

Research paper on environmental issue: incineration

[Environment](#), [Pollution](#)



Incinerating means burning waste or trash until what is left is ashes awaiting disposal. An incinerator is a machine used to burn waste and trash until these materials are reduced into ash. The device is constructed using heavy machinery and well insulated materials that protect heat transmission into the immediate environment. Incinerating serves to keep hazardous material from finding their way into landfills where they can harm workers in such facilities (Donohoe 2003, pp. 588). The devices produce power while in process of waste burning that can be used elsewhere. The byproducts of incineration are air and smog pollution, and therefore, the method is considered as a trade-off that exchanges land pollution from waste to air pollution from the ashes and gases released.

Incineration destroys a variety of contaminated waste, and significantly reduces the amounts of material disposed using landfills, for contaminated areas, digging and transporting the waste into an offsite incinerator is considered quick and effective clean up approach (Rabl, Spadaro, and Zoughaib 2008, pp 148). Although incinerators require a lot of gas and fuel for operation, the heat generated can be recycled into electric power in a process deemed 'waste to energy'

Advantages of incineration.

The term waste overcomes the 'bad' element of the word garbage, and this may create a positive approach to usefulness of waste. Promoters of technology advocate for waste reduction, recycling, and reuse. It astonishes how much individuals and organizations produce as waste through hyper consumerism, excessive packaging, and lack of awareness. Individuals can make a difference by campaigning against buying over packed goods, and

encouraging companies to reduce the amounts of paper used in packaging. Nevertheless, the problem of over packaging is here to stay, but using measures such as incineration such wastes can be reduced from the environment. Using recycling as a waste management method does not solve the problem of environmental degradation as close to three quarters of the recycled material still ends up in landfills. Turning usable and unsorted waste into fuel means communities do not reuse, recycle, or reduce burning this waste overlooks this policy.

Compared to other waste disposal means as landfills, burning pollutes less. Landfills pollute underground water by leaching toxic materials from the garbage (Liamsanguan, and Gheewala 2008, pp. 133). The situation is worsened during rainy seasons when the flow of these toxics is quickened. The England 17th Royal Commission on Environmental Pollution report provided that a lot of air emissions with diverse global consequences arose from landfills than through incineration. This explains the reason behind the prevalence of incineration in European governments than landfills. With increased modifications and improved innovations on incinerators modern incinerators have been invented, which are considered much safer. With these machines incineration has become an easy process that can be less expensive than diverting, sorting, and recycling. However, once the waste is burnt it cannot be re-used.

Disadvantages of incineration/emerging ethical issues.

Waste incineration comes with more disadvantages than benefits. According to environmental protection agency (EPA), and other environmental

organizations like NEMA, the principle behind environmental sustainability is protection of degradation of environment, and promoting means of upgrading the environment. Any policy used for environmental sustainability should not lead to further pollution or degradation, but should encourage further environmental protection (Rabl, Spadaro, and Zoughaib 2008, pp. 149). Incineration has been faced by ethical challenges in its implementation as besides its advantages it poses further threats to the environment, and contributes to further environmental degradation.

Incineration and toxic emissions.

Incinerators emit dioxins, dioxin related compounds, and toxic metals. There is no doubt that since 1980 the incineration of waste has reduced emissions released from the traditional burning of waste. The modernized combustion process generates byproducts that when released into the air lead to air pollution. Air emissions associated with this process include organics such as furans and dioxins, acid gases such as hydrogen chloride, nitrogen oxides, carbon dioxide, and sulfur dioxide (Donohoe 2003, pp. 592). The process also releases particulate matter like grit and dust. Of significant concern are metals like mercury, cadmium, and lead that contribute to further air pollution, and production of nitrates that are ozone precursors.

(Trash incinerated releases harmful waste to the atmosphere)

With such emissions the health of the workers and neighboring communities are put at risk. Environmentalists provide that ingesting or having contacts with contaminated dust pose more health risks than inhaling emissions produced by incinerators. Plants and animals are also affected by these

emissions (Keller 2010, pp. 97). Ultimately, the extent of air pollution from this process depends on the measures put into place to reduce the dangers, and concentrations of contaminants.

The process, however, fails to consider ethics on regulation, monitoring, and regulations imposed by the government. There is a difference between the theory in regulations, and practice of incineration. This difference brings about health issues, and reduced well-being of communalities, which is against the ethics of environmental sustainability.

An ethical concern to the public is on the infrequency of monitoring on the process. The Proponents of incineration do not conduct the expected continuous environmental monitoring (CEM), and when they do, they provide manipulated results on effects of incineration. Ethically, the monitoring process requires collection of sample on filters by inserting a probe into the flue gas (Liamsanguan, and Gheewala 2008, pp. 146). There lacks environmental laboratories to test, monitor, and provide analysis of the process.

(Incinerators emit variety of pollutants in their stack glasses. The filters used to clean these glasses produce toxic wastes and solid material, which also need to be disposed)

Burning waste does not make the waste disappear; the process only reduces the amounts of solid waste, and turns into manageable waste. It does not dispose all toxic substances found in the waste. Further, the process creates massive sources of dioxins, which is amongst the most toxic substances recognized by scientists. The breaking down of the waste into smaller and manageable waste, which is later disposed in landfills, water, and land, is a

convenient way for masking today's waste issues whilst transferring the problems to future generations (Liamsanguan, and Gheewala 2008, pp 144).

Incineration is also an expensive exercise; as once started it becomes a challenge to shift people's minds off the fuel commodity produced by the process. This implies that waste management continues to re-occur even while waste is properly managed, and is recycled for other purposes.

The process creates toxic ashes or slag that can only be disposed through landfills. This ash contains metals, and other pollutants, which makes it non-reusable. This undermines the policy of waste recycling and prevention. The incinerators also use a system in which there are constant flows of resources that need to be pulled out land, factories, shipped from other parts of the world, and later burnt in local communities. The implication is that local communities suffer from degradation on wastes that they do not produce. This linearity of system in production, transportation, consumption, and later disposal is in a crisis as it cannot be sustained for long. Waiting for waste from other sites so as to reduce on incineration costs is lacks efficiency in degradation control.

Incinerators are expensive.

In ethical terms, the cost of maintaining a sustainable environment should not outdo the benefits. According to NEMA, the benefits realized from an environmental sustainability projects should be more than the costs of running or operating such a project. Incinerators are expensive, but most operators hide this expense from the public opinion through provision of public subsidies. To cater for capital, operator's margins, and operating

costs, the local community sign agreements, which trap them for many years without their realization.

Over half of capital costs incurred goes into air pollution control equipment. Ironically, if the waste was not to be burnt such massive expenditure would not be incurred, nor would the toxic ashes collected be sent to landfills, and no costs of monitoring the process would be incurred. This information is kept from public reach, more so in developing economies; instead they are told that incineration will save on their community resources. This is unethical for such an environmental policy.

The machines used in this process are also expensive to acquire. Offsite incinerations also lead to increased transport and labor expenditures.

Further, the process is inefficient as it uses fuel, which is more expensive compared to the quantities of power produced from the process.

Additionally, incineration drains finances from local economies to fund for expensive and imported technology. Incineration competes with composition, and recycling (Donohoe 2003, pp 572). Financing its materials is an expensive requirement that adds for only one job out of ten jobs that are provided by other waste disposal means. The process has been used as a scapegoat for grubby and unsustainable industries. Incinerators allow such industries to get rid of their waste hiding the impacts of their operations. They depend on the process in fueling their unsustainable production processes and consumption.

Incineration and employment capacities.

Ethics in Corporate Social Responsibility provide that employing a given percentage of the local community into a project acts as a means of giving back to the society. With the machinery and equipment in place, communities expect that some of their members should be assimilated in the process thereby boosting the economic status of the region. However, the machines are automatically controlled implying that local communities do not get employed. Additionally, the operators are expertise who may not be available locally.

Incineration defies the principle of environmental justice and sustainability. The machines are disproportionately sited in rural areas where the locals are minimally represented in the operations, and have limited or no control over the process. This has been witnessed in Africa, Latin America, and Asia. In Europe where the process has been used for such a long time most of the machines are located off-site in rural areas. The voice of these communities affected is hardly heard as a result of political power indifferences.

Incinerators waste energy.

The proposal that burning wastes recovers energy is a mere sales promotion used by incinerator operators. Ethically, every move used to sustain the environment should use minimal energy as using a lot of energy implies usage of other raw materials that contribute to environmental degradation (Keller 2010, pp. 88). The reality in incineration is that if saving energy is the intended goal, then more energy should be saved by the society through recycling and reusing than can be recovered through combustion. It is

unfortunate that locals are denied the truth, and manipulated to focus on the energy produced while burning the waste.

The power generated while burning the waste is hardly enough to meet the expectations of the communities. The locals lack information on the net loss realized by the process in a national and global perspective, and the long run effects of the process. If the right information is provided to these communities they would make better and informed decisions. For instance, it is at the disposal of the incinerators that composting and recycling saves up to four times energy than the energy produced by incinerators. However, for their own interest of saving on land, and transferring the burden, they keep such information to themselves. If incineration is ethical, the operators should disseminate information regarding all the effects of their operations before installing the machines.

Inflexible incinerators.

The enormous expenses incurred in installation of incinerators reduce the options for the future of communities, no matter the development, awareness, and changes that may happen elsewhere in the waste field (Keller 2010, pp 93). Changing the attitudes of the public towards other waste management policies such as recycling, and value creation becomes an unachievable mission. Ludwig Kraemer, a former waste director in the European Union argued that an incinerator needs to be monitored for at least thirty years before it starts reaping benefits. For it to be economically viable it requires enormous input either financially or manually. So for all these

years the communities stifle any innovations and alternatives in order to cater for their 'investment'.

Fugitive emissions.

Waste is released on moving chemicals from storage areas to incinerator sites. The waste is moved by vehicles or shipped to the site. On average an incinerator burns 32, 000 tons of waste annually. This implies that it should receive over 1500 trucks of waste per year. This translates to over 30 trucks in a week. According to EPA, fugitive emissions occur from spills and release of air and water pollutants by the moving devices. Such may pollute the environment or produce more toxic wastes than what the incinerators produce. There is also a risk of catastrophes live explosions, and fire associated with transporting this waste.

The ethical dilemma.

The codes of practice for incineration in developed countries have been drawn up. There is a looming need for monitoring of the emissions, control of incinerating temperatures, and regular inspections of the facilities. None of these motives can be applied to incinerators installed at low costs, located in remote regions, and with material gathered from locals. Far from regulation and monitoring the practice seems to be carried on even with realized defects that reduce their performance capabilities. Rarely are such defects reported to authorities or designers of these machines.

The dilemma remains on the following questions; should communities do nothing and leave waste unburned? should the world wait until other means of waste disposal are available?, or should developing nations wait for

designed incinerators that are acceptable in developed nations, and who will cater for the costs? The fact is no environmentalist has managed to provide sufficient solutions to these questions. This implies that the effects of incinerators will continue to be felt in rural areas where development is imbalanced, and resources to enable environmental sustainability are not available. More reports on health effects like respiratory failures, cancer, skin diseases, and animal deaths will continue to be received by the governments in the affected areas whilst nothing much can be done to save the situation. Globally, climatic changes will result as a result of increased pollution, global warming, and increased levels of acidic rains. The cycle will continue until appropriate measures are put into place.

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