

Twenty reasons why incineration is a losing financial proposition for host communities

especially in the global South

1. Incineration is the most costly solid waste management option

The typical capital investment for a mass burn waste incinerator ranges from US\$50 million to US\$280 million depending on its capacity, making it the most costly solid waste management option available. The net cost per ton to burn wastes is at least twice the cost of controlled landfilling, and many times the costs of recycling and composting strategies. A 2000 World Bank report concluded, “when applying waste incineration, the economic risk in case of project failure is high...”

2. Incineration increases the indebtedness of host countries

Incinerators planned in industrializing countries often require foreign financing to build and maintain. These costs are not limited to the construction phase, as countries need to have access to foreign currency to purchase equipment for facility repairs and upkeep. The World Bank estimates that at least 50% of the investment costs will need to be covered by foreign currency.

3. Incineration is capital-intensive v. labor-intensive

Incineration is a capital-intensive technology that uses little labor. For every 10,000 metric tons per year of capacity, one full-time job is created. In contrast, U.S. recycling facilities sustain 11 jobs per 10,000 metric tons processed. Industrializing countries tend to be poor in capital and rich in labor. The capital-intensive nature of incineration does not transfer well to the global South.

4. Waste composition affects incinerator operation and finances

Most waste incinerators were designed and tested in industrialized countries and, as such, are far less suitable for the discard stream in industrializing countries, which is usually more dense and has a higher moisture content. An incinerator in Surabaya, Indonesia, can only operate at two-thirds its design capacity, because the wastes need to be dried on-site for five days to make them burnable. A New Delhi, India, incinerator was closed within a week after its completion in 1986 because garbage from the surrounding communities was too wet to burn. The facility cost more than US\$10 million to build.

5. Incineration will adversely impact the informal sector and the informal sector will adversely impact incineration

Many communities in the global South have a large informal recycling sector, made up of wastepickers and scavengers. This sector can affect the composition and quantity of waste projected available for burning and thus could contribute to tonnage shortfalls and affect burnability of the waste. Wastepickers will continue to remove the most valuable materials. Some of these materials (such as wood) also have a high-energy content and undoubtedly are material that incinerator planners rely on for the incinerators. Incinerator planners rarely factor in wastepicking. Furthermore, incinerators will impose hardships on if not jeopardize wastepickers' livelihoods.

6. Incinerator proponents often over-estimate energy revenue

Incinerator proponents often over-estimate anticipated revenues from energy sales, resulting in higher than anticipated per-ton operating costs. Numerous U.S. incineration projects have run into trouble because project developers over-estimated projected electricity revenues or local utility companies balked at buying power from the incinerator. When revenues are lower than projected, incinerator operators pass the costs

onto garbage customers through higher incinerator “tip” fees or onto electricity customers through charging artificially high prices for the electricity generated.

7. Incinerators may require transfer stations, another cost

Incineration requires a centralized waste system. Waste is collected and taken to one site, the incinerator. Very large incinerators tend to serve large urban or geographical areas and typically require the building of waste transfer stations, where waste is transferred from small collection vehicles to larger vehicles for transport to the incinerator. Transfer stations, while generally low-tech, will add to the costs of the incineration system. In addition, they make poor neighbors, as they are noisy, add truck traffic to the roads, attract vermin, and litter the area. In Puerto Rico, using a proposed transfer station to serve a proposed incinerator would have cost up to 100% more than hauling the trash directly to the incinerator.

8. Pollution control equipment and pollution regulation and enforcement are expensive and increase costs

Incinerators are major releasers of air pollutants such as dioxins, heavy metals, oxides of nitrogen, sulfur oxides, particulate matter, and numerous volatile organic compounds. Neither high temperatures nor pollution control equipment can make incinerators safe. While pollution control equipment can reduce air emissions, they will significantly increase costs. The better the pollution control and regulatory oversight, the higher the costs. In the United Kingdom for example, around 30% of the capital costs of a conventional British incineration facility is attributable to the flue gas clean-up system.

9. Incinerators produce a toxic ash that requires disposal in secure landfills

Most modern incineration technologies designed to reduce air pollution simply move the toxics to the ash. As air emissions get cleaner, the ash gets more toxic and ash is rarely handled in the strictly controlled manner it should be. Ash management poses severe environmental and economic problems. Where incinerators are planned in industrializing countries, the ash would most likely be destined for unlined dumpsites. Ironically, if specially designed landfills were built to handle the ash, they would drastically increase the cost of incineration while only delaying the environmental impacts of the toxic ash.

10. Tonnage shortfalls lead to financial problems

In most parts of the world, incinerator operators count on a per-ton “tip fee” and a certain amount of waste in order to pay off incinerator debts and cover operating costs. To finance their facilities, developers often tie communities into “put-or-pay” contracts, which require communities to pay tip fees for a guaranteed amount of waste, whether it is delivered to the facility or not. In the early 1990s, five New Jersey (U.S.) incinerators ran into financial problems when they did not receive sufficient quantities of waste to operate. The state, which loaned much of the money for the construction of these facilities, had to bail out the incinerators with US\$1 billion in taxpayers’ money (taken from the state’s 1999 general budget). Other parts of the world may face similar and even exacerbated problems. In the absence of any regulatory infrastructure, trash haulers will not pay higher prices to bring materials to an incinerator if cheaper options exist. Thus, incinerators will either face tonnage shortfalls and thus revenue shortfalls, or incinerator operators will have to lower tip fees to attract tonnage. Either way, citizens and taxpayers are left paying the bill.

11. Lack of infrastructure may doom incinerators to financial failure

Inherent environmental problems notwithstanding, to be financially viable, incineration necessitates a fully developed and controlled solid waste system, which includes:

- Guaranteed supplies of waste in terms of quantity and quality for the lifespan of the facility;
- A system for ensuring payment of solid waste charges;
- Authorities responsible for control and enforcement;
- A controlled landfill for disposal of incineration residue;
- Skilled works and adequate plant management; and
- Convertible currency for purchase of spare parts.

Industrializing countries more often than not lack the necessary infrastructure and institutional arrangements to support waste incineration. For example, the Solid Waste Management Department of Karachi

Metropolitan Corporation (Pakistan) estimates that only 50% of the city's daily trash generation is collected from the streets by the municipal service. If incinerators are sized based on total generation rates, shortfalls may occur because of low collection rates.

12. Citizens and taxpayers pay for incinerators' financial problems

Construction of incinerators generally ties governments into long-term contracts guaranteeing delivery of waste tonnages to the facilities at a specified fee. Full cost recovery is essential to being able to finance debt obligations. However, incineration tip fees are seldom set to cover full costs as waste haulers will simply take their waste elsewhere, with the net effect of encouraging illegal dumping. Thus, incinerator operators often cover costs via general waste service charges or subsidies, which passes costs onto citizens and taxpayers. This is exactly what happened in Montgomery County, Maryland (U.S.). Local haulers refused to pay high tipping fees and stopped delivering waste to the county incinerator. In order to attract more waste, the county lowered tip fees and increased property tax by 55% in 1997 to make up the revenue shortfall.

13. Incinerators limit least-cost options such as recycling

Incinerators perpetuate the need to produce waste and prevent implementation of less costly and less polluting alternatives. They need a minimum amount of garbage daily to operate properly and generate electricity. Because of their voracious need for discards to produce fuel, incinerators lock up the waste stream, hampering waste reduction efforts. Furthermore, these facilities consume so much of local solid waste budgets that little money is usually left for comprehensive recycling and composting programs. For example, the Polish National Fund for Environmental Protection provided a loan to build a municipal solid waste incinerator in Warsaw on the condition that the Warsaw authorities continue to finance separate waste collection and recycling. However, right after they obtained the loan, the Warsaw City Council violated the agreement and cut finances for its recycling program.

14. Incineration eliminates the potential for recycling-based economic development

By locking up the waste stream, incinerators hamper reuse, recycling, and composting activities and the benefits these waste reduction strategies bring to local economies. Reuse, recycling, and composting create many more jobs than landfilling and incineration. For example, on a per-ton basis, just sorting recyclables sustains approximately 11 times more jobs than incineration. In the global South, reuse, recycling, and composting can be expected to be even more labor-intensive.

15. Incineration consultants and experts can add millions to the costs

Incinerator projects inevitably require consultants, experts, and lawyers, the vast majority of whom are foreign to the global South. These firms typically cost millions of dollars and the monies used to pay them often represent public money. In Puerto Rico, a small island in the Caribbean, two proposed incinerators were stopped but not before US\$20 million was spent evaluating the proposals. Westinghouse was the vendor for one incinerator, a 1,040 ton-per-day facility. The other vendor was NORECORP (using Montenay's technology) for a 1,600 ton-per-day plant. About 90% of the money sunk into the two projects was used to pay consultants and lawyers, and about two-thirds of the monies lost were public money. These two proposed plants are only two of the numerous proposals to build incinerators on the island. With the amount of money paid to consultants in the last decade, recycling activists in Puerto Rico believe the island could have built all the infrastructure needed to handle the organic fraction of its waste, a step they believe is the island's top solid waste management priority.

16. Incineration's high investment costs increase potential for corruption

Many large development projects in the global South, such as incinerator construction, have been subject to rife corruption. Tax law in Denmark, Iceland, Norway and Sweden used to allow companies to deduct bribes paid to foreign public officials if they were documented business expenses and if they were a customary practice in the country of the recipient. This practice increases project costs, while delivering no benefit to anyone other than the graft recipient. In Puerto Rico, tens of millions of dollars in public funds have been lost to corruption on contracts related to "waste management." After a decade of public outcry by the environmental movement, a Blue Ribbon Committee is investigating this corruption.

17. Incineration has high public health costs

All incinerators release pollutants through air and ash emissions. While the exact composition of these emissions can vary according to the composition of waste burned and the completeness of combustion, typical incinerator emissions include acid gases, particulate matter, carbon monoxide, nitrogen oxides, metals, dioxins and furans, other persistent organic pollutants (POPs such as hexachlorobenzene and polychlorinated naphthalenes), and at least 190 volatile organic compounds. Many of these pollutants are known to be persistent, bioaccumulative, and toxic. They cause a wide variety of adverse health effects including cancer, respiratory disease, disruption of the endocrine system, and congenital birth defects. Some studies indicate that distant populations can be exposed to pollution from incinerators by ingesting contaminated plant or animal products. The costs to society of these adverse health effects are rarely included in economic analyses, and are indeed difficult to quantify, but should not be ignored.

18. Incineration wastes resources, energy, and associated investment

Incinerator proponents tout the benefits of converting “waste to energy.” In reality, these facilities are a waste of energy. The small amount of energy incinerators produce is far less than the amount of energy that could be saved by recycling and resource conservation. On the whole, three to five times more energy can be saved by recycling materials than by burning them. For every ton of material destroyed by incineration, many more tons of raw materials must be mined, extracted, processed, or distributed to manufacture a new product to take its place. More trees must be cut down to make paper. More ore must be mined for metal production. More petroleum must be processed into plastics. The environmental costs of landfilling and incineration become magnified when the environmental costs of extracting virgin materials and producing goods in the first place are taken into account.

19. Incinerators lower property values

The truck traffic, blowing trash, birds and rats attracted to trash, noise, odor, and pollution caused by incinerators can all contribute to a drop in property values. The effect of incinerators on property values is neither consistent nor predictable.

20. Incineration encourages continued waste generation and reinforces the notion that unwanted discards are a local community responsibility and cost

Incinerators need discards to operate and make good on debt payments. Reliance on incineration perpetuates the throw-away lifestyle, production of toxic and wasteful products, and local government responsibility for waste and its costs. Incinerators take away the incentive and pressure for corporations to redesign their products and packaging to reduce toxics and conserve resources. Communities that build incinerators end up subsidizing an obsolete technology while hampering new systems that can lower costs in the short and long term.

Source:

Brenda A. Platt, Institute for Local Self-Reliance, *Resources up in Flames: The Economic Pitfalls of Incineration versus a Zero Waste Approach in the Global South* (Global Anti-Incinerator Alliance/Global Alliance for Incinerator Alternatives: Manila, the Philippines, 2004). Available at <http://www.no-burn.org/ResourcesupinFlames.zip>.