

# QUESTIONS TO ASK

WHEN EVALUATING  
A "WASTE-TO-ENERGY"  
INCINERATOR PROJECT  
OR PROPOSAL



## The Community has a ‘Right to Know’

Communities facing the prospect of having “waste-to-energy” incinerators established in their neighbourhoods have a right to know the full details of the project and its impact on their health and environment. Host communities carry the direct burdens of these technologies in terms of noise, environmental pollution, and health and social impacts. They need to be supported to engage with industry and government to ensure that their civil rights to a safe environment, clean air, water and food is not undermined by “waste-to-energy” incinerators.

This series of questions has been designed to assist communities in actively engaging with the industry and government over “waste-to-energy” incinerator proposals, promote the community’s right to know, and protect their health, environment, community and future. Gathering data from these questions will empower communities in testing the claims made by incinerator companies and hold authorities to account.

### The “Waste-to-Energy” Myth

The increasing global impacts of climate change and our reliance on finite fossil fuels are driving a rise in government subsidies, tax breaks, and tradable credits for ‘green energy’ generators. The waste management sector is attempting to access these lucrative green energy subsidies by claiming that “waste-to-energy” incinerators are a sustainable solution to our waste problems and a renewable energy source.

#### But are these claims really true?

“Waste-to-energy” (WtE) or staged incineration refers to a range of technologies which are recognized and classified as incineration by the European Union<sup>1</sup> and US Environmental Protection Agency (EPA)<sup>2</sup>. These technologies include gasification, pyrolysis, thermal oxidation processing, plasma arc, rotary kilns, cement kilns and fluidized bed units, among others. Often, the incineration industry claims that their technology is not an incinerator because they may not use oxygen to combust the waste stream. This is misleading because the waste is still thermally converted into a gas, often known as Syngas, which is then burnt (combusted) to make energy.

Incineration is the most expensive and dirtiest form of energy production, releasing more carbon dioxide to the atmosphere per megawatt-hour than coal<sup>3</sup>, undermining jobs<sup>4,5</sup> and destroying finite resources<sup>6</sup> while leaving significant amounts of toxic ash requiring secure landfill<sup>7</sup>.

### Promoting Real Solutions

Countries with developing economies often face the burden of corporate or international sponsored “aid packages” based on waste management infrastructure that may include “waste-to-energy” incinerator projects promoted as ‘clean energy’ and ‘sustainable waste management’ technologies. These large multinational corporate interests can leave communities vulnerable to long-term toxic contamination, massive debts, inappropriate or unproven technologies with poor quality, and unaccountable management and regulatory oversight for decades. They lock out innovative, sustainable and socially-just Zero Waste solutions which create more jobs, a safer environment and a secure future.

The incineration industry will have us believe that “waste-to-energy” incineration is the best option available to manage our waste. But in truth, there are hundreds of communities around the world demonstrating waste management solutions that are not polluting, community-driven, inclusive and respectful of waste workers, less expensive and climate-friendly. Cities all over the world are now practicing Zero Waste solutions including many in the US, Italy and Australia with some exceptional examples like San Francisco and in parts of the Philippines.



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**Zero Waste (ZW) solutions** such as waste reduction, resource recovery, composting and recycling are proven waste management options that are better for our environment, create more jobs, do not pollute our air and water and are not as expensive to establish. There are ZW-compatible technologies such as anaerobic digestion (AD) that create organic compost and energy without leaving a toxic ash. The key is to institutionalize programs that encourage the creation of clean waste streams that support maximum resource recovery, composting, reuse and recycling of our waste.

Zero Waste solutions are an important part of a sustainable society and circular economy where virgin materials are reused and recycled over and over so that we conserve these finite resources we share with everyone on the planet and future generations. Benefits derived from recycling and composting activities are superior to incineration. For example, we can save 26.4 times the energy by recycling PET plastic water bottles than burning them in a “waste-to-energy” incinerator.<sup>8</sup>

The incineration industry promotes “waste-to-energy” as “green energy” and “climate solutions” but in fact incinerators are the dirtiest way to make electricity by most air pollution measures.<sup>9</sup> To make the same amount of energy as a coal power plant, trash incinerators release 28 times as much dioxin, 2.5 times as much carbon dioxide (CO<sub>2</sub>), twice as much carbon monoxide, three times as much nitrogen oxides (NOx), 6-14 times as much mercury, nearly six times as much lead and 70% more sulfur dioxides<sup>10</sup>. It is also a terrible irony that multinationals based in developed nations would impose dangerous incinerator technologies on the very communities that are most vulnerable to the direct impacts of climate change such as those in South East Asia.

The generation of hazardous and residual waste (i.e. wastes that cannot be recycled or composted) is often used to justify the establishment of “waste-to-energy” incinerators. However, Zero Waste solutions ensure that this problematic waste fraction decreases over time while maintaining a path towards a circular economy where such wastes are no longer generated. Alternative non-incineration options for dealing with residual and hazardous wastes are available and used around the world. Incineration stifles the innovation needed to pursue safer, sustainable solutions to resolving these problematic wastes.

One of the most important benefits of a Zero Waste versus a “waste-to-energy” approach is the support it brings to waste pickers’ efforts to expand and formalize in many developing economies that provides a pathway out of poverty and social isolation. Zero Waste solutions support more jobs than “waste-to-energy” incineration. Recycling alone provides livelihood to approximately 15 million people worldwide - 1% of the urban population in the developing world<sup>11</sup>. By burning recyclable resources, waste incinerators deny waste workers opportunities to build social capital. Instead of investing in WTE technologies that rob wastepickers of their livelihood, governments must recognize the important role that waste pickers play in an authentic Zero Waste solutions model and provide investment and technical support to ensure decent and safe livelihoods for them.

# QUESTIONS FOR THE PROPONENT

## Company History

1. Is this company based in (insert your country)? If not, where?
2. Has this company been assessed as a bona fide and legal entity by your government authorities? Does it have the necessary permits to operate legally in your country?
3. Is the company claiming to be a subsidiary of or recognized by a bigger international/parent/multinational company or corporation? Ask them to provide proof.
  - a. What is the operational, safety, health, environmental and financial track record of the foreign company?
4. What is the company's track record? Is it a newly-established company, or has it been operating in your country or in other places for many years?
5. Does the company have any experience in providing other waste services?
  - a. If yes, what kind of services? How long has the company been offering these services?
  - b. If no, what assurance is there that the company has real capacity to successfully deliver waste services to the city or municipality and operate a complex and expensive waste treatment facility?
6. Who are the owners of the company?
7. Who will manage the daily operations of the facility?
8. Is there an existing and operational facility owned/managed/run by the company in your country or anywhere else in the world?
9. What is the company's labor, health, safety, financial and environmental record?
10. Does the company have real financial capability and insurance to establish/operate/maintain a multi-million dollar waste treatment facility?
11. If the project is a partnership between a locally-registered company and a foreign entity, can the local partner sustain operations in the event that the foreign company pulls out or folds up for any reason?
12. Does the company receive subsidies, tax breaks or other financial incentives from your government to establish and operate in your country?
13. If this project is part of an aid package or a loan, has a verified commercial case been provided to justify the technology ahead of local, community-owned and operated investment models?
14. How will the proponent demonstrate support for worker safety, recycling and composting?
15. Who will be responsible for any failure of the technology to meet your country's labor, financial, health and environmental regulations?

## Technology

1. What kind of technology will be used?
2. Is this an experimental technology?
 

**REMEMBER: If this is a pilot project, do not agree to be a test case.**
3. How will the company collect waste from the city or municipality?
4. What kind of waste will be processed by the technology?
5. Will the facility treat hazardous and medical waste? Will the facility burn tires?
6. Will the company collect and process mixed waste? Are there local laws prohibiting the collection, transport and processing of mixed waste?
 

**REMEMBER: Source-separation and separated collection is extremely important in ensuring higher recovery of recyclables and clean, uncontaminated organics for composting.**
7. If the waste is heterogeneous, how and where will it be separated?
8. Is this technology operating elsewhere in the world? If so, where? Is it run by the same company?



9. Has the technology failed in any other location? If yes, how?
10. Can the proponent demonstrate compliance with health and environmental protection laws and standards in other jurisdictions?
11. Has this technology/company been involved in a prosecution for a breach of regulation anywhere in the world? If yes, ask them to provide details.
12. What kind of emissions will be released and at what concentrations?
 

**REMEMBER: There is no technology in the world that has zero emissions.**
13. Can the proponent provide details of all stack emissions, their chemical profiles and their effects to health and the environment?
14. How does the technology treat/filter air emissions? What exact pollution control equipment/devices will be used?
15. What exact methodology will the proponent use to measure dioxin emissions and how often will it be done?
16. How will the technology filter nano or ultra-fine particulate emissions?
17. Does the incinerator have a vent stack or bypass vent stack to be used during emergencies when the air pollution control system needs to be bypassed?
18. What are the potential upset conditions and malfunctions that can happen in the facility?
19. What kinds of emissions will be produced during upset conditions or malfunctions?
20. Will the company monitor and measure emissions not only during optimum conditions, but also during upset conditions or malfunctions, and during start-up or shut-down?
 

**REMEMBER: The production of dioxin is not continuous. The majority of dioxins are usually produced in short-term emissions peaks during start-up or shutdown, or under "upset" conditions (conditions in which the incinerator is operating outside specified parameters).<sup>12</sup>**
21. What regulatory standards for health and environment will apply to dioxin emissions?
22. What kind of solid and liquid waste will be generated by the technology?
23. Does the technology produce bottom/and or fly ash? If yes, provide details of quantity and type.
 

**REMEMBER: Incinerators are waste treatment facilities that generate even more toxic waste in the form of ash, slag, sludge, etc. that must be carefully contained and disposed.**
24. How will the ash be treated or disposed?
25. Where will this ash waste be dumped?
 

**REMEMBER: In incineration, the cleaner the air emissions, the more toxic and hazardous the ash. What is removed from the air emissions must be trapped in the ash.**
26. What will happen to the materials that are not incinerated?
27. Does the technology produce syngas, biochar or any other byproduct?
28. Where will these byproducts be used? Is there a commercial market for them?
29. Are there local laws prohibiting the commercial use of byproducts from incineration?
30. What other facilities (building/equipment) will be built or used to support or complement the technology?

## Economics

1. What is the total cost for the establishment of the technology?
2. Do these costs include baseline soil, air and groundwater monitoring?
3. Do these costs include baseline human health monitoring for the host community?
4. What will be the total costs for the ongoing operation and maintenance of the plant?
5. What is the cost of the pollution control equipment? How much do the replacement filters or associated parts cost?
6. How much will it cost to keep the pollution control equipment clean and effective for the duration of the life of the plant?
7. Who will pay for the technology?
8. Describe the nature of the waste/service contracts the company has or will enter into. Is the contract put-or-pay?

**Remember: Incinerators need a constant supply of waste and public money to generate revenue. Many incinerators have driven their host city or municipality to bankruptcy because of heavy subsidies.<sup>13</sup>**

9. Will a copy of the contract be provided to the host community? Scrutinize what the contract says.
  - a. How many years is (are) the contract(s) valid?
  - b. What are the responsibilities of the company under the contract?
  - c. What are the responsibilities of the city or municipality under the contract?
  - d. What rights (financial/others) does the liability clause give the city or municipality in the event of the management’s failure to run the plant?
10. Has a full cost benefit analysis been undertaken by the proponent to justify this technology ahead of Zero Waste solutions such as composting, recycling and reuse?

**A “put-or-pay” contract is a long-term contract, usually 10-30 years, between a waste generator (often a municipality or city) and the incinerator company, whereby the generator is required to deliver a given minimum quantity of waste and pay a given tipping fee for the duration of the contract (Tangri, 2003). Under this type of contract, if the host city or municipality does not produce enough waste to feed the incinerator, it may be forced to outsource waste from other cities to meet the waste requirement, or pay the difference.**



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## Health

1. Insist on a full-scale monitoring program and the establishment of a baseline data.
  - a. At least a full year before the project starts, there must be soil/water/air sampling and body burden tests for a sample population of the host community. Hair, nail and blood samplings must be taken so that these may be used as baseline for comparison later on for heavy metals and other emissions in case the project pushes through.
  - b. Monitoring and body burden tests must be done regularly (ex. every 6 months). **REMEMBER: All of these tests must be shouldered by the company.**
2. Are there discharges to the air, water or soil that can harm human health?
3. How will the proponent and your government monitor and measure these discharges for human health protection?
4. What standards or criteria will be used to assess human health protection?
5. Are these standards legally enforceable? Who will enforce them?
6. How will the proponent prevent adverse human health impacts?
7. How will the company act on and respond to possible health concerns/complaints by residents?
8. Will there be a complaints register for the host community? Will this be provided to authorities?
9. Will there be a complaints resolution process?
10. Will there be a health surveillance system for the duration of the plants operation? Who will monitor and assess this?

## Environment

1. Is the project going to be located in or near ecologically-important areas such as protected landscapes, biodiversity conservation areas, watersheds, etc?
2. Are there any sensitive receptors close to the proposed land such as rivers, streams, schools, residential dwellings, hospitals, etc?
3. Are there any sensitive land uses such as fishing, farming and agriculture that may be affected?
4. How much land space will be used by the facility?
5. Will land be sourced from private landholders or other land users?
6. Are there land use issues in the city or municipality?
7. Is the project detrimental to farming/residential land use?
8. What buffer zone distances does the proponent propose to be used for the protection of human health and the environment? **REMEMBER: Pollution and toxic emissions from incinerators travel long distances and persist in the environment for long periods. There is no safe buffer between an incinerator and a community.**
9. How much water will be used by the technology?
10. Are there any issues about water supply and access in the city or municipality?

## Energy recovery

1. Is the project being described as a waste-to-energy technology?
2. Will the proponent receive any government subsidies or tax breaks for renewable energy or climate change mitigation?
3. Does the technology meet the European Union’s Waste Incinerator Directive for Energy Efficiency? If no, why not?
4. How much carbon dioxide and other greenhouse gases (GHGs) will the technology emit to the atmosphere annually?
5. What is the energy balance (energy that is produced versus energy that is used to process waste)?
6. Will the technology use auxiliary fuel? If yes, what kind of fuel will be used? Also, this must be computed as part of the energy balance.
7. Can the company provide details of the amount of embedded energy lost compared to the calorific energy created based on the annual throughput? If no, why not?
8. Can the company demonstrate that the technology will be able to generate enough electricity to sell to the grid or be used by the host community?
9. Will the technology produce any waste derived fuels? For example syngas, ethanol etc. How or where will this fuel be used?
10. Is waste generated in the city or municipality sufficient to produce enough Btu (British thermal unit) value to sustain incineration even after all the recyclables and compostables have been removed? **REMEMBER: Waste in most developing countries is composed mostly of biodegradable materials that have high moisture content and are inappropriate to incinerate.**

11. How is water sustainability in the community addressed with regards to dwindling water supplies caused by climate change?
12. What will happen to the waste water coming out of the facility?  
**REMEMBER: There is no waste treatment facility that does not produce or discharge waste water.**
13. How will the proponent prevent environmental harm?
14. What standards or criteria will be used to assess environmental protection? Are these legally enforceable?
15. What discharges to air, water and soil will there be during the lifetime of the plant?
16. How will the proponent monitor and measure these discharges for environmental protection?
17. What emergency procedures are in place in the event of an explosion, accident, fire or uncontrolled environmental discharge?
18. Will the proponent be required to submit an Environmental Management Plan to authorities for approval?
19. Will this plan be available to the community? If no, why not? Will this plan be legally enforceable?

## Social/Cultural

1. Is the project going to be located in a culturally-important area such as indigenous and ancestral domains, heritage areas, national monuments, etc? Are there any places of spiritual, religious or cultural significance nearby that may be affected?
2. Has the proponent undertaken community engagement in the host community? What was the outcome of this community engagement?
3. Will the proponent establish a community stakeholder engagement committee for the lifetime of the project?  
**REMEMBER: Community members must be part of the monitoring team that will inspect and evaluate the facility's compliance and performance during its lifetime.**
4. How many local jobs will be created during the establishment of the project? Will the company employ people from the host community?
5. How many local jobs will be created for the ongoing operation of the facility?
6. Comparatively, how many jobs will be lost in the current waste management program/service/system? Will there be any loss of jobs in the recycling and composting sectors as a result of this project?
7. Will the project affect the host community's current and future land uses, amenity, cultural, religious or spiritual practices in any way? If yes, how will the proponent address this?
8. What are the hours of operation?
9. How many trucks will be entering and leaving the facility on a daily basis?
10. What noise and odor pollution impacts can be expected from the operation of the facility and truck movements?
11. How will noise and odor pollution be managed?
12. Will the facility build a new access road or use existing community roads?
13. If a new access road will be built, where will it be located?
14. What plans are in place to manage the possibility of increased traffic and noise in the community?
15. What lighting impacts can be expected from the operation of the facility? How will these impacts be managed?



## Regulation

1. What regulatory standards for health and environmental protection will apply? Do they meet international standards such as those under the European Union Waste Incinerator Directive?
2. What system will the company use to determine continuous sampling and analysis of dioxins in real-time or near-real-time basis?
3. How much of the facility's daily operational and monitoring data will be made available to the community and to regulatory agencies?
4. Can this data be made available online, so that the community can track emissions from the facility on a regular basis?
5. How often will a license-to-operate be reviewed or renewed?
6. Will the permit require the video monitoring of the smokestack/s so that major upsets or problems are taped and monitored?
7. Who will enforce the license or permit?
8. What laws or penalties will apply should the proponent breach the license?
9. Who in the company will be responsible for the regulatory compliance of this technology?
10. Will civil society have input into the regulation of this proposal/project?

## QUESTIONS FOR THE CITY OR MUNICIPALITY

### Better solutions

1. Why does your city or municipality need or want to build an incinerator?
2. What are the main factors motivating the proposal to build an incinerator?
3. What are the expected benefits of the project and who will benefit the most from the project?
4. Is there real or actual data to back up these claims? Please provide the commercial case for the project.
5. Have other solutions been developed/explored/implemented to solve these concerns?
6. Is proper waste management thoroughly implemented in the area?
  - a. What investments have been made to promote waste avoidance and reduction, source separation, reuse, recycling and composting?
  - b. Are there policies or regulations in place to promote waste avoidance, source separation, reuse, recycling and composting? Are they being implemented properly?
  - c. Does the city or municipality support the waste hierarchy that promotes waste reduction, recycling and composting ahead of waste disposal or energy recovery?
  - d. What infrastructure does the city or municipality provide the community to recycle and compost?
  - e. Has the city or municipality implemented information and education activities to increase residents' awareness on waste management, recycling and composting?
7. If there is no waste management program, what is the current waste management scenario in the city or municipality?
8. How much waste is created by the city or municipality? In comparison, how much waste will the company/technology treat?
9. Will the project encourage the creation of more waste? Won't the project go against local laws mandating waste reduction and diversion targets?
10. Is the city or municipality willing to be locked into a long-term waste contract?
11. If the city or municipality host does not produce enough waste, is it willing to import waste from other municipalities/cities to meet the requirements of the company?

12. Did the city or municipality undertake a waste composition and analysis study? What are the results of the study? Does the waste composition and analysis study justify the need to build an incinerator?
13. Will the technology be used primarily to treat residual waste?
14. If waste reduction, source separation, recycling and composting is improved or strengthened, the residual waste fraction will be reduced over time. Won't this make the technology redundant?
15. Is the city or municipality willing to invest in long-term solutions to address residual waste such as instituting better packaging/design laws, promoting local/indigenous/ecological products and packaging, etc, that are more cost-effective and sustainable than expensive high-risk technologies?
16. How does this project move the community toward real and sustainable solutions such as Zero Waste?

### Environmental

1. Are the residents aware of all the arguments for and against the project/technology?
2. Is the city or municipality fully aware of an incinerator's effects to the environment?
3. Does the host community practice sustainable/ecological waste management?
4. How will the project affect local initiatives to reclaim/recycle/reuse/compost wastes generated locally?
5. Is the host community located in an environmentally-critical area?
6. Are there any sensitive land uses in the host community that could be affected by this proposal?

### Health

1. Is the city or municipality fully aware of an incinerator's health effects?
2. How will the city or municipality ensure that the proponent will monitor and measure discharges for human health protection?
3. What standards or criteria will the city or municipality use to assess human health protection? Are these legally enforceable?
4. What role will the city or municipality have in preventing adverse human health impacts from this proposal?
5. Will the city or municipality support a health surveillance register for the community?

### Social

1. How was the host community chosen?
2. Did the city or municipality undertake community engagement about the project? What was the outcome of this community engagement?
3. In case of resistance from the community, will the local government respect the objection of the residents?
4. Will the city or municipality support a community stakeholder engagement committee/monitoring and evaluation team for the lifetime of the project?
5. Will the project affect the host communities current and future land uses, amenity, cultural, religious or spiritual practices in any way? If yes, how will the city or municipality address these?



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### Regulation

1. What specific role will the city or municipality have in the regulation of this proposal/project?
2. How will the city or municipality support civil society to have input into the regulation of this proposal?
3. Will there be a city or municipality complaints register for the host community?
4. Will there be an city or municipality complaints resolution process?
5. How will the city or municipality support their community to have a voice and a role in the regulation and management of this proposal?
6. What government agencies will be responsible for ensuring regulatory compliance?
7. Do concerned government agencies have real capacity to regularly monitor and enforce safety and regulatory compliance?
8. How will authorities monitor, audit and ensure compliance of this regulation?

### Jobs/Economics

1. Was there a feasibility study conducted that proves that the project is the best waste management option for the city or municipality?
2. How will the project affect the waste workers in the city or municipality? How will the project affect the recycling sector?
3. How does the city or municipality plan to support waste workers who may be displaced by the project?
4. What is expected from the city or municipality in terms of financing (tax breaks, free land use, waived permits, tipping fees, other subsidies, etc)?
5. Is the city or municipality aware that there are documented cases of incinerator companies driving host cities to bankruptcy?  
**REMEMBER: Incinerator contracts and subsidies have caused bankruptcy in other cities. Don't let this happen to your city.**
6. Will the project become a debt that will be shouldered by the city or municipality in case of bankruptcy?
7. Is the city or municipality fully aware of its responsibilities under the contract?



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To find out more about the **Global Alliance for Incinerator Alternatives (GAIA)**, visit [www.no-burn.org](http://www.no-burn.org), or contact [info@no-burn.org](mailto:info@no-burn.org).

For more information about the harmful effects of incineration/WTE, visit:

**An Industry Blowing Smoke:**

<http://www.no-burn.org/downloads/BlowingSmokeReport.pdf>

**Stop Trashing the Climate:**

[http://ilsr.org/wp-content/uploads/2008/06/fullreport\\_stoptrashingthecolimate.pdf](http://ilsr.org/wp-content/uploads/2008/06/fullreport_stoptrashingthecolimate.pdf)

**Energy Justice Network website:**

<http://www.energyjustice.net/incineration>

To learn more about Zero Waste, visit:

**GAIA's Zero Waste blog:**

<http://zerowasteworld.org/>

**On the Road to Zero Waste: Successes and Lessons from Around the World:**

<http://www.no-burn.org/downloads/On%20the%20Road%20to%20Zero%20Waste.pdf>

For more information about international legislation on incineration, visit:

**EU Waste Incineration Directive:**

[http://europa.eu/legislation\\_summaries/environment/waste\\_management/l28072\\_en.htm](http://europa.eu/legislation_summaries/environment/waste_management/l28072_en.htm)

**US Environmental Protection Agency:**

<http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol26/pdf/CFR-2011-title40-vol26-chap1.pdf>

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- <sup>8</sup> ICF Consulting, “Incineration of Municipal Solid Waste: A Reasonable Energy Option?” Fact Sheet #3, 2005.
- <sup>9</sup> Energy Justice Network, Trash Incineration More Polluting than Coal, [http://www.energyjustice.net/incineration/worsethan\\_coal](http://www.energyjustice.net/incineration/worsethan_coal), browsed August 4, 2015
- <sup>10</sup> Ibid.
- <sup>11</sup> Medina, “The Informal Recycling Sector in Developing Countries: Organizing Waste Pickers to Enhance Their Impact,” Grid lines No. 44, October 2008.
- <sup>12</sup> Alcock et al., An Updated PCDD/F Atmospheric Emission Inventory Based on Recent Emissions Measurement Programme, Organohalogen Compounds, vol. 36, pp.105-108, 1998.
- <sup>13</sup> Tangri, N., Waste Incineration: A Dying Technology, July 14, 2003