



PROJECT IDENTIFICATION FORM (PIF) ¹

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

| | | | |
|---|--|------------------------------|------------|
| Project Title: | Municipal Solid Waste Management | | |
| Country(ies): | China | GEF Project ID: ² | |
| GEF Agency(ies): | WB (select) (select) | GEF Agency Project ID: | P126832 |
| Other Executing Partner(s): | Foreign Economic Cooperation Office (FECO) of the Ministry of Environmental Protection (MEP) | Submission Date: | 2011-09-13 |
| GEF Focal Area (s): | Persistent Organic Pollutants | Project Duration (Months) | 60 |
| Name of parent program (if applicable): > For SFM/REDD+ <input type="checkbox"/> | | Agency Fee (\$): | 1,200,000 |

A. FOCAL AREA STRATEGY FRAMEWORK³:

| Focal Area Objectives | Expected FA Outcomes | Expected FA Outputs | Trust Fund | Indicative Grant Amount (\$) | Indicative Co-financing (\$) |
|--------------------------------------|--|---|------------|------------------------------|------------------------------|
| (select) CHEM-1 | Outcome 1.3 POPs releases to the environment reduced | Output 1.3.1 Action plans addressing unintentionally produced POPs under development and implementation | GEFTF | 11,378,000 | 45,600,000 |
| (select) (select) | | | (select) | | |
| (select) (select) | | | (select) | | |
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| (select) (select) | | | (select) | | |
| (select) (select) | | | (select) | | |
| (select) (select) | Others | | (select) | | |
| Sub-Total | | | | 11,378,000 | 45,600,000 |
| Project Management Cost ⁴ | | | GEFTF | 622,000 | 2,404,000 |
| Total Project Cost | | | | 12,000,000 | 48,004,000 |

B. PROJECT FRAMEWORK

Project Objective: In support of China's fulfillment of its obligations under the Stockholm Convention (SC) on Persistent Organic Pollutants (POPs), the proposed project aims to:

a) Reduce unintentional production of PCDD/F in pilot municipalities by applying best available techniques and best environmental practices (BAT/BEP) to municipal solid waste (MSW) management; and

b) Establish favorable conditions for replication of demonstrated BAT/BEP across China, including a stronger policy and regulatory framework, and increased awareness of among city administrators and MSW management professionals

| Project Component | Grant Type | Expected Outcomes | Expected Outputs | Trust Fund | Indicative Grant Amount (\$) | Indicative Cofinancing (\$) |
|-------------------|------------|-------------------|-------------------------|------------|------------------------------|-----------------------------|
| Component 1. | Inv | PCDD/F emissions | 1.i. Cost-effective and | GEFTF | 7,978,000 | 38,800,000 |

¹ It is very important to consult the PIF preparation guidelines when completing this template.

² Project ID number will be assigned by GEFSEC.

³ Refer to the reference attached on the [Focal Area Results Framework](#) when filling up the table in item A.

⁴ GEF will finance management cost that is solely linked to GEF financing of the project.

| | | | | | | |
|---|-----------|--|---|--------------|------------------|------------------|
| <p>Demonstrating investments in Stockholm Convention (SC) BAT/BEP for MSW management to reduce PCDD/F generation and release.</p> | | <p>reduced through BAT/BEP application to MSW management.</p> <p>Reduced waste for disposal (incineration or land-filling).</p> <p>Accountability to public enhanced.</p> <p>Public awareness of social benefits of at source separation increased.</p> <p>Public awareness of risks associated with different PCDD/F emission levels increased.</p> | <p>locally appropriate BAT/BEP for MSW management identified, evaluated, selected and demonstrated in three pilot cities, such as:</p> <ul style="list-style-type: none"> -Waste reduction, reuse and recycling (3R) -High efficiency and good combustion; -Upgraded post-combustion PCDD/F emission control; -Environmentally sound recycling of bottom slag and environmentally sound disposal of fly ash; -On-line continuous or semi-continuous monitoring of operating parameters complemented by dioxin stack sampling at minimum acceptable frequency; -SC BAT/BEP for reducing PCDD/F releases from open waste burning on dumpsites <p>1.ii. Demonstration incinerator dioxin monitoring results made accessible to public.</p> <p>1.iii. Public awareness campaign about at source waste separation carried out in select pilot cities.</p> <p>1.iv. Public health and environmental pollution risk from BAT/BEP implementing MSW incinerators characterized and information shared with public in pilot cities.</p> | | | |
| <p>Component 2. Support to replication through strengthening the policy and regulatory environment, building institutional capacity, dissemination, and public awareness raising.</p> | <p>TA</p> | <p>-SC requirements incorporated into MSW management regulations.</p> <p>Incentive system for MSW incineration adjusted to reflect SC requirements.</p> <p>Provincial and city level environmental officials better able to monitor and enforce SC</p> | <p>2.i. Improved recycling and environmental management framework, including introduction of regulations, policies, and incentives for communities and individual participants involved in source separation.</p> <p>2.ii. PCDD/F concentration limits for emissions from MSW incinerators revised in line with SC requirements.</p> <p>2.iii. Technical guidelines</p> | <p>GEFTF</p> | <p>2,900,000</p> | <p>5,800,000</p> |

| | | | | | | |
|--|----|---|---|-------|---------|-----------|
| | | <p>requirements in MSW incinerators.</p> <p>City MSW managers better able to promote at-source separation.</p> <p>Producers of key dioxin related products and packaging materials better able to reclaim and recycle these items.</p> <p>MSW incinerator operators and city solid waste managers aware of SC BAP/BEP as applied in China.</p> <p>MSW incinerator operator trainers have access to state-of-the art training materials.</p> | <p>and specifications for achieving and monitoring these limits developed.</p> <p>2.iv. BAT/BEP incorporated in national programs for MSW management.</p> <p>2.v. Guidelines for source separation of MSW prepared.</p> <p>2.vi. Economic instruments for encouraging compliance with new concentration limits instituted.</p> <p>2.vii. Eligibility for existing incentives for MSW incinerators limited to designs incorporating BAT/BEP.</p> <p>2.viii. Provincial and municipal environment officials trained in BAT/BEP for MSW management and PCDD/F monitoring, training materials compiled.</p> <p>2.ix. Producer stewardship guidelines for reclaiming and recycling of select products and packaging materials developed.</p> <p>2.x. Eco-label scheme explaining environmental impacts of products prepared and annual award program for environment-friendly product instituted.</p> <p>2.xi. Materials summarizing experiences and lessons learned from BAT/BEP application in pilot cities prepared and publicized via the internet, mass media, booklets, and professional journals.</p> <p>2.xii. Regional, national, and international seminars held for experience dissemination and information exchange.</p> <p>2.xiii. Standardized training materials for MSW incinerator operators developed</p> | | | |
| Component 3. Project monitoring and evaluation | TA | | 3.i Project implementation progress towards achieving global environment objective gauged | GEFTF | 500,000 | 1,000,000 |

| | | | | | | |
|--------------------------------------|----------|--|---|----------|-------------------|-------------------|
| | | | systematically based on output and outcome indicators agreed at project appraisal. 3.ii. Evaluation of dioxin emissions carried out at the three pilot incinerators. | | | |
| | (select) | | | (select) | | |
| | (select) | | | (select) | | |
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| | (select) | | | (select) | | |
| | (select) | | | (select) | | |
| Sub-Total | | | | | 11,378,000 | 45,600,000 |
| Project Management Cost ⁵ | | | | GEFTF | 622,000 | 2,404,000 |
| Total Project Costs | | | | | 12,000,000 | 48,004,000 |

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

| Sources of Cofinancing | Name of Cofinancier | Type of Cofinancing | Amount (\$) |
|----------------------------|--|-----------------------|-------------------|
| GEF Agency | World Bank | Hard Loan | 22,004,000 |
| Local Government | Pilot Municipalitie, Private Landfill Operators in Pilot Cities, Private Incinerator Operators in Pilot Cities | Unknown at this stage | 16,700,000 |
| National Government | National Government | Unknown at this stage | 8,300,000 |
| Bilateral Aid Agency (ies) | TBD | Unknown at this stage | 1,000,000 |
| (select) | | (select) | |
| (select) | | (select) | |
| (select) | | (select) | |
| (select) | | (select) | |
| (select) | | (select) | |
| (select) | | (select) | |
| Total Cofinancing | | | 48,004,000 |

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

| GEF Agency | Type of Trust Fund | Focal Area | Country Name/Global | Grant Amount (a) | Agency Fee (b) ² | Total c=a+b |
|------------------------------|--------------------|-------------------------------|---------------------|-------------------|-----------------------------|-------------------|
| WB | GEF TF | Persistent Organic Pollutants | China | 12,000,000 | 1,200,000 | 13,200,000 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| (select) | (select) | (select) | | | | 0 |
| Total Grant Resources | | | | 12,000,000 | 1,200,000 | 13,200,000 |

⁵ Same as footnote #3.

- ¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table
- ² Please indicate fees related to this project.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEF focal area/LDCF/SCCF strategies:

The proposed project is consistent with GEF Focal Area Objective CHEM-1: “Phase-out POPs and reduce POPs releases”, Outcome 1.3 “POPs releases to the environment reduced”, Output 1.3 “Action plans addressing unintentionally produced POPs under development and implementation” as it addresses MSW management related to Part II and III of source categories in Annex C of Article 5.

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

n/a

A.2. national strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

China signed the Stockholm Convention on POPs in 2001 and the People’s Congress ratified the Convention in 2004. The National Implementation Plan (NIP) was completed in 2007. The proposed project will catalyze and expedite the phase-in of BAT/BEP in the MSW disposal sector that the NIP identified as a major source of PCDD/F release. The NIP identified MSW incineration as one of the key sources of PCDD/F release. The project will implement NIP actions that should be completed by 2015 and fulfill the associated objectives. These actions are the first-stage interventions to initiate control of PCDD/F sources by means of technical evaluation, environmental impact assessment, revision of release standards, monitoring capacity building, and BAT/BEP demonstration..

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

MSW management is a growing concern for China’s cities. With China’s rapid economic development, urbanization, and rising standards of living, the quantity of municipal solid wastes collected and transported has increased more than five-fold nationwide from about 31 million tons in 1980 to about 157 million tons in 2009 and is projected to reach 585 million tons in 2030. No country has ever experienced as large and rapid an increase in waste generation.

In China, waste management involves formal as well as informal arrangements. In 2009, the formal infrastructure consisted of 366 sanitary landfills, 17 composting facilities, and 93 incinerators. About 62% of the MSW generated in urban areas was processed through this formal infrastructure. It is estimated that the quantity of MSW collection will increase from 157 million tons in 2009 to almost 200 million tons in 2015, the capacity of environmentally sound MSW treatment will increase from 112.2 million tons in 2009 to 160 million tons in 2015. The informal arrangements for MSW management include basic types of landfills / dumpsites and few controlled landfills, which account for the balance of 38% of the urban MSW.

The role of incineration in MSW management has been increasing and will continue to increase due to a shortage of available land for landfills and the incinerators’ potential ability to generate heat or electricity (“waste to energy”). A series of incentive policies are in place to encourage investment in MSW incinerators, including value added tax refunding, prioritized commercial

bank loans, state subsidy (2%) for loan interest, and favorable feed-in prices for the electricity sale into the grid. Consequently, the number of MSW incinerators is expected to rise from 93 in 2009 to 200 in 2015, increasing the incineration capacity from 55.4 thousand tons to 140 thousand tons over the same time period.

China has a long road ahead in adopting the modern MSW management hierarchy, which most favors prevention, followed by -- in order or preference -- minimization (reduction), reuse, recycling, energy recovery, and least favors disposal. In China, present MSW management generally focuses narrowly on the traditional pattern of collection and disposal. Household waste is not separated at the source. Recyclable material collection and recycling is generally pursued by the for-profit private sector, which focuses on paper products, metals, plastics, and glass. However, residential waste collected and transported by municipal sanitation units for disposal at incineration or landfills still contains a considerable proportion of plastic bags, packaging materials, kitchen waste, and some metals. The high moisture content of the waste delivered to incinerators inhibits the combustion process, while plastics lead to dioxin precursors, both causing PCDD/F generation and release.

Dioxin releases from MSW incinerators. Few of China's MSW incinerators apply BAT/BEP in their operations. This is particularly true for older incinerators. Poor waste input control, operations management, and automatic control systems prevent optimal combustion, leading to dioxin formation in post-combustion zones. MSW incinerators are generally equipped only with simple unsophisticated air pollution control devices, such as semi-dry scrubbers and fabric filters for dust and acid gas abatement. As a result, gaseous and solid dioxins absorbed in small particulates remain in the flue gas and are emitted to the atmosphere. The NIP dioxin release inventory identified waste incineration as the third largest among nine dioxin release sources in China, following ferrous and non-ferrous metal production and heat and power generation. The inventory estimated the total amount released from 56 MSW incinerators in 2004 at 338g TEQ/a, including 125.8g TEQ/a in emissions to air and 212.2g TEQ/a in residues.

China's urban waste is becoming increasingly flammable and fires in collection vehicles, transfer stations and landfills are more common. Often open burning is also used by informal recyclers to extract valuable metals and other materials from electronic and other wastes. Open burning generates PCDD/Fs, HCBs, and PCBs. The NIP was not able to quantify the amount of waste burnt in open fires or the amount of resulting releases.

Regulatory framework. Poor adoption of BAT/BEP in MSW incinerators and landfill operations is partially a result of a less than stringent regulatory environment. The current standards for MSW incineration pollution control have simple and limited requirements for incineration temperature, residence time, and stack height. The Chinese limit for dioxin concentrations in the flue gas at the stack point is 1.0ng TEQ/m³ compared with the more stringent limit of 0.1ng TEQ/m³ in other parts of the world, such as the EU.⁶ In fact, BATs are associated with PCDD/F performance levels in air emissions of no higher than 0.1ng I-TEQ/Nm³ (at 11% O₂).⁷ While fly ash resulting from MSW combustion in incinerators is legally categorized as hazardous waste, no dioxin concentration limit has been stipulated for fly

⁶ Local regulations in some cities, such as Beijing, mandate the more stringent standard of 0.1ng TEQ/m³ for new incinerators. Existing incinerators had to comply with this standard by January 1, 2010.

⁷ Reference: "Guidelines on BAT and Guidance on BEP". Section V Guidance /guidelines by source category: Source categories in Part II of Annex C. Section V.A. Waste Incinerators. December 2006.

ash. As a result, BAT/BEP for waste input control, high efficiency combustion, and cost effective air pollution control systems will not be commercially developed and applied to meet more stringent limits of PCDD/F by giving way to outdated but lower-cost incineration technologies.

Impact on public health and environment. Little research exists to characterize the risks of MSW incinerators to the vegetation, environment and humans living in the vicinity. The lack of reliable information on emissions from incinerators has led to public aversion to any incineration facilities even those that apply BAT/BEP. This threatens the use of incineration in cases where it has a legitimate place in an integrated MSW management system complementing other measures and possibly generating energy.

Government policy and plans for improved MSW management. China has adopted a strategy of introducing improved domestic waste management through ‘pilot’ or ‘model’ cities. Although several cities have tried to implement source separation, unfortunately none has truly succeeded due to inadequate waste collection and transportation infrastructure, and low public awareness and participation. To reduce waste and increase recycling, the Chinese government has formulated a number of important laws and development plans linked to municipal solid waste, with sections in the Five Year Plans, the ‘Solid Waste Pollution Prevention and Control Law’ (2005), and the ‘Circular Economy Promotion Law’ (2009). Minimization and recycling measures have been recognized as a cost-effective approach in MSW management in China. The 12th Five Year Plan (FYP) for 2011-2015 foresees improved urban solid waste management and stipulates the establishment of solid waste collection and transport facilities to meet the growing solid waste production. The FYP envisages that by 2015 all counties will be able to adequately manage solid wastes. The FYP emphasizes recycling and aims to demonstrate in 80 cities proper waste and used products recycling, including rational network layout, up-to-standard management, diversified recycling modes and high recovery rates of key product types. In terms of policy instruments to reach these objectives the FYP envisages reforming the way in which the waste treatment levy is collected, and appropriately increase the standard of the waste treatment levy and the level of fiscal subsidies.

The growing MSW problem has also led the Government to explore co-processing of MSW in cement kilns, particularly meaningful as a transition strategy in municipalities where the existing MSW disposal capacity is becoming inadequate, but the waste volume is not large enough to make a dedicated incinerator feasible. China has used cement kilns for combusting wastewater treatment sludge and recently enacted technical guidelines for such operations.

Dioxin emission monitoring capacity. China’s environmental monitoring systems consist of 40 national or provincial-level stations, 399 municipal-level stations and 1,850 county-level stations. Monitoring stations’ dioxin sampling capacity is weak; organizations that have adequate sampling capacity are limited in number. China has so far established some 20 dioxin analysis laboratories; however these laboratory capabilities need additional qualified staff, enhanced testing procedures, and international quality control / quality assurance procedures. Furthermore, the cost of dioxin testing at 45,000 RMG (approximately USD 7,500) is high. The ongoing GEF UNIDO Strengthening Institutions, Regulations and Enforcement Capacities for Effective and Efficient NIP Implementation (SIRE) Project provided training to dioxin laboratories on pretreatment and monitoring of dioxins in sources and environmental and human samples. The US EPA has also provided technical assistance to select dioxin

laboratories, including at the Zhejiang University.

Baseline project. Ningbo is a strong candidate for demonstration activities to be supported under this project.⁸ A World Bank loan-funded Ningbo MSW Minimization and Recycling Project is under preparation. The Project would aim to reduce solid waste to be disposed and increase recycling and reuse in selected districts of Ningbo municipality through three main activities: (a) waste reduction through source separation, including (i) community-based waste separation, (ii) separated transportation, (iii) pre-disposal resource separation and extraction, (b) materials recycling, including (i) establishment of a recyclable materials processing center, and (ii) development of E-waste processing and environmental pollution treatment facilities, and (c) institutional reforms and technology innovations. The proposed project activities would directly build on these baseline activities. Therefore, the World Bank loan would directly co-finance proposed activities to achieve the proposed project objective. In the other two pilot cities, similar baseline activities funded from provincial, municipal or private sources will be present. Therefore, co-financing will be provided by these sources.

Summary: China faces the daunting task of addressing a fast growing MSW challenge. In the face of land shortage and a drive to generate electricity from renewable resources, incineration is set to play an increasing role in MSW management. While modern MSW practices including reduction, recycling, and reuse are encouraged at the national policy level, integrating them with incineration remains a challenge in practice at the city level and will not be a priority without international technical and financial support.

B. 2. incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The incremental (GEF TF) activities will integrate PCDD/F reduction from MSW into China's efforts to modernize its MSW management system, by strengthening the policy and regulatory framework and the institutional capacity, demonstrating BAT/BEP applications, preparing a replication strategy and raising public awareness and monitoring and evaluation of the project results. The GEF TF-funded activities would be organized in three components.

1. *Demonstrating modern MSW management practices meeting SC BAT/BEP.* The GEF TF would co-fund demonstration of PCDD/F minimization in three selected pilot cities. In all three cities, cost effective and locally appropriate BAT/BEP will be demonstrated, such as waste reduction, reuse and recycling; high efficiency and good combustion; upgraded post-combustion PCDD/F emission control; environmentally sound recycling of bottom slag and environmentally sound disposal of fly ash; and on-line continuous or semi-continuous monitoring of operating parameters, such as carbon monoxide, carbon dioxide, particulate matter, oxygen, and temperature, complemented by dioxin stack sampling at minimum acceptable frequency. Furthermore, SC BAT/BEP for reducing PCDD/F releases from open waste burning on dumpsites would be demonstrated, such as encouraging rural localities to deliver waste to central treatment facilities instead of open burning or supporting regional landfills. In the demonstration cities, dioxin monitoring results will be made accessible to the public.

⁸ Selection of pilot cities will take place during project preparation.

The pilot cities will be identified during Project preparation, considering the following factors : (i) a minimum daily volume of SWM;(ii) a pressing need for options other than landfilling, such as recycling and energy recovery; (iii) programs for implementing 3R strategies and controlling dioxin emissions from the MSW sector; (iv) effective market-based instruments for MSW facility construction and operation, such as a fee policy based on the polluter pays principle; and (v) awareness raising programs promoting sustainable consumption behaviors among communities and the general public. During project preparation these criteria will be further elaborated.

The share of GEF grant financing in the overall cost of BAT/BEP applications in demonstration cities will be determined during project preparation. The principle will be to provide the cities a sufficiently large incentive to participate in the demonstration project while making sure not provide an excessive amount, which would give wrong message that BAT/BEP application is only possible if a substantial monetary incentive is provided. The project aims to demonstrate, among others, the cost-effectiveness of BAP/BEP so that in the long run all MSW incinerators internalize the cost of adopting them and comply with the more stringent dioxin concentration limits to be introduced by the end of the project.

The global environmental benefit from the demonstration BAT/BEP in three pilot cities would be a reduction of 1.617 g I-TEQ per annum of dioxins that would otherwise be released into the environment.⁹ Assuming that the piloted practices are replicated to the existing other 40 fluidized bed incinerators, the total avoided dioxin emissions could potentially be 22g I-TEQ per annum.

Under this component, the GEF TF will also support activities aimed at (i) public awareness raising about at-source waste separation in select pilot cities; and (ii) raising public awareness of differences in the dioxin releases and associated health risks from incinerators with and without BAT/BEP.

2. Support to replication through strengthening the policy and regulatory environment, building institutional capacity, dissemination, and public awareness raising. The GEF TF would support revision of the PCDD/F concentration limits for flue gas emissions and ash discharges from MSW incinerators to levels that are achievable with SC BAT/BEP application. Technical guidelines and specifications for achieving and monitoring these limits in new and existing plants would be developed. National and provincial level regulatory enforcement structures, including monitoring, inspection, auditing, reporting, and sanctioning would be strengthened. Possible economic instruments for encouraging compliance with the new limits, including adjustments in the incentives for establishing waste-to-energy plants, would also be explored; the most feasible instruments would be instituted. Furthermore, eligibility for fiscal/financial incentives for new MSW incinerators construction (described in section B.1 above) would be limited to designs that incorporate BAT/BEP. Province and city-level environmental management officials would be trained in BAT/BEP in MSW management and PCDD/F monitoring. Furthermore, producer stewardship guidelines for reclaiming and recycling products and packaging materials, and for source separation of MSW prepared. An eco-label scheme explaining environmental impacts of products will be prepared and an annual award program for environmentally friendly product instituted. These PCDD/F focused activities

⁹ Estimated based on three existing fluidized bed incinerators, each operating at a capacity of 600 tons per day and a dioxin emission reduction from 0.8ng I-TEQ to 0.1 ng I-TEQ.

would complement China's ongoing and planned efforts in strengthening its policy, regulatory and institutional capacity for improved MSW management, funded by Government budget, the proposed World Bank loan for the Ningbo MSW Minimization and Recycling Project, and bilateral cooperation.

The GEF TF would also support disseminating the experiences and lessons learnt from applying BAT/BEP in demonstration incinerators via the internet, mass media, booklets, and professional journals; exchanging information and sharing experiences through regional, national and international seminars; (and developing standardized training materials for MSW incinerator operators.

3. Project management and monitoring and evaluation. The GEF TF will support day-to-day project management activities and monitoring and evaluation (M&E) to ensure that project output and outcome targets agreed at project appraisal are achieved by the agreed project closing date. M&E will include periodic monitoring of dioxin emissions from the pilot incinerators and cement kiln. The management of project funds and procurement will be carried out in accordance with World Bank policies and guidelines. World Bank environmental and social safeguards will also be adhered to during project implementation.

Institutional arrangements. FECO will be responsible for overall coordination of project activities. It will coordinate with pilot city administrations and relevant ministries as outlined in section B.5. FECO will also manage dissemination of project experiences under Component 2, and monitoring and evaluation under Component 3.

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#):

The segregation, collection and transfer of MSW involve a range of activities by diverse societal groups, including household, institutional and industrial activities. Recycling of segregated materials involves formal and informal sectors. During project preparation a social assessment will be carried out which will examine the likely benefits and costs of the proposed project activities to different social groups, include men and women as distinct groups. The assessment will inform project design so that activities are targeted adequately and negative impacts on any one group can be minimized. The findings of the assessment will also help design the public awareness campaign by identifying the social groups that are the largest consumers of information on dioxin emissions.

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

| Risks | Risk Mitigation Measures |
|--|---|
| 1. Proposed environmentally sustainable MSW management policy and regulations are not accepted by the public and private sector. | Enhanced policy schemes will be developed through extensive consultations with different public and private sector stakeholders, community based organizations (CBOs), NGOs and the general public. The remaining risk is moderate. |

| | |
|--|---|
| 2. Insufficient municipality interest in participating in the project due to high cost of BAT/BEP relative to grant support that can be provided or lack of plans to adopt 3R practices in municipal waste management. | Identification of pilot cities will begin shortly after GEF Work program inclusion of the project through a request for expressions of interest to appropriately-sized cities estimated at 200. A short list of candidate cities will be identified. Such cities will be provided technical assistance to prepare proposals for inclusion in the project. The most feasible proposals will be selected. |
| 3. Sustainability of BAT/BEP is compromised due to weak dioxin emission monitoring capacity. | During project preparation, an assessment of dioxin monitoring capacity will be carried out and key activities to strengthen the capacity will be identified for inclusion in the project. The remaining risk is moderate. |

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

The key governmental stakeholders are MOF, the Ministry of Environmental Protection (MEP), the Ministry of Commerce, NDRC, and MHURD. Other stakeholders are city MSW administrations, MSW incinerators and their associations, other MSW facility operators, local environmental bureaus, universities, research institutes, NGOs, CBOs, and the general public.

| Key Stakeholders | Roles |
|--|---|
| Ministry of Finance | (a) as the Country GEF Focal Point, review, endorse and supervise preparation and implementation of this proposal; and (b) receive and supervise uses of the GEF grant. |
| Ministry of Housing, Urban and Rural Development | Regulate MSW management |
| The Ministry of Commerce | MSW source separation and recycling |
| Ministry of Environmental Protection (MEP) | (a) ongoing management of implementation of the NIP and management of the project; (b) issue national policy and standards to regulate environmental performance of China's MSW incineration sector; (c) supervise enforcement of environmental policies; (d) supervise disclosure of environmental information |
| Local environmental protection bureaus | (a) monitor environmental performance of the MSW operators within their jurisdiction; (b) enforce environmental policies; (c) disclose environmental information; (d) issue local environmental policies and standards |
| National Development and Reform Commission | (a) issue and enforce national industrial policies |
| Local development and reform commission | (a) issue local industrial policies; (b) enforce industrial policies |
| Pilot cities | (a) participate in project activities; (b) carry out PCDD/F |

| | |
|--------|---|
| | reduction investment; (c) comply with national and local environmental policies and standards |
| Public | Exercise public's rights to influence environmental performance of the sector |

B.6. Outline the coordination with other related initiatives:

The project will be coordinated with World Bank (WB) and other GEF agency implemented POPs projects in China, bilateral cooperation activities on environmental management, such as the one between MEP – US EPA that cover POPs management, as well as other MSW management projects funded by the World Bank or other financiers. Notable examples are the WB GEF UP-POPs Reduction in the Pulp and Paper Sector Project under preparation, the Ningbo MSW Minimization and Recycling Project, the GEF UNIDO SIRE Project, and the Asian Development Bank Municipal Waste to Energy Project. During project preparation and implementation consultations will be held to avoid duplications and to achieve synergies where possible.

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

C.1 Indicate the co-financing amount the GEF agency is bringing to the project:

The World Bank will bring to the Project IBRD co-financing from the US\$ 80 million Ningbo MSW Minimization and Recycling Project under preparation (see Section B.1 for a description). At least \$22 million would directly support and co-finance the activities envisaged under this GEF project. For this reason, Ningbo would be a strong candidate for GEF project. Other co-financing will be provided by the pilot cities, private incinerators and landfills, the national government, and bilateral agencies. It is expected that this co-financing will be mostly related to investment and therefore represent cash co-financing.

C.2 How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:

The current China – World Bank Country Partnership Strategy for 2006-2010 specifies managing resource scarcity and environmental challenges as one of its five pillars.¹⁰ The World Bank Country Office in Beijing houses professional staff working on environmental and urban infrastructure operations. Staff in the Beijing Country Office and in the Washington Headquarters have closely cooperated with the Ministry of Environmental Protection on three POPs projects that are under implementation (two) and under preparation (one). Close working relations also exist with the Ningbo Municipality, the National Development and Reform Commission, the Ministry of Housing, Urban and Rural Development, and the Ministry of Commerce in the context of the proposed Ningbo MSW Minimization and Recycling Project.


¹⁰ A new strategy for 2011-2015 is under discussion.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

| NAME | POSITION | MINISTRY | DATE (MM/dd/yyyy) |
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B. GEF AGENCY(IES) CERTIFICATION

| This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation. | | | | | |
|---|---|--------------------------|-------------------------------|------------------|----------------------|
| Agency Coordinator, Agency name | Signature | DATE (MM/dd/yyyy) | Project Contact Person | Telephone | Email Address |
| Karin Shepardson Program Manager, ENVGC |  | September 13, 2011 | Jiang Ru | 202 473- 8677 | jru@worldbank.org |
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