MEASURES

Increased tipping fees, tax benefits for recycling and composting, and higher taxation on non-recyclables are part of revenue models that are applied for zero waste cities.

SET A ROBUST SUSTAINABLE ZERO WASTE GOAL

Africa has been a champion in the battle against single-use plastics. At least seven African countries, including Rwanda and Kenya, have implemented a complete and total ban on the usage of plastic bags, while over 15 countries in the Sahara region apply either a partial ban and/or tax. Similarly, such a strong political drive can play a role in establishing a robust zero waste goal in line with other multilateral environmental agreements including the Agenda 2063 Implementation Plan (2014-2023) and the Sustainable Development Goals in order to bring about positive changes for the environment and communities. South Africa, for example, has pledged to develop a plan for Zero Waste by 2022.

FOSTER AWARENESS

The lack of public awareness on waste issues is often a major challenge in developing and implementing zero waste policies. Helping individuals to understand how reducing waste is essential to human health, survival and quality of life will affect citizens' everyday decisions as well as willingness to support sustainable practices. While educating individuals on how they can minimize waste in their own lifestyle is important, urging corporations to rethink and redesign manufacturing, distribution and disposal is key to addressing the core of the issue. Local NGOs and community leaders can be a great catalyst in such mindset-shifting efforts. Some of tactics that are commonly used are: media campaigns including national tv, newspaper, radio programs, school curriculums and students-led environmental clubs, training workshops, posters and flyers, informal meetings with community leaders, and social media.

INTEGRATE WASTE PICKERS INTO ZERO WASTE PLAN

In most developing countries, informal workers play a crucial role in collecting, sorting and recycling 15%–20% of waste generated. Integrating them into the formal system, ensuring safe working conditions and social safety nets and providing them with education is key to building an inclusive zero waste system. Governments should legitimize the important contribution of workers in informal sector by offering them a path to stable formal employment with appropriate training, safe work environment, and the right to unionize. Special attention should be paid to women and children working in the informal sector as they are exposed to hazardous e-waste recycling in Africa. Along with informal sector actors, joint efforts through open discussion among all stakeholders will yield the best solutions, especially with strong public ownership and transparent democratic processes.

LOCAL COMMUNITIES KNOW WHAT'S BEST FOR ALL OF US



In June 2018, communities in the Western Cape of South Africa successfully stopped a plan to build a municipal waste Incinerator, which would have been the first of its kind to be built in South Africa. Powerful community organizing and legal interventions, linkage to human rights violations and environmental harm were the key to such a victory. Grassroot groups can provide crucial perspectives on issues often neglected by profit-driven industries. In many countries in Africa, they are continuing to resist proposals for new incinerators as well as spread community-led zero waste solutions, with values and priorities that are centered around building a safer, more just and sustainable environment for the neighborhood and beyond.