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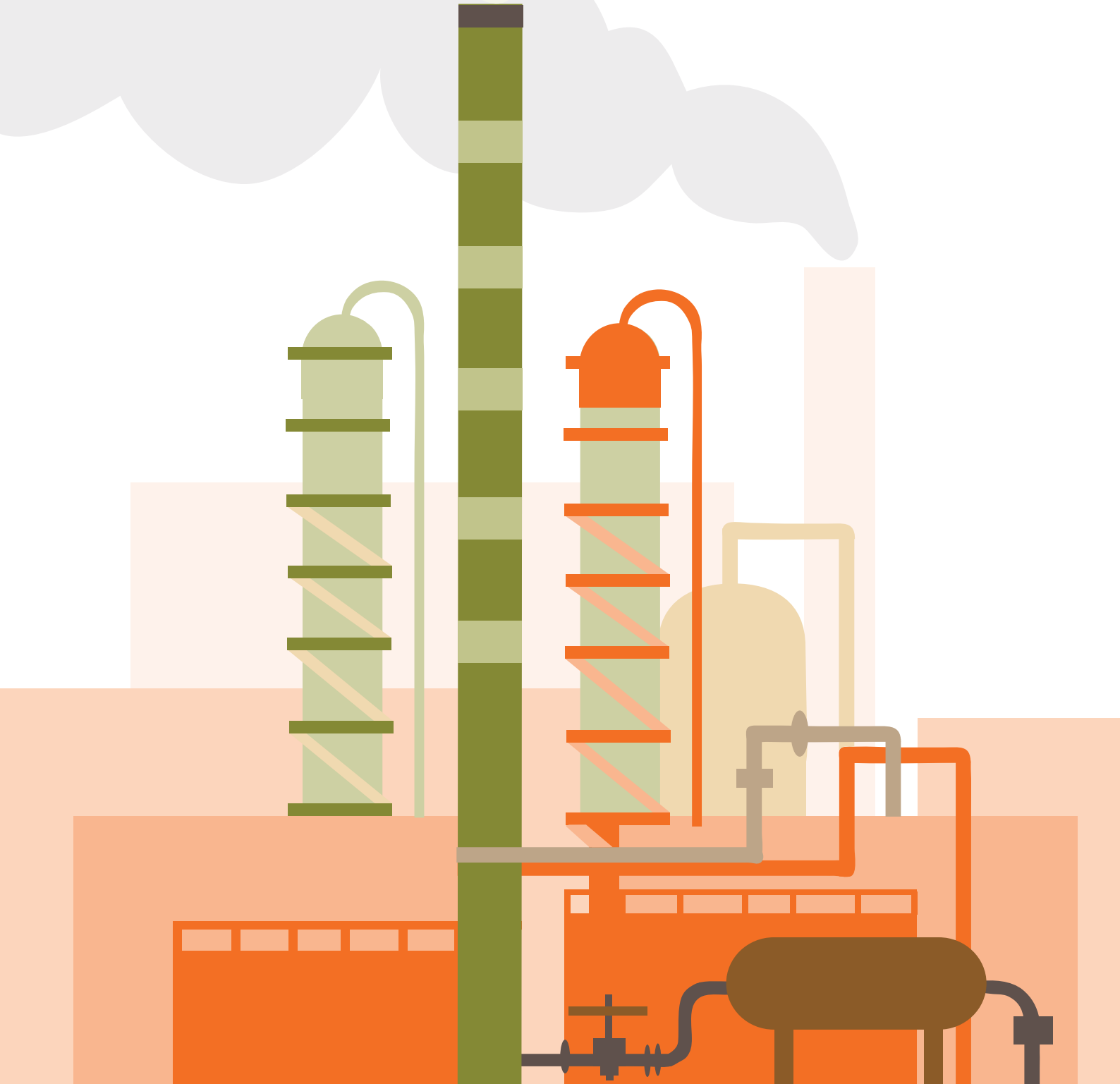
Women in Informal Employment: Globalizing and Organizing

Five facts about incineration



Five facts about incineration

Across the globe, cities are looking for ways to improve their municipal solid waste systems. In the search for services that are affordable, green and easy to implement, many cities are encouraged to turn to waste-to-energy (WtE) technologies, such as incineration.[1] But, as found in WIEGO's Technical Brief 11 (*Waste Incineration and Informal Livelihoods: A Technical Guide on Waste-to-Energy Initiatives* by Jeroen IJgosse), incineration is far from the perfect solution and, particularly in the Global South, can be less cost-effective, more complicated and can negatively impact the environment and informal waste workers' livelihoods. Below, we have collected the top five issues highlighted in the study that show why this technology is a risky choice:

1. Incineration costs more than recycling.

How incineration may be promoted: Incineration is a good economic decision because it reduces the costs associated with landfill operations while also creating energy that can be used by the community.

The reality:

- In 2016, the World Energy Council reported that, "energy generation from waste is a costly option, in comparison with other established power generation sources."
- Setting up an incineration project requires steep investment costs from the municipality.
- For incineration projects to remain financially stable long-term, high fees are required, which place a burden on municipal finances and lead to sharp increases in user fees.
- If incinerators are not able to collect enough burnable waste, they will burn other fuels (gas) instead. Contract obligations can force a municipality to make up the difference if an incinerator doesn't burn enough to create the needed amount of energy.
  An example of this is an incinerator project in Delhi, India, that burned waste to create electricity. However, because of the poor quality of the waste coming in, the plant quickly resorted to burning diesel fuel. The operation only lasted 21 days before it was decided that it was financially unsustainable and shut down (Shah 2011).

Conclusion: From start to finish, incineration is a more costly option — one that many developing countries are not prepared to pay for — and municipalities should consider that other WtE technologies will also have hidden costs that will pop up when things don't go according to plan. Municipalities need to carefully consider whether or not they can afford the long-term costs as well as the cost of setting up the system before engaging in a project that might prove more trouble than it is worth.

[1] The term "waste-to-energy" refers to a range of technologies that treat waste to recover energy in the form of heat, electricity or alternative fuels such as biogas. Besides incineration, there are four other main types of WtE technologies used for treating (municipal) waste internationally:

- **Co-processing:** the use of waste-derived materials to replace natural mineral resources and/or traditional fossil fuels such as coal, fuel oil and natural gas.
- **Anaerobic digestion:** decomposition of organic matter through microorganisms.
- **Landfill gas collection:** generating energy by the natural degrading and decomposition of municipal solid waste by anaerobic microorganisms in sanitary landfills.
- **Pyrolysis and gasification:** Typically relies on carbon-based waste such as paper, petroleum-based wastes like plastics, and organic materials such as food scraps which are broken down to create gas, solid and liquid residues.

2. Incineration is not a simple solution to waste management.

How incineration may be promoted: When there are open dumps that need to be closed while the amount of waste collected continues to rise, incineration is an easy option that addresses two issues: a clean energy solution that reduces waste while also creating electricity to power communities.

The reality:

- WtE technology is complex, expensive, needs regular repairs and maintenance, and needs highly skilled staff for operation and management.
- Incineration WtE technology's impact on jobs and the environment in local communities is not small and not always positive, as demonstrated by the experiences of developing countries who have used the technology.
- Incineration is less effective in tropical climates, where humidity and increased rainfall can affect the burnable energy (how well something burns) of waste, particularly in cases where waste is stored open to the elements.
- Furthermore, the companies pushing this technology are looking for countries where the laws and policies around waste management are more relaxed so that they can operate more easily and with fewer restrictions.

Conclusion: If city leaders are considering incineration as an option, they need to be aware that it is not as simple a project to set up as it might appear on the surface. There are many factors to take into account (as noted above, these include finding highly trained personnel, environmental impacts, local climate, and municipal policy frameworks), and the municipality needs to decide if it has the ability to cope with the various problems that have come up with similar projects. If not, then perhaps WtE technology is not the golden bullet solution needed in this case.

3. Incineration is not compatible with recycling.

How incineration may be promoted: Incineration can dramatically reduce the amount of waste a municipality produces. It can make a 75 per cent reduction in the total mass and volume of waste collected, thus greatly reducing the amount of waste sent to landfills.

The reality:

- Waste collection contracts for incineration are based on tonnes delivered to the plant; a practice which does not favour recycling.
- In order for incineration WtE technology to be effective, it needs a certain amount of materials that burn easily. Of the different parts that make up municipal waste, the ones that contain the most burnable energy (materials that are easiest to burn) are also the ones that would otherwise be recycled — such as cardboard, paper, plastic and textiles.

Conclusion: Municipalities need to consider what materials make up their waste and how the WtE technology involved is contracted to reduce it. Contracting based on tonnes delivered does not incentivize a WtE company to invest in recycling. However, even if incentivized to do so, the incineration process needs certain kinds of waste to be viable — predominantly recyclables. A municipality that doesn't produce enough of that type of waste cannot support an incineration project.

4. WtE is not environmentally friendly.

How incineration may be promoted: Incineration is a clean, environmentally friendly option for waste management; it is the answer to shrinking fossil fuel resources; it is a renewable energy source; and it can be an opportunity to get carbon credits.

The reality:

- WtE creates toxic by-products that must be dealt with carefully. Incinerating waste, for example, creates two types of ash: bottom ash and dangerous fly ash, which causes air pollution. Technologies that make sure that this ash doesn't escape — as is required by global environmental and health standards — are often not available in developing economies.

Conclusion: Municipalities need to take into account what the possibly dangerous by-products of WtE technologies might be and whether or not this solution is actually an environmentally better option than current systems. In developing countries where pollution is an issue already, and where laws and policies to regulate corporate pollution are weak or non-existent, this can make a bad problem much worse, and the pressure of meeting international standards for health and the environment can put a huge financial burden on communities that might not have the resources to cope.

5. WtE threatens the livelihoods of informal waste recyclers.

How incineration may be promoted: WtE opens up employment opportunities and provides well-paid jobs.

The reality:

- Not only does incineration technology cost more, it also creates less job opportunities. A report from the USA in 2011 noted that recycling activities generated 10-20 times more jobs than incineration (Goldstein and Electris).
- Furthermore, incineration operations are quite technical and require highly skilled workers to oversee operations, which limits the pool of workers who can apply to work there.
- Many cities also do not consider how WtE technologies like incineration will impact the informal waste sector, which plays a major role in waste management, particularly in the Global South. In some cities, informal waste work generated 10-40 times more jobs than similar recycling activities in an industrialized country (Linzer and Lange 2013).
- For informal waste collectors, incineration projects mean they lose access to recyclables such as plastics, paper and cardboard, which directly affects their livelihoods. In those municipalities where there already is an active informal waste sector, it is crucial to understand that the decision to use incineration will most likely lead to extensive loss of employment and loss of livelihoods for those working in the informal waste economy.
- For an example of the negative impacts WtE can have, see the WtE project in Sukhdev Vihar, located near the Okhla Landfill in Delhi, India. An incineration facility began operations in 2012, during which the Chintan Environmental Research and Action Group conducted a survey on the landfill to assess the impact the incinerator had on informal livelihoods. They discovered that 300 of the 450 individuals active at the landfill were no longer working there. The report also found that there was a) a significant drop in the populations of communities dependent on the income generated on the landfill; b) a drastic decrease in income for the waste pickers; and c) reduced consumption of meat and fish (Chintan 2012).

Conclusion: Cities need to take into account how a WtE project will impact the informal waste sector — an area which employs many more workers than a WtE project can accommodate. Examples from other developing countries show that when WtE technology replaces other forms of waste management, informal waste workers suffer. It is therefore critical that municipalities take informal waste workers into account when considering WtE technologies as a waste management option for their community.

WHAT WE CAN DO

What Municipalities should do:

Decisions on waste-to-energy technology options should only be made based on a municipal solid waste plan that considers all the pros and cons. This plan needs to be supported by/embedded in national policy and should take into account the unique context in any given city — including the climate, the materials that make up the municipality's waste, the current legal and policy frameworks, the current waste management system (which includes the informal waste sector), and the monetary investment required. WIEGO's Technical Brief 11 (page 17) provides a checklist with crucial questions decision makers need to ask when deciding to use incinerator technology. If any of these questions cannot be answered positively, then a municipality should really question whether it can (or should) embark on even talking about WtE technologies. Instead, it would be in the municipality's best interest to focus its efforts on making sure all waste is collected and treated in an environmentally correct manner and that the municipality is able to pay for the associated costs.

To learn more:

Read WIEGO's Technical Brief 11, *Waste Incineration and Informal Livelihoods: A Technical Guide on Waste-to-Energy Initiatives* by Jeroen IJgosse.

Check out some organizations who are gathering information on WtE projects:

- *Global Alliance for Incineration Alternatives (GAIA)*: https://www.no-burn.org/
- *Redlacre:* https://www.redrecicladores.net
- *Global REC*: https://globalrec.org/
- *Alliance of Indian Wastepickers (AIW)*: http://allianceofindianwastepickers.blogspot.com/
- *Instituto Lixo Zero Brasil*: http://ilzb.org/

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