



PROJECT IDENTIFICATION FORM (PIF)¹

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	Demonstration of BAT and BEP in open burning activities in response to the Stockholm Convention on POPs		
Country(ies):	Cambodia, Lao PDR, Mongolia, Philippines and Vietnam	GEF Project ID: ²	5082
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	XXRAS12X01
Other Executing Partner(s):	Ministry of Environment (Cambodia), Ministry of Natural Resources and Environment (Lao PDR), Ministry of Nature and Environment and Tourism (Mongolia), Department of Environment and natural resources (Philippines), Vietnam Environment Administration, Ministry of Natural Resources and Environment (Vietnam)	Submission Date:	2013-01-04
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration (Months)	60 months
Name of parent program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/>		Agency Fee (\$):	718,200

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 un-intentionally produced POPs under development and implementation	GEFTF	6,400,000	22,600,000
(select) CHEM-1	Outcome 1.5 Country capacity built to effectively phase out and reduce releases of POPs	Output 1.5.1 Countries receiving GEF support to build capacity for the implementation of the Stockholm Convention.	GEFTF	800,000	4,000,000
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)	Others		(select)		
Sub-Total				7,200,000	26,600,000
Project Management Cost ⁴			GEFTF	360,000	2,100,000
Total Project Cost				7,560,000	28,700,000

B. PROJECT FRAMEWORK

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. PMC should be charged proportionately to focal areas based on focal area project grant amount.

Project Objective: To achieve sustainable release reduction of unintentionally produced-POPs (UP-POPs) in the open burning sector through the introduction of BAT and BEP.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
1. Legislation improvement	TA	Strengthened capacity in introducing BAT/BEP in waste open burning sector	1.1 Regulatory measures formulated for discouraging open burning of different waste streams and agricultural residues 1.2 Financial mechanism for supporting a) BAT/BEP in waste management and b) waste reuse/reduction measures developed 1.3 BAT/BEP guidelines formulated and adopted for biomass and waste burning sectors.	GEFTF	500,000	4,200,000
2. Institutional strengthening	TA	Human resources capacity available to carry out BAT/BEP implementation	2.1 Regional platform for information exchange, and knowledge transfer in the open burning sector established 2.2 Strengthened human resources for BAT/BEP implementation in open burning of biomass and wastes 2.3 Strengthened monitoring practices through standardized analytical procedures, data collection and reporting.	GEFTF	800,000	4,000,000
3. Demonstration activities	Inv	BAT/BEP implemented in the open burning sector	3.1 Baseline assessment of the impact indicators at the selected demonstration sites; 3.2 BAT/BEP plans developed and implemented in at least one demonstration site in each country; 3.3 Repeated assessment of the impact indicators to evaluate environmental, economic and social costs and benefits of BAT/BEP measures; 3.4 Harmonized methodology developed at regional level to set up release reduction targets for open burning sector.	GEFTF	4,700,000	13,500,000

4. Education and awareness	TA	Improved knowledge and understanding on BAT/BEP and UP-POPs related risks concerning open burning activities	4.1 Targeted awareness raising campaigns carried out to emphasize the health and environment hazards of open burning practices for relevant stakeholders, such as professional associations, community leaders, farmers, private industries, scavengers and for the public at large; 4.2 Education programme at all levels for introducing alternatives to open burning practices; 4.3 Education programs for farmers for advanced agricultural residue management.	GEFTF	1,000,000	4,300,000	
5. Monitoring and evaluation	TA	Established project management and M&E	5.1 M&E framework designed and implemented	GEFTF	200,000	600,000	
	(select)			(select)			
	(select)			(select)			
	(select)			(select)			
	(select)			(select)			
	(select)			(select)			
Sub-Total						7,200,000	26,600,000
Project Management Cost ⁵				GEFTF	360,000	2,100,000	
Total Project Costs						7,560,000	28,700,000

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

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
National Government	Ministries of Environment and other relevant ministries of the participating countries	In-kind	8,400,000
Local Government	Local and regional divisions of the relevant ministries	Grant	3,500,000
Bilateral Aid Agency (ies)	JICA	Grant	5,600,000
Private Sector	Waste management providers	Grant	5,500,000
Private Sector	Waste management providers	In-kind	5,000,000
GEF Agency	UNIDO	In-kind	150,000
GEF Agency	UNIDO	Grant	50,000
Others	NGOs and other CSOs	In-kind	500,000
(select)		(select)	
(select)		(select)	
Total Cofinancing			28,700,000

D. GEF/LDCF/SCCF/NPIF 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
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⁵ Same as footnote #3.

UNIDO	GEFTF	Persistent Organic Pollutants	Regional Asia	7,560,000	718,200	8,278,200
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select) (select)	(select)				0
(select)	(select) (select)	(select)				0
(select)	(select) (select)	(select)				0
(select)	(select) (select)	(select)				0
(select)	(select) (select)	(select)				0
(select)	(select) (select)	(select)				0
Total Grant Resources				7,560,000	718,200	8,278,200

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 /[NPIF](#) Initiative:

1. The project is consistent with focal area objective CHEM-1 of GEF-5 which aims at phasing out and reducing POPs releases. Under the “POPs releases to the environment reduced” outcome, following NIP priorities, investments are expected to be supported by the GEF that address implementation of BAT/BEP for release reduction of unintentionally produced POPs, including from industrial sources and open-burning.
2. The project will partner in investments needed for NIP implementation to achieve meaningful release reduction of POPs, and reduce the stress on human health and the environment caused by POPs. The interventions will include BAT/BEP promotion, the use of substitute products or alternative techniques and practices that prevent or reduce the generation and/or release of POPs.
3. In line with the GEF focal area strategy , the project, based on the lessons learned from demonstration activities, will strengthen regulatory measures and institutional capacities addressing environmentally sound waste management specifically municipal waste and agricultural residue

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

A.1.3 For projects funded from NPIF, relevant eligibility criteria and priorities of the Fund:

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.:

4. The PCDD/PCDFs inventories of the participating countries revealed that open burning activities sector is accountable for a total of about 3 000 g TEQ/year PCDD/PCDF releases into the environment, which is one of the leading sources of UP-POPs. According to the UNEP toolkit for the identification and quantification of dioxin and furan releases this sector includes a) various biomass burning activities such as agricultural residue burning, sugarcane burning, forest fires etc., and b) waste burning and accidental fires including dump site fires and backyard trash burning. Release reduction from these, generally diffuse sources, requires coherent legislative and institutional capacity from the government side and significant investments and technical capacity from the private/public sector. The proposed project will play a vital role in supporting the participating countries in fulfilling the objectives reported in the NIPs and specific national plans as detailed in the following sections:

Cambodia

5. In the National Implementation Plan (NIP) of Cambodia, unintentional POPs releases (PCDD/PCDF) from open burning of wastes were estimated to be about 548.031 g TEQ/year. However, the given inventory may not really be reflective of the actual UP-POPs releases considering the extensive open burning activity being carried out in the country’s dumpsites and the lack of institutional and technical capacity to perform adequate analysis. The lack of public awareness on the health and environmental impacts of this activity aggravates the problem. In the NIP it is highlighted that the demand of materials used will increase in the future and thus an increase of the produced wastes is expected, (particularly synthetic wastes including plastics, PVC tubes), but this will not be reflected in a parallel increase of the investment on waste management systems.

The country, therefore, emphasized in its national action plans the need to address capacity building issues relevant to the implementation of the SC. In Chapter 2 of the NIP (Implementation Strategy and Action Plan) Section 3 details the actions to be undertaken for waste open burning, specifically as Objective 3 they include an improved waste management system with the formulation of specific guidelines, the set up of waste separation practices and improved landfill management to achieve a reduction of the total amount of waste and elimination of open burning.

Lao PDR

6. In the NIP, the total PCDD/PCDF releases was estimated as 102.199 g TEQ/year (based on 2002 production data) out of which uncontrolled combustion processes represented 90% (90.742 g TEQ/year). Tons of domestic waste is generated annually and only parts of them are properly collected and dumped at the landfill

sites. The uncontrolled burning of domestic and other waste is widely used throughout the country. Most people use burning as the most convenient disposal method and therefore most of the waste is burnt either at home or at the dump sites.

7. These poor waste management practices, along with the lack of awareness of potential dioxin generation from open burning, are recognized among the priority problems in Lao PDR. This is reflected in the priority Action plans described in the NIP. Chapter 3 Section C of the NIP details the national priority projects relative to UP-POPs which include Research on Health Risk Management of Unintentionally POPs (Project C2), Public Awareness Raising (Project C4), the introduction of sound waste management practices (Project C5), Sound Management of Landfills (Project C6), the introduction and promotion of BAT and BEP in existing medical waste incineration plants (Project C6) and the improvement of the management of medical wastes (Project C8).

Mongolia

8. In the NIP, the total PCDD/PCDF releases was estimated as 750.713 g TEQ/year. During the inventory, the calculation of emissions of PCDD/PCDF released during this processes were calculated as “Uncontrolled combustion processes”, and accounted for 52.408 g (6.98%). More specifically, the share of waste incineration itself represented 0.124 g (0.02 %). The category waste/landfill accounted for the main part of releases, as 651.610 or 87% of the total. This high figures was mainly due to disposal of sludge generated from households and industrial sewage treatment . The NIP reflects the need to improve waste management schemes in the country's priority action plans and projects.
9. Among others, the main actions concerning the reduction of open burning consist in the development of procedures for collecting, storing, transporting, eliminating and decontaminating POPs-containing wastes, the revision of legal acts related to disposal of medical wastes and the establishment of specific requirements for the set up of new landfills for POPs containing industrial wastes and for the monitoring of POP releases. The aim is to improve waste management, reducing volume of wastes with recycling plans and introducing BAT/BEP in waste elimination process, building central facilities for waste incineration, specially for medical and hazardous wastes, in Ulaanbaatar and other large cities. At the same time the NIP foresee to prohibit intentional burning of wastes in dump areas and or public areas, and to stop burning hazardous wastes such as plastics, rubbers, plastic packages and tires improving and increasing public awareness activities

Philippines

10. In the recently revised NIP, the total PCDD/PCDF releases was estimated as 405.46 g TEQ/year, out of which uncontrolled combustion processes accounted for 187.04 g.TEQ/year and disposal/landfilling 43.20 g TEQ/year. A significant finding is that the major source of PCDD/PCDF is the uncontrolled combustion of agricultural wastes. The need to address the problems caused by the open burning practices is reflected in the NIP action plan in paragraph 3.3.3 “ Measures to reduce releases from unintentional production”, in all the relevant objectives and reflected in different activities concerning BAT/BEP application, use of non burning g technologies, inventory updates, etc.

Vietnam

11. The PCDD/PCDF inventory prepared by the Vietnam Environmental Protection Agency concluded that 6% (4.18. g TEQ/year) of the total annual PCDD/PCDFs releases is from open burning activities. It is mainly due to agricultural biomass burning including, rice husk and particularly straw burning. The implementation of BAT/BEP in waste management sector is addressed by the National Priority Programs n.4 (Management of Healthcare wastes) and n.8 (Assessment, study, promotion, assistance and management on application of BAT/BEP to reduce and finally eliminate the unintentional production of POPs from production and living activities)
12. Consequently, the release reduction of UP-POPs is among the national priorities of the participating countries related to the implementation of the SC. In order to achieve larger impacts of controlling UP-POPs releases, the Regional BAT/BEP Forum for East and South East Asia (ESEA) was established to promote strategies to reduce or eliminate unintentionally produced POPs. The Forum has been systematically investigating the industrial and non-industrial sectors where meaningful UP-POPs release reduction could be achieved. All participating countries in the proposal are members of the ESEA BAT/BEP Forum.
13. Due to population growth and increasing consumption in the region, municipal solid waste generation will increase in the future. Its environmentally sound management is a pressing problem for governments and has been translated to the development and implementation of various municipal waste management strategies and action plans. Governments are seeking advice and assistance from the international community concerning advanced municipal waste management practices and technologies that could reduce or minimize

the negative environmental impacts of open burning, such as pollutants releases, odour, while utilizing the waste as a resource.

14. Likewise, one of the main producing sectors in the region is agriculture, such as rice or sugar cane production. Agricultural activities and production are also increasing due to the supporting national policies, advanced machinery and heavy use of fertilizers. Consequently the amount of agricultural residues, such as rice stalk and other plant parts without current economic value are increasing.
15. In June 2002 in Malaysia, ten ASEAN countries signed the Agreement on Transboundary Haze Pollution in a reaction to an environmental crisis that hit Southeast Asia in the late 1990s. The crisis was mainly caused by land clearing via open burning. Four of the six participating countries are party to this agreement which aims to reduce agriculture and municipal wastes related open burning activities and to facilitate the environmentally sound utilization of agricultural residues.
16. Private sector strengthening measures are also among the national priorities. Governments however currently do not consider municipal waste management as a target sector for investment promotion. The project through BAT/BEP demonstration in this sector will provide an insight and a methodology to this end.

B. PROJECT OVERVIEW:

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

17. The baseline situation in each participating countries are detailed in the following section and each country has also defined their priority baseline projects. It is evident that without the project governments of the participating countries will continue to address open burning activities as part of their national programmes which would generally lack a coherent scientific based approach. The open burning sector involves two distinct sub-sectors, waste burning and accidental fires and biomass burning. Because these two sub-sectors are generally overseen by different organizations, entrusted with environment and agriculture, information sharing on the achieved release reductions versus the implemented management practices will continue to be scattered. Through the project, the lessons learned from these national programmes and projects maybe shared
18. Through the East and SouthEast Asia BAT/BEP Forum, a regional cooperation platform is created. This will ensure that technical information are shared and that there will be no duplication of efforts and inefficient use of financial, technical and human resources. The ESEA BAT and BEP Forum has generated a stronger regional cooperation especially in the issue of reduction of unintentionally-produced POPs. As members of the Forum, China and Thailand will be participating in the project as collaborating countries. China, with its experience on Municipal Waste Management through the World Bank project, and Thailand, through its ongoing initiatives on biomass management, will support the regional information sharing platform.
19. The role of each government is to provide guidance for the private and public sector for sustainable development. In this regard the governments are expected to put in place regulatory measures that efficiently set the path for human development. To this end significant knowledge and expertise is needed, particularly in the fields where environment and waste management meet and where the objectives of several international legally binding agreements and national development policies need to be harmonized. These cross-cutting, cross-sectoral fields need advanced studies to compare the available and planned management options and assess the costs and benefits of these options before any measures finally reach to become part of the national regulatory framework. This mechanism is generally lacking in the participating countries and could not be efficiently built without a solid comparative studies.
20. Participating countries have different baseline situations, manly depending on their financial, economic and socio-economic status. The implementation of integrated waste management practices are generally still at a preliminary phase. The disposal of municipal wastes and other types of wastes are usually carried out in open dumpsites, in some isolated cases in dedicated landfills. Open burning of waste would continue to be prevalent and as new waste types are emerging in the municipal waste such as electrical and electronic waste, the UP-POPs releases might even increase. Poorly mixed materials and the presence of chlorinated precursors (as PVC plastics) and catalytic metals (copper, aluminium, etc. from electrical and electronic devices) are the main sources of the formation and releases of UP-POPs in open burning processes, particularly when the combustion conditions are poor and the waste is not homogeneous.
21. UP-POP rich waste streams such as bottom and fly ash from burning processes is often dispersed in open dumpsites. Medical waste is also several times mixed with municipal waste and landfilled, in worse cases, open burned. These unsound practices will continue to be prevalent releasing UP-POPs, PAHs, mercury and other environmental pollutant. Governments effort in reducing these practices might lead to release reduction, but the

efficiency of the measures, the achieved release reduction would not be quantified and linked to investments and governmental policies. The social benefits of these measures would not be quantified or at least not in a standardized manner that would provide information on the effectiveness of the measures.

22. UP-POPs are continuously emitted in the air, released in the ash which could be washed away by rain and floods, thus contaminating ground waters and rivers. Besides the negative environmental impact, exposure over time causes severe health impacts.
23. Releases of UP-POPs or other harmful contaminants from open burning processes in ambient air, in soils and in leachate streams are rarely monitored in the participating countries partly because environmental authorities lack the technical capacity and partly because related regulations and guidelines are incoherently enforced. UP-POPs chemical analysis is expensive and in many cases beyond the capacity available at the national level. Without a regional cooperation and a network of regional accredited laboratories UP-POPs monitoring in the region would continue to be the privilege of the more industrialized and wealthier nations. This would definitely hinder the effectiveness evaluation of UP-POPs release reduction measures in the region.
24. The PIF was jointly developed with the participating countries at the “Regional BAT and BEP Forum for East and South East Asia (ESEA) Countries to Promote Strategies to Reduce or Eliminate Unintentionally Produced POPs from Industry, OPEN BURNING SECTORAL WORKSHOP” on 8-9 December 2011 where the current baseline situations with regards to open burning activities and ongoing and future plans (baseline projects) both at local and national levels were discussed.

Baseline situation and Baseline projects

25. It was evident during the workshop that in the participating countries, some waste management programs have been started, in different extent and still at local level, and some of them are supported by external funds and a continuously evolving legislation. More specifically, the current situations in each country and the ongoing activities and the baseline projects both at local and national level are presented hereafter:
26. In **Cambodia** 90% of the PCDD/PCDFs releases are due to open burning activities. The most important source is landfill fires. The major set back is the lack of regulatory, institutional and technical capacity to adequately address municipal and medical waste management and to perform adequate pollution monitoring.
27. So far, recycling/reuse practices are rarely implemented in the country and only Phnom Penh municipality has initiated separate waste collection practices (wet and dry waste), especially for market wastes. As part of the *baseline project*, the UNESCAP initiative on “Integrated Resource Recovery Centers – IRRC” will be established in all provinces/towns in collaboration with local governments and civil society organizations. The local municipalities will be responsible for the management of wastes within their territory and the payment for this environmental service has recently been incorporated into the new draft environmental law.
28. The investment in wastes management is open for the private sector. Currently, two local enterprises have invested in two major municipalities in the conversion of waste into composting fertilizer by collecting degradable wastes from vegetable markets. These investments will probably continue in the future, however local companies are generally lacking the concept of BAT/BEP and is envisaged to be addressed by the project.
29. The utilization of agriculture residues such as rice husk in energy generation through gasifiers has become popular in Cambodia. The NGO Cambodian Education and Waste Management Organisation (COMPED) has initiated a project funded by the EU for making compost to reduce the amount of wastes at Phnom Penh dumpsite. UNIDO also has a GEF-funded project on “Climate Change related technology transfer for Cambodia: Using Agricultural residue biomass for sustainable energy solutions.” For Cambodia, the set up of an improved waste management system with the formulation of specific guidelines, and improved landfill management to achieve a reduction of the total amount of waste and elimination of open burning constitute the baseline project. The current initiatives and the envisaged baseline project will benefit on the value addition of the GEF project in terms of reduced UP-POPs and green house gas (GHG) emissions for these projects have not been incorporated and the assessment of these pollutants is one of the envisaged outputs of the current proposal.
30. In **Lao PDR**, the majority of the municipal waste is burnt in an uncontrolled manner. Backyard trash burning is prevalent and probably will continue to be the most popular way of disposal in the rural areas. As part of the baseline project, the Ministry of Natural Resources and Environment in collaboration with Public Work and Transport Agency is implementing the recently introduced Guidelines on Solid Waste Management (VUDAA 2010) in Vientiane in support of sound municipal waste management including 3R projects (reduce, reuse, recycle). This project is financed by the Japanese Government (JICA) with a budget of 5.6 million US\$ and includes the establishment of a municipal landfill. The main limitation of this initiative is that BAT/BEP concepts may not have been fully incorporated in the design of the programs and infrastructure. This will be mainly

addressed by the project.

31. Waste separation and recycling initiatives led to the establishment of recycling banks under the supervision of the Lao Chareon Recycling Center. Currently, there are 30 recycling banks operating in Vientiane, 20 in communities and 10 in schools. These activities have been supported by the Royal Dutch Embassy and German Technical Cooperation. Moreover, the NGO Lao Women's Union is conducting educational and training programs for scavengers in recycling activities and safely handling hazardous waste. During the baseline project, municipal waste management related activities will continue to be undertaken in the future. The lessons learned in Laos would probably remain underutilized at the regional level. This regional coordinated exchange of knowledge and experiences will be addressed by the project.
32. In **Mongolia**, uncontrolled combustion processes accounted for 6.98% (52.408 g TEQ) of the total PCDD/PCDF releases. This seems to be low knowing the prevalence of open burning activities in the rural areas and in the cities, however the NIP is silent on the assumption method it used. In some cities, especially in Ulaanbaatar, the municipal waste collection enterprises received funds for infrastructure improvement. Further, a new landfill was recently opened. This resulted in reduced open burning activities in the capital. In the future, the capacity and frequency of waste collection will increase. These measures will contribute to further reduce UP-POPs releases.
33. There is a national baseline project on improving local dumping sites in all provinces. It was raised during the workshop that there are some cases that the development of the sites does not involve advanced engineering such as impermeable layers, etc. For Mongolia, there is no regulation in place specifically for controlling open burning the costs and benefits of these initiatives will not be considered and consequently will not translate into informed decision making in the future. The Government's plan to revise several regulations such as the law on household and industrial waste, the law on air quality, the environmental impact assessment regulations and some resolutions and guidance on measures for improving waste management will benefit greatly from the experiences that will be shared during project implementation.
34. The ongoing activities to improve the waste management system foresee the building of central furnaces for waste incineration, specially medical and hazardous wastes, in Ulaanbaatar and other large cities. A feasibility study for a hazardous waste incinerator with capacity of 10,000 tons of waste/year has been carried out but financing is still needed.
35. The **Philippines** has good success in implementing RA 9003 or the Solid Waste Management Act to control open burning of municipal and domestic wastes. However, the issue of uncontrolled combustion of agricultural residues remains unresolved. As part of the baseline project, the country is now implementing programs on waste reduction and minimization including the development of policies for banning some specific types of plastics and a parallel policy encouraging the use of indigenous materials for packaging such as bayong made of abaca fiber, bamboo, and others. At the same time, policies on waste segregation at source and on a more efficient collection of segregated resources have been drafted. These baseline projects are envisaged to lead to the closure of many dumpsites and the construction of new sanitary landfills.
36. As part of the baseline project, the set up and/or sustained operation of materials recovery facilities, the accreditation of solid waste management experts, the establishment of Ecological Solid Waste Management System in selected Subdivisions in Metro Manila and Ecological Solid Waste Management Summits in Metro Manila Barangays is envisaged. Recently, the National Solid Waste Management Commission Secretariat has introduced the concept of Ecology Park, defined as a site where combined processes for biodegradable, non-biodegradable, recyclable and residual wastes are being conducted. Local governments are encouraged to develop their waste disposal sites into Eco-Parks employing local or indigenous low cost and low tech materials, as an alternative to Sanitary Landfills. Other two national programs concerning waste management, are the National Government-Local Government Cost Sharing Scheme for Solid Waste Management Services, which provides national government grants to all cities and municipalities for investments in solid waste management, and the National Framework Plan for the Informal Sector in Solid Waste Management aimed to integrating the informal sector (scavengers) in the waste management system, especially in recycling activities, system by providing them employment and social services. However, national budget for these initiatives is not sufficient and GEF incremental funding is requested.
37. The lessons learned from these initiatives are mainly disseminated at the national level and thus countries in the region cannot really benefit from these initiatives.
38. Thailand will contribute in the project through its ongoing national initiatives on biomass burning. In the NIP of **Thailand** uncontrolled combustion processes accounted for 386.98 g TEQ/year PCDD/PCDF, some 36% of the releases. The burning of agricultural residues is one of the major air pollutant emission sources. Crop residue burning are undertaken in rice, sugar cane and maize fields. The Ministry of Agriculture and Cooperative is responsible for promoting the use of crop residues in farmlands and for supporting the development of advanced

cultivation methods.

39. The Pollution Control Department in cooperation with relevant authorities drafted the National Master Plan on Controlling Open Burning in order to discourage open burning in the agriculture. An action plan with 30 projects/activities with a budget of 4,928.42 million Baht in seven strategic plans in accordance with this plan and the ASEAN Agreement was also drafted. The action plan includes the advanced management of agricultural wastes and residues for producing fertilizers, other bio products and/or energy. The Government is seeking partners for demonstration projects that would pave the way for the agriculture sector to take over these activities.
40. There are very few incinerators for municipal waste treatment in *Vietnam*. Two of them with a moderate capacity are in Hanoi and Ho- Chi-Minh City where partly medical wastes are also treated. The baseline project involves modernization of existing incinerators and construction of sanitary landfills specifically in the provinces.
41. Vietnam currently does not have specific regulations on open burning practices. The law on Environmental Protection (2005) regulates wastes management and pollution prevention. The National Strategy on Environmental Protection consists of thirty six national programs covering all fields of environmental protection, including municipal and hazardous wastes management, application of environmentally sound technologies and environmental pollution treatment and rehabilitation. The implementation of these regulations is difficult due to the lack of human capacity, equipment and clarity of some of the articles. The Regulations on the Management of Solid Waste Landfills (2004) contain regulations on sanitary landfills but these are not sufficiently specific for controlling UP-POPs and other pollutant releases. As part of its baseline project, the Government is going to revise and update the regulatory infrastructure. National institutions will also be strengthened to provide for a better enforcement. Capacity, however, to implement demonstration projects in the open burning sector is continue to be lacking without the project. Private sector involvement, including technical awareness, is seen as a main element to address this issue.
42. As a former Chair country of the ESEA BAT and BEP Forum, China will collaborate with the participating countries to strengthen regional information sharing through its ongoing Municipal Solid Waste Management project with the World Bank. The country is also committed to share its strong legislative agenda and infrastructure to the ESEA Forum member countries.
43. In a regional context, the established ESEA BAT/BEP Forum shall serve as a sound platform for information sharing and the creation of an enabling environment for the development, diffusion, deployment and transfer of cost-effective, environmentally sound BATs and BEPs. However, it is necessary that a regional technical coordination unit be formed for the open burning sector. This regional coordination unit shall comprise of relevant stakeholders which would focus on the issues of open burning in the region.
44. While the participating countries have their baseline projects planned or in place, it is apparent that there are several barriers and limitations that need to be addressed including (i) lack of comprehensive national policies promoting BAT/BEP to control open burning activities (ii) BAT/BEP investments are rarely supported by governments and comprehensive investment promotion loan package on this area is not in place; (iii) BAT/BEP guidelines of the SC does not address several open burning activities such as sugar cane burning; (iv) lack of local capacity and expertise in identifying and adopting the most appropriate technology options for BAT/BEP; (v) Analytical capacity for UP-POPs is not fully structured or non-existent in the participating countries; (vi) Some stakeholders are not aware of the health risks and impacts of open burning releases; (vii) There is lack of scientific data for decision making regarding UP-POPs releases as initial inventories are incomplete and based on estimates; (viii) the impact of BAT/BEP on release reduction measures have never been quantified in the region for open burning activities; (ix) there is lack or very poor public awareness on the issue of UP-POPs, in general. Similarly, private sector involvement and technical awareness is very critical and should be strengthened to fully address the issue.

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

45. The project is expected to be built on the current activities in the participant countries with the primary objective to achieve meaningful and sustainable release reduction of UP-POPs from the open burning sector. With the project, governments of the participant countries will undertake open burning related programmes in a more coherent and coordinated manner. Government organizations entrusted with environment and agriculture will improve their information sharing on the achieved release reductions versus the implemented management practices. Lessons learned on the national level will be shared through the regional information sharing platform established by the project. This will further enhance the replication of these programmes in the region and thus

the impacts on the environment and human health would be maximized.

46. The GEF grant is envisaged to support a common development and/or strengthening of policies and legislations. using the regional platform. Policy workshops, formulation of common guidelines, development of financial mechanism in the region and targeted capacity building will be undertaken to support legislation development/improvement. The strengthening and adaption of policies, laws and regulations related to UP-POPs management and control with specific focus on waste management will ensure the sustainability of the regulatory environment framed through the project, fully taking advantage of the opportunities given by existing regional and international Conventions and Agreements. By ensuring the practicality of these laws and regulations, enforcement will also be improved if supported by adequate and targeted capacity building. It is also envisaged that the policies and regulations developed under this project will contribute to its sustainability in the future.
47. While the ESEA BAT/BEP Forum has already been established and the regional cooperation has already been initiated, different stakeholders are involved in the open burning sector. Thus, the establishment of a information exchange mechanism designed to cater to the requirements of the stakeholders will be undertaken under the umbrella of the Forum. It is envisaged that the regional sector technical group on the area of waste management (particularly on open burning) will be formed to fully implement and sustain BAT/BEP implementation in their respective countries and in sharing their technical knowhow with the other countries in the region.
48. Capacity building activities will be undertaken especially on dioxin sampling and monitoring where GEF assistance is required. In order to obtain significant baseline information on UP-POPs releases for this sector in the region, monitoring practices should be strengthened through standardized analytical procedures, data collection and reporting. It is envisaged that at least one regional center specialized in POPs monitoring, in terms of having the the required infrastructure and equipment and analytical expertise will be developed. Currently, countries like Vietnam, Indonesia and Thailand have several initiatives on this area but needs to be further supported in terms of standardization of procedures and accreditation. The monitoring and analytical capacity in the region will ensure that UP-POPs releases can be monitored not only in open burning activities but on other Annex C sectors of the SC as well.
49. With the GEF project, BAT/BEP demonstration studies will be undertaken based on a thorough information collection and assessments of the candidate locations. Assessment and selection of pilot sites will be finalized during the project preparatory phase. The objective of the baseline investigation will be to select those demonstration activities where the environmental, economic and social benefits could be maximized not only on the national, but on the regional level as well. This will lead to cost efficient use of international financial resources. At the same time, the experience gained through the application of BAT/BEP requirements for the demonstration cases in conjunction with the set up of waste management plans will provide a solid base for introducing sustainable management of both municipal wastes and agricultural residues. Through piloting BAT/BEP in selected sites, the project will set models of financing options, mobilizing funds and establish cooperative partnerships with private sector towards replication of project results. The engagement of the private sector will ensure future investments which will lead to sustainability of the envisaged project outcomes.
50. Among demonstration activities, some dumpsites and landfills will be selected where to apply short term and long terms BAT/BEP actions. Selected waste dumpsites in the region where open burning takes place measures will be implemented to improve the management of waste during disposal operations. It can be anticipated that at least one dumpsite in **Phnom Penh city in Cambodia** will be a pilot site. The GEF funding will support with additional technologies and technical expertise the current UNESCAP initiative on integrated resource recovery and the composting activities being conducted by the NGO, COMPED.
51. In some selected landfills in the region where the participating countries, like **Lao PDR and Mongolia**, already have ongoing programs of cooperation and financial schemes, the GEF project will provide the necessary technical assistance in applying BAT/BEP for secure operated waste disposal sites. Accordingly, in order to carry out demonstrative programs, specific parts of the selected landfills will be renovated including liner systems (bottom mineral liners, plastic liners), recovery of leachate by drainage liners and drainage pipes and recovery of gas flaring. In coordination with JICA on the building of a municipal landfill site, UNIDO and Lao PDR will ensure that advanced engineering design and BAT/BEP measures are implemented to ensure that UP-POPs are reduced or even totally avoided.
52. Waste separation plant before the landfill will be foreseen in order to segregate and send to recycle the composite waste of the municipality, taking in account the participation of NGOs and companies already involved in these activities. Specific waste management plans will be set up in selected municipalities to carry out the segregation of infectious and toxic wastes from hospitals from that of household wastes. The practice of mixing both hospital and domestic wastes in common in all the participating countries.
53. In the case of the **Philippines and Vietnam** where biomass waste burning is a concern, some municipalities

close to industrialized areas will be chosen to apply demonstrative collecting programs in order to use the seasonal agricultural waste streams (such as rice husks and waste wood) as alternative fuels, especially in local industrial boilers or for alternative uses (fodder, hay, composting, timber). Likewise, case study in Vietnam may involve the assessment of its existing incinerator facilities as opposed to open burning of wastes. Additionally, the Philippines will set-up a model municipal recycling facility as its demonstration project and which maybe replicated on the national level.

54. The global knowledge on how to adopt BAT/BEP in the open burning sector will significantly increase and this knowledge, through UNIDO, will be globally available and replicated in other parts of the world. Through the project participant countries will gain information and can adopt management practices addressing lesser important sectors of open burning activities without extra efforts and costs. This will lead to faster and larger release reductions of UP-POPs and other pollutants such as GHGs than without the project.
55. Through the assistance of the GEF, the project will develop quantifiable indicators for environmental, economic and social impacts, such as the achieved UP-POPs or GHGs release reduction, the investment cost of each ug release reduction, or the return rate of investment of BAT/BEP measures in different sub sectors of open burning. Capacity will be built in the participant countries to forecast future trends in the open burning sectors. With this different options for release reductions could be compared and thus decision making can be undertaken in a more transparent and objective manner.
56. The project will partner with private sector initiatives in improved municipal and medical waste management and advanced agriculture residue utilization. Through these programmes private sector will have a deeper insight of the BAT/BEP measures, the cost and benefits of these measures and it is expected that the sector will gradually integrate BAT/BEP in the waste management sector in general. Successful demonstration activities will encourage this private sector partnerships. Sustainability of the initiatives will be ensured through the collection of appropriate fees for waste management. Likewise with the results of the pilot demonstration activities, participating countries will have a better information as to what regulatory measures would be the most appropriate to facilitate BAT/BEP adoption in the private sector. Further this advanced knowledge will be available to enhance the BAT/BEP guidelines under the SC.
57. The environmental benefits in terms of the releases of UP-POPs in selected demonstration sites, especially open dumpsites, maybe quantified based on the reported wastes delivered to the sites, it is possible to calculate the current releases in air and solid residues. Based on the UNEP Toolkit, the baseline emission factors were set at 300 ug TEQ/t for air emissions, 10 ug TEQ/t for land releases and 6-50 ug TEQ/t for releases to residues.
58. Based on a desk study, for 30 t/y solid wastes open burned, UP-POPs releases is estimated to be around 9.5-10.8 g TEQ/ y. This amount of UP-POPs releases maybe avoided if BAT/BEP measures are applied, including recovery of recyclable materials and assuming zero open burning cases as municipal solid wastes is recycled or confined in engineered landfilled. In a similar estimation in the PERSGA region, potential reduction of 75 -98% for selected dumpsites was estimated
59. The project also looks at the significant benefit of protection of human health especially of people residing near dumpsite areas and farmers who are not aware of the impacts of agricultural burning. The project fully aims to provide the necessary awareness raising and education campaigns to the said sector of the population.
60. Open burning is still a very common practice in the region both for municipal wastes and agricultural residues. There are existing initiatives in the countries to avoid open burning but these should be supported by technical know-how. BAT/BEP measures are envisaged to promote practical yet effective measures to improve waste management in the region.

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/NPIF) or adaptation benefits (LDCF/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#)":

61. The primary socioeconomic benefits of the project will be the reduced amount of UP-POPs in the environment, consequently human exposures will also be avoided. Current research indicates that the practice of open burning is a more serious threat to public health and the environment than previously thought. There is enough evidence that high level of exposure over the long term, such as those experienced by waste management workers and scavengers, may contribute to increasing birth defects, fertility problems, greater susceptibility to disease, reduced intelligence and some types of cancers.

62. Adoption of BAT/BEP in the open burning sector will improve occupational environment of the workers and would create a cleaner environment for those who live close to these places. Enterprises engaging in waste recycling will require specialized staff. This would involve trainings and human resource development therefore the project will provide benefit to the community through generating employment at the professional and skilled labour levels. Employment will be generated for women and gender rights for employment will be observed.
63. The project also foresees human resource development at Governmental institutions, environmental NGOs. These initiatives are open for all genders and would encourage the participation of women. This will further improve the gender equity especially at the professional level.
64. For project sustainability BAT/BEP will be mainstreamed into education, thus new generation of students will have better access to cutting edge information, and will have better employment opportunities.
65. The project will ensure collection of adequate data that will enable continuous monitoring of socioeconomic impacts and reasonable inclusion of the community in decision making process.

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:

66. The particular risks that maybe encountered in the implementation of the project as well as the measures that maybe carried out to mitigate, if not eliminate them, are given in the following table:

RISKS	Risk Level	Mitigation Measures
Law-making and regulatory bodies will not be positively responsive, which will result in delays in adoption of new/revised legislations.	Medium	All concerned stakeholders will be involved in the development of new/revised legislations. Trainings and workshops are planned to increase the awareness of the need for cross-sectoral cooperation.
The regional platform for information exchange will not be maintained after project completion.	Low	The regional platform for information exchange will build on the currently available governmental infrastructures and thus will not require new infrastructures to be established.
Not all participating countries will have the necessary resources to maintain UP-POPs laboratory up to standards.	Medium	Due to the high cost of PCDD/PCDFs analysis, the intention is to have a network of laboratories in the region. Countries currently lacking this capacity can have access to these laboratories and can start UP-POPs monitoring.
The technology transferred to the demonstration sites will not be as functional as planned.	Medium	In each case the technologies will be adopted to the local circumstances in consultation with the representatives of the demonstration sites.
BAT/BEP measures will not achieve the assumed positive results and thus will not be cost efficient.	Low	Earlier examples of BAT/BEP and technology transfers were cost efficient. A policy framework supporting BAT/BEP implementation will be developed to address this risk. Technologies will be adopted to the local needs in consultation with the representatives of the demonstration sites.
Climate change risks from open burning activities	Medium	Open burning activities and improperly managed landfills are significant contributors to greenhouse gas emissions including carbon dioxide and monoxide (from improper waste burning), methane and nitrogen oxides (due to anaerobic digestion of waste). This maybe mitigated by introducing BAT/BEP in the disposal sites through improved waste segregation and implementation of technological means to recover landfill gases.

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:

67. Key stakeholders of the project are the executing agencies identified in Part I of the project document. These organization are expected to implement the project on the national level and provide for regional cooperation and information sharing.
68. The project will provide good opportunity for involving national stakeholders, farmers cooperatives, hospital workers, NGOs working in the field of waste management and agriculture including women's groups and groups involved in the health of children, to facilitate the implementation of the NIPs as is required in paragraph 2 of Article 7 of the Stockholm Convention.
69. Local waste management authorities in each country will play a crucial role in the implementation of the project and the sustainability of the project outcomes. In all the participating countries, local governments are the main players in the management of wastes streams and in the enforcement of national laws and regulations on this area. However, the technical capacity of the local authorities are most often not sufficient. The project aims to bridge this gap and fully capacitate and involve relevant local authorities in the project.
70. The project also aims to involve scavengers living close to the selected dumpsite. Dedicated training on recycling activities and on health education and accident prevention will be undertaken. These activities will be carried out with the cooperation of the NGOs and local authorities.
71. The project will partner with the private sector in investing in BAT/BEP and sound waste and residue management. Pilot demonstration activities will address selected dumpsites, landfills, farmers or framers associations, cooperatives involved in agricultural activities such as sugar cane harvesting or stalk management, etc.. These enterprises will be the key stakeholders in implementing BAT/BEP, and making a shift from burning of waste to advanced methods such as recycling or re-using .
72. Relevant government institutions, departments and laboratories will be involved in trainings and awareness raising activities in order develop the necessary human resources capacity in the region to carry on project activities. In this regard BAT/BEP related measures will be integrated into the tertiary education to further enhance local knowledge and awareness on BAT/BEP.
73. The GEF support will maximize opportunities for private sector to venture capital, through joint venture with local companies, into solving POPs priority problems with a global dimension and large socio economic scope. The scale and complexity of this project will require a multi-faceted response and draw on the combined resources of the public and private sectors.

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

74. Cambodia, Lao PDR, Mongolia, Philippines and Vietnam are members of the Regional BAT/BEP Forum for East and South East Asia (ESEA) countries, which was adopted in Bangkok in October 2007. The project will closely cooperate with the ESEA BAT/BEP forum to share information and exchange experiences gained during BAT/BEP implementation in the region.
75. The project will identify linkages with the GEF-funded UNIDO projects "*Introduction of BAT and BEP methodology to demonstrate reduction or elimination of unintentionally produced persistent organic pollutants (UP-POPs) releases from the industry in Vietnam*" and the regional ESEA project "*Regional Plan for the Introduction of BAT/BEP Strategies to Industrial Source Categories of SC Annex C of Article 5*". It will also explore the coordination with the full-size GEF-funded on "Demonstration of BAT and BEP in fossil fuel-fired utilities and industrial boilers in the ESEA region." specifically on capacity building and awareness raising activities. Experiences and lessons learned from these projects will be incorporated in the design, formulation and implementation of the current proposal.
76. In Cambodia, an initiative on Integrated Recovery Resource Centers is being implemented by UNESCAP which aim to establish such centers in major provinces in collaboration with the local governments and civil society. The NGO Cambodian Education and Waste management Organization (COMPED) has initiated a

project funded by the EU for making compost to reduce the amount of wastes at Phnom Penh dumpsite.

77. In Lao PDR, waste separation and recycling initiatives led to the establishment of recycling banks under the supervision of the Lao Chareon Recycling Center. Currently, there are 30 recycling banks in 20 communities and 10 schools. These initiatives have been supported by the Royal Dutch Embassy and German Technical Cooperation
78. National budgets in Mongolia have been allocated to improve waste management systems that foresee the building of waste management center, especially of medical and hazardous wastes.
79. In the Philippines, the National Solid Waste Management Commission Secretariat has introduced the concept of Ecology Park where combined processes for biodegradable, non biodegradable, recyclable and residual wastes are being undertaken. Local governments are encouraged to develop their waste disposal sites into Eco-parks employing local or indigenous low cost materials as alternative to sanitary landfills.
80. There are currently two research programs in Vietnam which are directly related to open burning. One aims at developing the emission inventory for biomass open burning sub sector in the Mekong River basin. The other assesses the environmental contamination and health impacts of POPs in open landfill dumpsites in East and South East Asian countries.
81. The proposed project will build linkages with the on-going landfill, waste management projects and agricultural residue management and initiatives in all participating countries.

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

82. The mandate of UNIDO is to support developing countries and countries with economies in transition to achieve industrial development. UNIDO has also developed and implemented a large number of GEF financed NIP development and post-NIP projects; it contributed to the efforts made in sound management of waste and chemicals. UNIDO is part of the expert group that developed and continuously improves the BAT/BEP guidelines of the SC. This project will integrate both aspects of technology transfer and investment promotion in introducing BAT/BEP in open burning.

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

83. UNIDO is providing US \$ 50,000 cash and US \$150,000 in-kind contribution as co-financing to the project. This will be used for project monitoring, implementation and evaluation activities.

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:


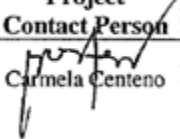
84. UNIDO's thematic priorities centred on poverty reduction through trade capacity building and environmental and energy management. The organization is committed in introducing technology solutions in an integrated manner to issues that impact health and the environment.
85. The current proposal does not only address reduction of impact of UP-POPs releases from open burning but it addresses the issue of employment generation and improvement of the quality of life which UNIDO integrates in its projects.
86. UNIDO has appropriate human resources and technical capacity to implement this project. UNIDO has a network of country offices which are involved in project management and technical assistance. Expertise not available in UNIDO will be subcontracted.

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)
Lonh Heal	Director General, Technical Affairs GEF OFP	MINISTRY OF ENVIRONMENT, CAMBODIA	05/21/2012
Khampadith Khammounheung	Acting DG GEF OFP	MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT, LAO PDR	
Enkhbat Altangerel	Director, Ecologically Clean Technology and Science Division, GEF OFP	MINISTRY OF NATURE, ENVIRONMENT AND TOURISM, MONGOLIA	05/16/2012
Analiza Rebuelta-Teh	Undersecretary and Chief of Staff GEF OFP	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, PHILIPPINES	
Nguyen Van Tai	Director General GEF OFP	MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT	05/21/2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
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