

NOT SUSTAINABLE, NOT ADDITIONAL:

The CDM Incinerator in Chengdu Luo Dai

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The Rise of Municipal Solid Waste Incineration In China

The speedy industrialization and urbanization of China over the past three decades have produced significant challenges to the health of ecological systems. The unsustainable management of municipal solid waste (MSW) is one of those urgent challenges. By the end of 2009, the total amount of MSW processed in the country was 112 million tons, of which 79% was landfilled, 18% was incinerated, 1.2% was composted, and the rest was open dumped.²

As the amount of MSW grows, there has been less political will and economic interest in taking over valuable land for more landfills, particularly in large cities. Instead, “waste-to-energy” projects (mainly incinerators) have enjoyed an increasing financial advantage which has enabled them to develop very quickly in recent years. The top

national administrative agency on economic policy and development strategy, the National Development Reform Commission (NDRC), has categorized incineration of MSW as renewable energy in the 2005 Renewable Energy Law. In 2006, NDRC published the Management Scheme on Renewable Electricity Tariff and Cost-sharing,³ which allows incinerator operators to receive US\$ 0.039 as a tariff subsidy for each kWh generated. In addition, the State Administration of Taxation and the Ministry of Finance issued Value Added Tax (VAT) relief for incinerators in 2008.⁴

From 2006 to 2010, the number of incinerators in operation increased from 69 to 99, and their processing capacity grew from 40,000 tons/day to 76,000 tons/day.⁵



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THE PROBLEMS OF CHINESE CDM MSW INCINERATION PROJECTS

Questionable Additionality

In principle, any project approved by the Clean Development Mechanism (CDM) must prove that it is additional, i.e., it would not be feasible without CDM support. This provision is crucial to maintaining the integrity of the global carbon market: if the CDM issues carbon credits for non-additional projects, these credits do not represent emissions reductions, and the CDM is effectively raising the global emissions cap. The additionality review is supposed to ensure that only projects that are significant departures from “business as usual” receive CDM support.⁶

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However, the rapid growth in MSW incineration in China indicates that this technology is the norm, not the exception. Moreover, all five of the CDM-backed incinerators in China were built and in operation long before being registered by the CDM (see Table 1). Clearly, the income from CDM credits is not indispensable, it is just extra profit. In short, these incinerators are non-additional, which should make them ineligible for CDM credits.

Table 1: Operational and Registration Dates of Chinese Incinerators in the CDM

PROJECT NAME	START DATE OF OPERATION	REGISTRATION DATE
Shaoxing Project	2008	21 December 2009
Huzhou Project	May 2008	10 September 2010
Chengdu Luodai Project	August 2008	17 December 2010
Hanyang Project	December 2009	7 January 2011
Changshu Project	September 2006	26 May 2011

Source: All registration dates come from the CDM project database. The start dates come from media coverage.⁷

Weak Compliance with Environmental Laws

Chinese incinerators’ compliance with the National Standard for Pollution Control on MSW Incineration—GB18485-2001⁸—is in question. First, reliable emissions data for important pollutants such as dioxins and heavy metals is not available, for many reasons. First, there is no regular testing, and the testing that is done is carried out under so-called best working conditions. Second, most small-and-medium-sized incinerators are not tested at all. And finally, when data do exist, the public cannot get access to the information.¹⁰

However, according to Article 10.1 of GB18485-2001, monitoring should be conducted under normal and daily working conditions. This naturally results in more pollution and higher public health risks, which are the major reasons for the protests against incinerators. In addition, most of the fly ash generated by the incinerators does not receive sound disposal, except in big cities like Shanghai and Guangzhou.¹¹ This raises serious concerns about a lack of oversight and failure to enforce regulations, including CDM requirements, on Chinese incinerators.

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Public Participation Sidelined

The incinerator industry’s poor record of public participation in decision making, project enforcement, and monitoring has made local residents and environmental NGOs seriously concerned about the environmental and social impacts of incinerators. The local environmental protection agencies which are responsible for the monitoring of incinerator emissions do not readily make the data public. Civil society groups usually have difficulties in accessing the emissions data.¹²

In the face of regulatory failure in monitoring and enforcement, affected residents living near incinerators often have to resort to the last option, public protest, to express their concerns. Such demonstrations against incinerators in Beijing, Shanghai, Guangdong and Jiangsu have been widely reported in the press. China clearly lacks effective policy platforms or participatory mechanisms through which the public, especially affected people, is able to influence decision-making and claim redress, both before and after a project has begun.

Residents have demonstrated against incinerators in Beijing, Shanghai, Guangdong and Jiangsu.

CHENGDU LUO DAI MUNICIPAL SOLID WASTE INCINERATION PROJECT

Incineration Takes Center Stage in Chengdu

With a population of 11 million, Chengdu, the capital of Sichuan Province, generates over 5000 tons of MSW per day.¹³ The annual waste generation growth rate from 2004-2008 was 11%.¹⁴ It is expected that the trend will continue in the years to come. Work on the Luo Dai incinerator, Chengdu’s first, was initiated in 2005; the incinerator began operations in 2008, burning 1200 tons of waste per day. In 2010, it applied for and received approval from the CDM.¹⁵

A second incinerator, the Chengdu Jiujiang MSW Incineration Power Plant Project, with a processing capacity of 1800 tons per day, was built in 2010, and is currently in trial operations. The Jiujiang Incinerator has also applied for CDM credits in 2010 and is now under validation.¹⁶ The third incinerator, Chengdu Xiangfu MSW Incineration Power Plant, will be completed at the end of 2011.¹⁷ Chang’An Landfill, 5 km from the Luo Dai Incinerator, has been receiving waste since the 1990s, and continues to be the disposal site for most of the unburned waste.

The pace of new incinerator development in Chengdu shows the technology will dominate MSW management in Chengdu in the near future. However, the city's focus on waste disposal neglects the huge potential to implement waste reduction, reuse, and recycling (3R). In China, the recycling of MSW has contributed greatly to MSW management for over 60 years. Since economic reforms began in 1978, however, reduction and reuse have gradually been overlooked in most developed areas. Both local and central government have done little to propel the 3Rs. Recycling is widespread but it is an economically and politically marginalized activity.

Despite this serious flaw in planning and a host of other serious issues with the Luo Dai Incinerator, the city is pressing ahead with the other two new incinerators.

Involuntary Displacement

The Luo Dai Incinerator is located at Qishan Village, Luo Dai Town, about 25 km away from Chengdu's city center. The village, which is divided into 16 production groups, is home to 4,800 residents, 93% of whom are farmers. They make a living mainly by growing vegetables, fruits, and eggs, and their average income per person is US\$1,010 annually.¹⁸

According to the Project Design Document (PDD), the developer planned to move 18 households, all of whom live within 100 meters of the plant. However, the incinerator has forced approximately 70-80 households out of the area, as they could not bear the pollution caused by the incinerator.¹⁹ Two farmers report that the water in their wells became foul-smelling within a year of the incinerator's start.²⁰

Most interviewees, who have not moved out of the neighborhood and continue to live within 1,000 meters of the incinerator, said

the black or brown ash has become noticeable in their yards and on the roofs of houses since the plant began operation. At night, they are often disturbed by the terrible noise and disgusting gases. They also reported that an increasing number of elderly residents have experienced breathing problems in the past two years.

Pollution from the incinerator has forced 70-80 households out of the village.

In 2008-2009, villagers held a couple of protests at the incinerator entrance gate.²¹ This spurred the local government to relocate a much larger number of households. But as of 2011, the displaced households have not been able to enter the new homes the government promised. Instead, they have had to rent apartments, with limited government subsidies, in downtown Luo Dai, 4 km away from their former homes. They are under great psychological pressure and complain readily. The tense relationship between local government and the farmers is palpable. As with the displaced households, those still in the village have lost all trust in the local government, remembering that they were told that the plant would cause no pollution.

Environmental Impacts

The Luo Dai Project's PDD pays cursory attention to environmental issues, including only brief paragraphs about noise, waste water, solid waste, and air pollution.²² No quantitative limits or monitoring protocols are mentioned. Nevertheless, the PDD claims that "some indices [measured emissions levels] are even better than European emission limits (Directive 89/369/EEC)."²³ Unfortunately, it is the Directive 89/369/EEC passed in 1989 that is mentioned in the PDD, rather than Directive 2000/76/EC, the updated regulation on MSW incineration, which passed in 2000.



Photo Credit: Da MAO

The only incinerator emissions data²⁴ available to the public comes from the Sichuan Provincial Environmental Monitoring Center, the monitoring unit of the Sichuan Environmental Protection Agency. The Center monitored pollution at the Luo Dai Project on 15-16 June 2009.²⁵ According to the monitoring results, with the exception of the noise level, all other pollutants are in compliance with the National Standard, GB18485-2001. However, the reflections of farmers in the interviews show a different picture. Those farmers who live within 800 meters of the incinerator report that they often struggle with unbearable noise, dust and noxious gas emissions, particularly on rainy days.

The farmers struggle with unbearable noise, dust and noxious gases.

To access the daily emissions data of Luo Dai Incinerator, Green Beagle asked the Sichuan Environmental Protection Agency on 9 October 2011 to provide the new data. According to the Government Information Disclosure Regulation,²⁶ the agency should respond within 15 working days, but after more than

a month, there has been no response. Despite the pollution problems, agricultural activities continue in the areas near the incinerator. Over half the land surrounding the plant is used for growing corn, vegetables, and some fruits, such as beans and oranges. Many farmers who moved out commute each day to grow food on the same land they worked before. They report that the farm products are mainly sold in the markets of Luo Dai town and Chengdu City. Nobody has done any tests to find out whether these agricultural products are polluted by the incinerator's emissions.

Public Health Impacts

According to the interviews with local farmers, since the incinerator was put into operation, there has been a higher incidence of illness in the local community, including mental stress due to incessant noise, respiratory illness, noise suffering and even cancer. In the past three years, at least four older residents living within 800 meters of the incinerator have been diagnosed with lung or liver cancers. Villagers report that the local incidence of cancer was low before the incinerator came in. Without further study, it is not possible to attribute these cancers directly to the incinerator, but the dramatic change in community health as reported by the villagers is a strong indicator that the residents' health is being adversely affected by the plant.

The local cancer incidence of cancer was low before the incinerator.

Conclusion

The Luo Dai Project's developer has failed to address important social, environmental, and public health impacts. The Sichuan Environmental Protection Agency has not played an effective role in monitoring the project nor in sharing the emissions data with the affected people and the general public. The project also illustrates the lack of a transparent and effective public participation mechanism for MSW projects in China. These problems are common to incinerators in China and indicate that these projects are incompatible with the CDM's goal of sustainable development.

Finally, in addition to the negative impacts on the local community, the Luo Dai project is clearly not additional, as such, it should receive no carbon credits from the CDM.

End Notes

- ¹ This case study was carried out on more than 20 people by Green Beagle, an environmental NGO based in Beijing, China. The relevant information about the Luo Dai Incinerator comes from the local government's website, the Project Design Document for CDM credits, and our interviews with 12 local farmers (7 men and 5 women, with age range 20s-70s) during a field visit in Luo Dai, Chengdu City on October 11-12, 2011.
- ² Committee of MSW Management of China Association of Environmental Protection Industries, 2010 China Development Report on MSW, April 2011.
- ³ http://www.ndrc.gov.cn/jggj/zcfg/t20060120_57586.htm accessed 10 Nov 2011
- ⁴ <http://www.chinatax.gov.cn/n8136506/n8136593/n8137537/n8138502/8714515.html> accessed 11 Nov 2011
- ⁵ 2007 and 2010 China Development Report on MSW by

Committee of MSW Management of China Association of Environmental Protection Industries.

- ⁶ For a more complete discussion of the problems of additionality, see "Rip-Offsets: The Failure of the Kyoto Protocol's Clean Development Mechanism" by International Rivers.
- ⁷ Shaoxing Project: "Generating from Sludge and Heating from Waste," Solidwaste.com.cn, 22 Dec 2005, http://news.solidwaste.com.cn/view/id_14585 accessed 8 Nov 2011

Huzhou Project: Fei Benjing, "580 Thousand Tons of MSW Transformed into Electricity," Huzhou Daily, 17 Jan 2011, http://news.solidwaste.com.cn/view/id_32727 accessed 8 Nov 2011

Luo Dai Project: Wang Sheng, "Luo Dai Incinerator Starts to Operate on 7 August," Chengdu Evening Daily, 7 Aug 2008; http://news.solidwaste.com.cn/view/id_22090 accessed 8 Nov 2011

Hanyang Project: "The Incinerator Starts to Operate," Haining Daily, 1 Dec 2009; http://news.haining.gov.cn/jrjd/200912/t20091201_101624.htm accessed 8 Nov 2011

Changshu Project: "The Public Notice on Changshu MSW Incinerator," Changshu Jianshe XinXiWang; http://www.csbuild.gov.cn/bmfw/bmfw40.php?Cname=%B1%E3%C3%F1%B9%AB%B8%E6&&type=new&&news_id=10002104 accessed 8 Nov 2011

- ⁸ http://www.mep.gov.cn/pv_obj_cache/pv_obj_id_51E4F787A57919256ECC4D9E3C7A5812BFBB0300/filename/1535.pdf accessed 11 Nov 2011
- ⁹ ZHAO Shuqing, et al. Pollution Status and Suggestions for Emission Reduction of Dioxin from Incineration of Municipal Solid Waste in China, Environmental Engineering, 2011, 29 (1), 86-87.
- ¹⁰ *ibid.*
- ¹¹ *ibid.*

¹² From February to October 2011, Green Beagle sent out five individual letters to local environmental protection agencies requesting the emissions data of 5 different MSW incinerators and all failed.

¹³ Luo Dai Incinerator Passed the Government Check, China Power, 7 Jan 2009, <http://www.chinapower.com.cn/article/1145/art1145926.asp> accessed 14 Nov 2011

¹⁴ Jiang Xindong, Thinking about reclamation and reduction of domestic waste in Chengdu City, Environmental Sanitation Engineering, Vol. 17 Supplement, October 2009

¹⁵ Dates from the Project Design Document: <http://cdm.unfccc.int/Projects/DB/JQA1278478145.73/view>

¹⁶ Validation is an advanced stage in the process of receiving carbon credits from the CDM: review by a non-independent, third party consultant.

¹⁷ Chengdu Xiangfu MSW Incineration Power Plant Tender Notice, 14 May 2010, <http://www.scztb.gov.cn/web/gao/sj/201005/3663.html> accessed 14 Nov 2011

¹⁸ <http://lqyc.gov.cn:8088/swgk/show/show.asp?cid=4&nameid=about&lord=about> accessed 11 Nov 2011

¹⁹ A household of 3 people, who live just 30 meters from the wall of plant, has not yet moved as they are in a dispute with the local government about compensation.

²⁰ Groundwater contamination might also be connected with the landfill.

²¹ This section is based on interviews with farmers who moved out of the area two years ago.

²² see section D: <http://cdm.unfccc.int/Projects/DB/JQA1278478145.73/view> accessed on 25 Sep 2011

²³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0076:EN:NOT>

²⁴ <http://yp.knet.cn/news/1167627.shtml> accessed 25 Sep 2011

²⁵ Spot-test monitoring of emissions is generally considered inadequate as it allows operators to run the plant under ideal rather than typical conditions, and it fails to account for start-up, shutdown and upset conditions. European standards are increasingly moving towards continuous emissions monitoring for a wide range of pollutants.

²⁶ This law has been in effect since 1 May 2008. It is an effort to give the general public access to policy and administrative information that government agencies hold.



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GAIA is a worldwide alliance of more than 600 grassroots groups, non-governmental organizations, and individuals in over 90 countries whose ultimate vision is a just, toxic-free world without incineration.

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