



## REQUEST FOR CEO ENDORSEMENT

**PROJECT TYPE: Full-sized Project**

**TYPE OF TRUST FUND: GEF Trust Fund**

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### PART I: PROJECT INFORMATION

Project Title: Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC subregion			
Country(ies):	Botswana, Lesotho, Madagascar, Mozambique, Swaziland, Tanzania and Zambia	GEF Project ID: <sup>1</sup>	5322
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	150060
Other Executing Partner(s):	Ministry of Environment, Wildlife and Tourism (Botswana), Ministry of Tourism, Environment and Culture (Lesotho), Ministry of Environment and Forests (Madagascar), Ministry of Land, Environment and Rural Development (Mozambique), Swaziland Environment Authority (Swaziland), Vice President's Office-Division of Environment (Tanzania), Zambia Environmental Management Agency (Zambia) and Basel and Stockholm Regional Centre (BSRC-Africa Institute), South Africa	Submission Date: Resubmission Date:	2015-08-20 2016-01-25
GEF Focal Area (s):	Persistent Organic Pollutants	Project Duration(Months)	60 months
Name of Parent Program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/> ➤ For SGP <input type="checkbox"/> ➤ For PPP <input type="checkbox"/>		Project Agency Fee (\$):	628,425

### A. FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Cofinancing (\$)
(select) CHEM-1	Outcome 1.3: POPs releases to environment reduced	Output 1.3.1 Action plans addressing unintentionally produced POPs under development and implementation	GEF TF	6,087,000	26,198,000
(select) CHEM-1	Outcome 1.5: Country capacity built to effectively phase out and reduce	Output 1.5.1 Countries receiving GEF support for the implementation of the	GEF TF	528,000	2,163,000

<sup>1</sup> Project ID number will be assigned by GEFSEC.

<sup>2</sup> Refer to the [Focal Area Results Framework and LDCF/SCCF Framework](#) when completing Table A.

	releases of POPs	Stockholm Convention			
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
(select)	(select)		(select)		
<b>Total project costs</b>				6,615,000	28,361,000

## B. PROJECT FRAMEWORK

**Project Objective: To achieve continuing minimization of unintentionally produced POPs (uPOPs) releases in the open burning sector of participating African countries of SADC region through introduction of best available techniques and best environmental practices (BAT/BEP) measures at selected priority demonstration sites**

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Cofinancing (\$)
1. uPOPs baseline information on open burning practices and inventory of major dumpsites/landfills in participating countries	TA	Updated regional information on current open burning practices and establishment of uPOPs baseline inventories	1.1 National information on current locations of open burning practices validated and updated uPOPs inventories of participating countries reviewed 1.2 Regional information on open burning practices and data on uPOPs releases exchanged and respective regional cooperation and networking consolidated	GEF TF	196,000	787,000
2. Regulatory / Legal framework review, policy development and institutional strengthening	TA	Strengthened legislation and human resources capacity in implementing BAT/BEP at selected priority sites of open burning	2.1 Regulatory measures aimed at discouraging open burning practices of different waste streams and agricultural residues formulated or amended 2.2 Country action plans for managing and phasing out open burning of wastes and agricultural residues reviewed and strengthened. 2.3 Regional	GEF TF	528,000	2,163,000

			BAT/BEP guidances for uPOPs reduction formulated for respective Ministry of Environment's adoption at country level for substantial reduction and/or collective elimination of waste and agricultural residues in open burning practices 2.4 Adequate technical infrastructure for implementing BAT/BEP and waste management best practices built			
3. Pilot demonstration of BAT/BEP in selected priority sites	TA	Implementation of BAT/BEP to reduce uPOPs releases in the open burning sector at national and regional levels	3.1 Waste management best practices carried out in two (2) selected priority demonstration municipalities in each participating country 3.2 Waste management plans introducing BAT/BEP measures developed and implemented in two (2) selected major dumpsites and landfills in the participating countries using PPP models 3.3 Biomass waste recycling and disposal options promoted in two (2) demonstration sites through alternative waste management plans for better value addition 3.4 Harmonized methodology developed to set up	GEF TF	4,966,000	23,346,500

			uPOPs release reduction targets for open burning sector at regional level 3.5 Socio-economic impacts of the project intervention on private and informal sectors including recycling business plan assessed			
4. Information dissemination and awareness raising	TA	Knowledge transfer on BAT/BEP for replicability and awareness raising on uPOPs related risks and exposure in open burning sector	4.1 One regional targeted training of trainers emphasizing health and environmental risks and exposure hazards of open burning practices and awareness raising campaigns for all relevant target groups observing appropriate gender representations (decision makers, professional associations, community leaders, farmers, private industries, waste pickers, NGOs, media and the public at large) carried out in each participating countries 4.2 Educational programmes for introduction of lessons learned and alternatives to open burning practices established at all levels in each of the participating countries 4.3 Regional cooperation on BAT/BEP and information sharing established through the BAT/BEP	GEF TF	379,000	1,007,500

			Forum			
5. Monitoring and evaluation of results	TA	Design and implementation of M&E framework in accordance with UNIDO and GEF requirements	5.1 Project interventions monitored and project progress evaluated	GEF TF	216,000	236,000
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
Subtotal					6,285,000	27,540,000
Project management Cost (PMC) <sup>3</sup>				GEF TF	330,000	821,000
<b>Total project costs</b>					<b>6,615,000</b>	<b>28,361,000</b>

### C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount (\$)
National Government	Government of Botswana	In-kind	2,664,300
National Government	Government of Botswana	Cash	700
National Government	Government of Lesotho	In-kind	2,132,000
National Government	Government of Lesotho	Cash	533,000
National Government	Government of Madagascar	In-kind	3,211,000
National Government	Government of Mozambique	In-kind	2,665,000
National Government	Government of Swaziland	In-kind	2,660,000
National Government	Government of Swaziland	Cash	5,000
National Government	Government of Tanzania	In-kind	2,665,000
National Government	Government of Zambia	In-kind	2,665,000
GEF Agency	UNIDO	Cash	60,000
GEF Agency	UNIDO	In-kind	100,000
Bilateral Aid Agency (ies)	Mozambique/Korean Government	Cash	2,300,000
Bilateral Aid Agency (ies)	Mozambique/Korean Government	In-kind	2,700,000
Private Sector	Botswana Meat Commission/Botswana International University Science and Technology Thhoeko Sanitary Solutions (Pty) Ltd., Lesotho	In-kind	4,000,000
<b>Total Co-financing</b>			<b>28,361,000</b>
<i>During the project implementation, actual co-financing from Private Sector will be confirmed.</i>			

<sup>3</sup> PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

**D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>**

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in \$)		
				Grant Amount (a)	Agency Fee (b) <sup>2</sup>	Total c=a+b
(select)	(select)	(select)				0
UNIDO	GEF TF	Persistent Organic Pollutants	Botswana	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Lesotho	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Madagascar	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Mozambique	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Swaziland	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Tanzania	945,000	89,775	1,034,775
UNIDO	GEF TF	Persistent Organic Pollutants	Zambia	945,000	89,775	1,034,775
(select)	(select)	(select)				0
(select)	(select)	(select)				0
<b>Total Grant Resources</b>				<b>6,615,000</b>	<b>628,425</b>	<b>7,243,425</b>

<sup>1</sup> 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. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project.

**F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:**

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	161,000	180,000	341,000
National/Local Consultants	102,000	767,000	869,000

**G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No**

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

## PART II: PROJECT JUSTIFICATION

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF<sup>4</sup>**

1. Information presented in this document builds on those provided in the original PIF, the structure and budget of the document closely follows the project design of the PIF. As part of the PPG activities, project partners (UNIDO and the participating countries) interacted during the initial consultation meeting held in Lusaka, Zambia in May 2014 to prepare the workplan for the preparatory phase. A subcontract was given to each participating country for the collection of baseline data on open burning practices, conduct national survey of dumpsites/landfills, identify demonstration sites where to implement BAT/BEP, identify public and private laboratories and other monitoring networks for uPOPs sampling and analysis and identify key and relevant stakeholders that will be involved in the project implementation. Questionnaires were circulated and filled in by participating countries (Annex I). As a result of this, the project document was drafted taking into account the data and information provided by the participating countries. The validation workshop took place in November 2014 in Gaborone, Botswana where the draft project document was reviewed by all partners. Project activities to be supported by the co-financing (in-kind/cash) from the Governments of the participating countries were detailed in Annex D (Co-financing budget) as per commitment letters (Annex I) from the Governments of the participating countries. Co-financing commitment from private sector and other project beneficiaries has been mobilised and presented in Annex Ia .
- A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.
2. All participating countries have ratified the Stockholm Convention (SC) and completed their national implementation plans (NIPs). The NIP inventories concluded that uncontrolled combustion processes are the most significant sources of unintentionally produced persistent organic pollutants (uPOPs) releases. Consequently, the reduction of uPOPs releases is among national priorities of the participating countries related to the implementation of the SC. Data and information from NIP update projects in the participating countries (wherever is available) will be built in and support the project.
3. The common aim at reducing the harmful effects of open burning practices has led the participating countries to promote and sustain immediate actions to fully address this issue. Waste management is a pressing problem for the governments, because of the general lack of specific infrastructure (sanitary landfills, high temperature waste incinerators, etc.) and insufficient coverage of this topic in the supporting legislations. Some countries are in the process of developing and implementing various municipal waste management strategies and action plans. Governments are seeking advice and assistance from the international community concerning advanced management practices and technologies complying with best available techniques and best environmental practices (BAT/BEP) that could reduce or minimize the negative environmental impacts of open burning of wastes. These issues are reflected in the national action plans in the NIPs of the participating countries.
4. More specifically, following examples of strategies to address uPOPs reduction could be cited: in **Botswana**, the NIP follows the national development process as defined in the country's National Development Plan (NPD), District Development Plans (DDPs) and Urban Development Plans (UDPs). The main activities regarding uPOPs include the revision and enacting of the respective legislation, especially concerning incineration guidelines and awareness campaigns. In **Lesotho**, the development of an Integrated Waste Management and Pollution Control policy framework, the amendment of relevant legislation to ensure significant reduction of uPOPs releases, and training of law enforcement officers to implement the laws are foreseen. The implementation of cleanup systems and proper waste management for stockpiles and waste directly address the open burning issue. Other actions involve the promotion of recycling of plastics and setting up two (2) new sanitary landfills. In **Madagascar**, the NIP aims at reducing the releases of uPOPs from the main region Analamanga by 50% within 5 years through the implementation of waste management of municipal and hazardous wastes and setting up a pilot incinerator. In **Mozambique**, the establishment of Mozambique Center for Chemical Management (MCCM), as an inter-sectoral body to oversee the control of chemicals in the country, is planned. In the NIP of **Swaziland**, the main activities related to waste reduction include a construction of medical waste incinerators and an overall increase of efficiency

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<sup>4</sup> For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question.



and quality of the existing disposal facilities for health-care/medical waste. As far as biomass burning is concerned, the aim is to strengthen the implementation of the Rural Electrification project to reduce the use of firewood by rural poor communities and promote advanced harvesting methods for green cane. In **Tanzania**, the NIP prioritizes the development of PCDD/PCDF control programs covering waste management strategies, the research on BATs and BEPs that include alternative materials and technology, as well as the identification of feasible technological options for waste incineration. The NIP also foresees investment programs on BATs and BEPs for major sources, including uncontrolled combustion. In **Zambia**, deliberate efforts were made to formulate a NIP that conforms to the **Zambian Fifth National Development Plan (FNDP)**, **Vision 2030** and the **Millennium Development Goals (MDGs)**. Specific activities are planned to reduce releases from uncontrolled domestic waste burning by 75%, such as increasing domestic waste collection in peri-urban and rural districts, implementing the Zonal system to promote waste segregation at source, recycling technology for plastics and composting of biodegradable materials, as well as increasing taxes on importers and producers. In order to reduce PCDD/PCDF releases from agricultural residue burning and forest fires, the NIP foresees development and implementation of awareness raising campaigns for landfill managers, as well as the introduction of financial incentives and alternative income generation mechanisms for waste pickers. The Ministry of Science, Technology and Vocational Training (MSTVT) has set up a Bureau to review all technologies currently in use in the country, with the objective of recommending BAT/BEP in the context of POPs management.

5. All participating countries are parties to the Basel Convention for the control of transboundary movement and management of hazardous wastes, and some are parties to the Bamako Conventions that include promotion and provision of trainings in sound environmental management of hazardous wastes, technology transfer, information dissemination, research and consulting among African States.
6. Participating countries are parties at the regional economic co-operation agreement, the Southern African Development Community (SADC). The SADC's goal is to improve the living standards in peace and security and to enable sustainable economic and social development of the member countries through co-operation in trade, customs and monetary affairs, technology, industry and energy, transport and communication, agriculture and environment. Specifically, the SADC Secretariat developed and updated the Regional Indicative Strategic Development Plan (RISDP) in order to sustain the operations of institutions and provide a clear mid- and long-term orientation for policies and programmes of the organisation. The ultimate objective of RISDP is to deepen integration in the region with a view to accelerate poverty eradication and the attainment of other economic and non-economic development goals, among them environment as cross-sectoral intervention area has a priority.
7. Moreover, the New Partnership for Africa's Development (NEPAD), an African Union strategic framework for pan-African socio-economic development, is both a vision and a policy framework for Africa in the twenty-first century. The environmentally sound management of chemicals including POPs is identified as a key issue under the environmental initiative in Chapter 38 of the NEPAD Plan of Action. Additionally, participating countries are represented in the Strategic Approach to International Management of Chemicals (SAICM), the policy framework created to promote the sound management of chemicals throughout their life-cycle and control the potential adverse impacts of chemicals on the environment and human health.
8. The GEF funded project implemented by UNIDO/UNEP on "*Capacity strengthening and technical assistance for the implementation of NIPs in African Least Developed Countries and Small Island States (LDC project)*" provided technical capacities and human resources that would be used in this project.

#### A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

9. The project is consistent with the focal area objective CHEM-1 of the GEF-5, which aims at phasing out and reducing POPs releases. Under Outcome 1.3 "POPs releases to the environment reduced" (Indicator 1.3.1 Amount of unintentionally produced POPs releases avoided or reduced from industrial and non-industrial sectors; measured in grams TEQ against baseline as recorded through the POPs tracking tool), following NIP priorities, the investments that address implementation of BAT/BEP for release reduction of unintentionally produced POPs from open-burning of waste, including burning of landfill sites, will be supported by the GEF.
10. The PCDD/PCDFs inventories reported in the NIPs of the participating countries of SADC region indicated the open burning sector as the most significant source of PCDD/PCDF releases, accountable for an estimated total of



2011.201 g-TEQ/a. This sector includes, among others, the commonly practiced biomass burning activities, such as agricultural residue burning, sugar cane burning, forest and grassland fires, etc., as well as uncontrolled burning/accidental fires including dumpsite fires and backyard waste burning. The reduction of uPOPs releases from these major sources requires coherent legislative, institutional and executive capacity of the government, significant investments and technical capacity from the private/public sector, and substantial international support.

### **A.3 The GEF Agency's comparative advantage:**

11. The mandate of UNIDO is to support developing countries and countries with economies in transition to achieve inclusive and sustainable industrial development (ISID) through its existing institutional networks such as national cleaner production centres (NCPCs), investment and technology promotion centres (ITPOs), field and local UNIDO desk offices and BAT/BEP Global Forums in ESEA, CEECCA, GCC and Africa.
12. UNIDO has gained an overall capacity through working on industry related technical assistance and capacity building projects. UNIDO provides technical assistance based on an environmentally sustainable industrial development approach that includes POPs pollution reduction and/or elimination, industrial process changes, cleaner production methods, substitute or modified materials and products, BAT and BEP and the environmentally sound management for minimization and disposal of POPs chemicals and wastes. UNIDO has also been developing and implementing projects dealing with e-waste management and mercury and has contributed to the efforts made in implementing sound management of chemicals and wastes through SAICM and other bilaterally financed projects.
13. UNIDO's priority areas within the POPs programme are based on the provision of Article 5 and 6 of the Stockholm Convention that are mainly focused on industrial sectors mentioned on Annex C of the Convention including Part III: Source categories - open burning of wastes/burning of landfill sites. The project falls within the comparative advantage of UNIDO as it focuses on the creation of resource efficient waste management systems to abate open burning practices. The organization has successfully implemented BAT/BEP projects focusing on the introduction of BAT/BEP in priority industrial source categories and is currently implementing a regional open burning project in East and South East Asia (ESEA) and a country project in Senegal. The proposed project will benefit on the lessons learned and experiences gained in implementing the above-mentioned projects.
14. UNIDO has implemented a large number of GEF financed National Implementation Plans (NIPs) and currently assisting more than 50 NIP review and update projects including those of Lesotho, Mozambique, Swaziland, Tanzania and Zambia. This provides an opportunity to have an in-depth assessment of the current POPs management challenges in the countries, including those in the open burning source categories.
15. UNIDO has established the regional Africa BAT/BEP Forum to support the countries in developing and formulating a regional action plan on BAT/BEP in order to implement the requirements of the Stockholm Convention. The Forum has been launched in September 2012 during the high-level African Ministerial Conference on Environment (AMCEN) held in Arusha, Tanzania whose objective is to create enabling, non-legally binding framework for regional cooperation to facilitate the development, diffusion and deployment and transfer of BAT/BEP through concrete and substantial initiatives. The Forum identified the open burning of wastes as its first priority sector that needs immediate attention. All the participating countries in this project are members of the Africa BAT/BEP Forum.
16. UNIDO is part of the expert group that has developed and continuously improves the BAT/BEP guidelines of the Stockholm Convention on POPs. This project will integrate both aspects of technology transfer and investment promotion in introducing BAT/BEP in the open burning source category.
17. UNIDO has recently embarked on the UN Secretary General initiative "Sustainable Energy for All", which is expected to achieve record increases in global access to energy, and at the same time double the levels of overall energy efficiency and the share of renewable energy. This important collaboration will also contribute to the reduction of uPOPs releases and ensure effective oversight and control of the linkages between releases of chemicals and climate change effects.

#### **A.4. The baseline project and the problem that it seeks to address:**

##### **BASELINE SCENARIO**

18. The implementation of integrated waste management practices in Africa is generally still at an infancy stage. Waste treatment facilities (such as properly managed incinerators or sanitary landfills) are very few, as well as the reuse/recycling practices. Municipal wastes and other types of wastes are usually dumped in open dumpsites and eliminated by open burning practices. Municipal waste in urban areas is mainly composed of food residues, packaging of goods and some hazardous wastes (such as batteries and electronic devices), whereas in sub-urban or rural areas the shares of those wastes decrease in favour of country/region specific agricultural wastes.
19. Hazardous wastes streams are commonly diverted to some uses other than final disposal, or mixed and disposed of with other waste streams. Contaminated ashes from burning processes (incinerators, cement kilns or industrial boilers) are often dispersed in open fields. Waste oils are usually burnt as fuel. Medical waste collection and management is usually carried out only in large healthcare facilities. In most of the small hospitals, especially in remote countryside and private clinics, the medical waste is not properly collected for special treatment and it ends in an uncontrolled disposal. This practice can result in breakage of mercury-containing devices (such as thermometers and blood pressure meters) causing the release of these global contaminants in the environment. Moreover, new types of wastes are emerging, such as electrical and electronic waste. The chlorinated precursors and catalytic metals (copper, iron, etc) from electrical, electronic and medical devices have been recognized as the main factors contributing to the formation and releases of uPOPs in open burning processes.
20. Several participating countries are promoting policies to increase the productivity of agricultural fields through investments in river waters management projects or land reclamation, though many environmental problems come from the adverse impacts of climate change. Given that, the project will result in an increased quantity of the agricultural wastes being treated or disposed in an environmentally sound manner, and introduce climate change adaptation considerations in this sector.
21. High level of exposure to uPOPs over time (as experienced by waste management workers and waste pickers) may lead to increased birth defects, dysfunctional immune and reproductive systems, greater susceptibility to diseases, and some types of cancer. Since open burning of mixed wastes and agriculture residue wastes is not properly addressed, uPOPs releases will increase with the expected overall increase of waste in the future. Therefore, in addition to the negative environmental impacts, this development poses a significant long-term threat to the health of local population.
22. Decision-makers in the region are aware of the need to set up waste management programmes and to upgrade open dumps to sanitary landfills. At the national and municipal levels, however, only few countries have taken steps to set up a regulatory framework and construct, operate and maintain sound waste management facilities. In several countries, the Environmental Protection Acts (EPA) deal with pesticides and PCB control and disposal, and the existing legislations in some countries include certain provisions to control waste disposal or prevent agricultural residues burning. Also, within the above mentioned initiatives and policies to increase the productivity of agricultural fields, some countries are in the process of setting up waste management regulations and restrictions in this sector. However, in most of the participating countries, the EPA do not address all aspects of uPOPs releases from open burning, and usually do not contain considerations about impacts of climate change on this sector of waste management.

##### **BASELINE PROJECT**

23. The participating countries, except Botswana, Madagascar and Zambia, are involved in the GEF/UNIDO/UNEP ongoing regional AFLDCs project "*Capacity strengthening and technical assistance for the implementation of the Stockholm Convention National Implementation Plans (NIPs) in Africa Least Developed Countries (LDCs) of the SADC region*". UNEP is currently developing a model legislation for chemicals regulatory system, and this document will be available for use and adaption to specific national requirements. UNIDO has been conducting training of trainers and workshops to identify and assess contaminated sites, municipal solid waste management as well as pilot demonstrations of BAT/BEP measures and capacity building in selected sectors such as textile and tanneries at the regional level. The Tshwane University of Technology (TUT), Pretoria, South Africa, supported by the regional LDCs project as reference laboratory in the SADC region, has conducted the 1<sup>st</sup> workshop on environmental research and pollution monitoring of environmental POPs in April 2015 where 8 experts from

SADC subregion were trained on sample preparation and chemical analysis of the environmental samples. TUT offers this workshop twice a year and will be extended to this project to strengthen capacity of national experts as well as existing laboratory facilities of the participating countries in implementing BAT/BEP. The Africa BAT/BEP Forum established under the LDC project has identified this project as its 1<sup>st</sup> priority to facilitate development, deployment and transfer of BAT/BEP through regional cooperation. The RISDP developed and updated by the SADC Secretariat will deepen integration of the participating countries in the region to attain sustainable socio-economic development through cooperation on trade, industry and energy, technology, transport and communication, agriculture and environment. In addition, the GIZ, Germany has conducted 2 workshops on contaminated legacy sites and contributed US\$100,000. Experiences gained through the above mentioned projects and activities, as well as the strengthened regulatory framework and enhanced technical and institutional capacities will be used and further extended by this project to ensure comprehensive coverage of all aspects of the uPOPs from open burning and achieve continuous and sustainable reduction of uPOPs releases.

24. The participating countries have different baseline projects, mainly depending on their specific financial, economic and socio-economic status. The PCDD/F estimated releases for each country, the ongoing activities and projects both at local and national levels are presented hereafter. These baselines have been considered in designing the specific activities of the project.
25. In **Botswana**, the results of inventory made during the NIP demonstrated that uncontrolled combustion processes are potentially one of the most significant sources of PCDD/F and releases are estimated at a total of 26.644 g-TEQ/a. Uncontrolled dumping sites and landfill fires play a significant role in the releases of uPOPs, followed by domestic waste burning. The category of biomass burning accounts for 29.877 g-TEQ/a, coming mainly from accidental forest fires and in a much lesser extent from burning of grassland. This data has been available, but the data on the amounts of harvest residues in agricultural fields are not available. These source categories contribute to approximately 90% of the estimated total PCDD/F releases. The NIP follows the national development process of the National, District and Urban Development Plans in addressing uPOPs reduction.
26. Botswana has enacted several laws including the Atmospheric Pollution Act, Public Health Act and Waste Management Act (WMA) of 1998 but regulations are general and do not contain the provisions on POPs chemicals. The WMA indirectly prohibits burning of waste by applying the “duty of care” responsibility, which renders persons found performing that act liable to punitive actions. There is no waste management implementation plan in Botswana. The Gaborone City Council (GCC) has closed the old and largest landfill in 1992 and another one in 2008. The landfill in the South East District was built without any Environmental Impact Assessment (EIA) study. A new advanced landfill was built in Kweneng district, located between Molepole and Gamodubu, about 30 km west of Gaborone. It has been built after several delays and it is a modernized landfill with advanced machinery, expected to be the largest in the country. As far as the healthcare waste management is concern, incinerators used for disposal of medical wastes are single chambered and not properly operated. There are no public or private entities to monitor uPOPs or perform uPOPs sampling. The National Environmental Laboratory was established in 2002 to facilitate proper and accurate monitoring of pollutants in air, but POPs such as PCDD/F (dioxins and furans) have not been monitored. The NIP has identified relevant NGOs in the field of environment and chemicals management that have the capacity to do the research and carry out public awareness campaigns on hazardous chemicals and waste management demonstration. No educational institution in Botswana has the topic of environmentally sound disposal operations as part of its curriculum.
27. The Government has made investments in the agricultural sector with a view to improve productivity, enhance rural incomes and diversify the economy, thus accelerating achievement of the Vision 2016 program. Among others, there will be investments in infrastructure, mainly for water conveyance from Chobe-Zambezi River to Zambezi Integrated Agro-Commercial Development site for irrigation and improvement of arable land. Consequently, this initiative will cause an increase of agricultural waste to be managed.
28. In **Lesotho**, the total PCDD/F releases estimated within the inventory made during the original NIP were 1,708.1g-TEQ/a, mainly caused by burning of waste at illegal and uncontrolled dumping sites. The releases from waste disposal or landfilling accounted for 1,124 g-TEQ/a and uncontrolled combustion for 347.91 g-TEQ/a.
29. Industrial solid waste is disposed together with domestic solid waste at dumpsites or burned at the industries in open fire places. All hospitals in the country have medium technology incinerators. However, all devices have been found either out of order or not functioning in a proper way, which leads to the burning of medical waste in an

incomplete combustion process. Lesotho does not have a legislation that deals specifically with the management of chemicals, especially the POPs. Air pollution regulations and guidelines do not exist in the country. The existing laws are fragmented and do not address POPs chemicals. However, the government is aware of these limitations, and is in the process of addressing them. The amendment of relevant legislation to ensure significant reduction of uPOPs releases and training of law enforcement officers to implement the laws are foreseen. Lesotho has prepared two plans for waste management namely Integrated Solid Waste Management Plan for the city of Maseru/Lesotho of 2008 and National Healthcare Waste Management Plan of 2005. There is only one medium size official dumpsite in the country. The waste is not treated, but simply buried and/or covered with soil and compacted on a daily basis. The NIP highlighted that a special attention was needed for the Ha-Tsosane (near the capital city Maseru) and Maputsoe dumpsites, which both receive all sorts of waste, including industrial wastes. The implementation of cleanup systems and proper waste management of stockpiles and wastes directly address the open burning issues. The promotion of recycling of plastics involving the private sector (Tlhoeko Sanitary Solutions (PTY) Ltd.) and setting up two (2) new sanitary landfills are among the actions foreseen for the future. Lesotho is currently implementing the NIP review and update project and data and information collected during the situation analysis of the NIP will be taken into account during the implementation of this project. No educational institution in Lesotho has the topic of environmentally sound disposal operations as part of its curriculum. There are no public or private entities to monitor uPOPs or perform uPOPs sampling.

30. In **Madagascar**, the inventory made in 2002 as part of the NIP indicated an estimated total of 334 g-TEQ/a PCDD/F, 252.4 g-TEQ/a caused by uncontrolled burning processes and 32 g-TEQ/a by disposal/landfill operations.
31. In the urban areas and in the six (6) provinces, the collection of municipal waste is undertaken by the municipalities with the support of NGOs and local businesses. The management of waste is identical across the provinces where municipal waste is collected and transported to the dumpsites by contracted private companies or NGOs, depending on the community funds available, and without any screening or special treatment. Household wastes are mixed with all kinds of wastes (electronic materials, plastics, hospital wastes, etc.). In Mahajanga and Fianarantsoa provinces, certain activities on recovery of waste exist, such as organic waste composting and recycling of plastic tiles and pavers with the support of local NGOs and local businesses. At the dumpsites in urban areas, the waste pickers collect useful wastes and burn the remaining ones. In sub-urban areas, household waste is burned near the residential areas or at remote locations. Madagascar does not have a legislation that deals directly with municipal waste, but it has environmental considerations, national policy of medical waste management, legislation on the management and control of industrial pollution policy and strategy on CDM promotion. Two research centres specialised on the environment exist in Madagascar. Analytical laboratories exist, but significant capacity building is necessary to enable the technicians to analyse PCDD/F.
32. In **Mozambique**, the national initiatives originated from the NIP. However, there are no guidelines on POPs wastes management and the enforcement of the existing legislation relevant to the management of POPs is weak. Some of the sources of PCDD/F such as releases from crematoria, fires at waste disposal sites and accidental fires in factories were not quantified due to missing baseline information. However, according to some report, 72.5 g-TEQ/a accounts for PCDD/F emissions from uncontrolled burning in dumpsites/landfills. There are dumpsites in each municipality of the 10 provinces, with the largest one placed in Hulene near Maputo. Medical wastes are generally incinerated in hospitals using small ovens. Private, bilateral and financial sector initiatives have resulted in a few projects in the country. One industrial waste landfill has been in operation in Maputo since 2006, accepting waste from aluminum industry. It has two cells with a capacity of 6 years per cell. It was built from the funds from DANIDA, DHV, MOZAL and Mozambique Government. It is currently managed by Interwaste Ltd. from the Republic of South Africa. The project activities will seek linkages to the Korean initiative on setting up new landfills in each province for the next 10 years where preliminary phase for the master plan has been prepared. Investments are foreseen in the cities of Beira-Dondo, Nampula, Nacala, Quelimane in the period 2013-2016. Feasibility studies for waste treatment facilities are also being prepared for the cities of Maputo and Matola. In Mozambique, the Ministry of Land, Environment and Rural Development (MITADER), formerly MICOA and AQUA have the capacity to monitor uPOPs and Inveron-service and Interwaste have the capacity to perform uPOPs sampling. In addition, the establishment of the MCCM as an inter-sectoral body to oversee the control of chemicals in the country is planned.
33. In **Swaziland**, as far as the national initiative is concerned, the estimated uncontrolled open burning process category accounted for some 107.715 g TEQ/a PCDD/F emissions out of the total releases of 117.2 g-TEQ/a, as



reported in the original NIP. The open burning processes include several activities, such as field sugar cane trash burning before harvesting, accidental plantation forest fires, wild grass and savannah fires, accidental fires in municipal landfills and domestic waste burning, with the latter accounting for some 86% of the total releases. The majority of the population rely on open burning for the reduction and management of their wastes. According to the NIP update inventory of May 2014, the uPOPs emissions of open burning processes are 11.67 g-TEQ/a out of the total releases of 74.44 g-TEQ/a.

34. The National Solid Waste Management Strategy (NSWMS) was developed in 2001 with the assistance of DANCED (Danish Cooperation for Environment and Development) and is being implemented. It encompasses waste management and planning, including recycling strategies, general and hazardous waste disposal strategies from all sources. There is a draft legislation that aims to introduce levies on the use of plastic bags and other plastic wrapping products in an attempt to prevent waste generation. The other act related to open burning is the Grass Fires Act, No. 44/ 1955 that prescribes a general prohibition of grass burning. Grass fires can only be lit and set upon the issuance of a permit by the Director of Agriculture. There are four properly constructed and licensed small and medium scale general waste landfills (Mbabane, Piggs Peak, Matsapha and Simunye) in the country, while other fourteen (14) are mainly improperly managed waste dumpsites, with only three (3) of them licensed. Usually the local authorities collect the waste, but some private companies can operate at their own premises as well. Some components of waste control have been introduced in a few peri-urban and rural areas, and the collection of waste is being undertaken. No NGO is involved in waste collection at the moment. There are seven municipalities in the country that have landfills (Mankayane, Nhlanguano, Hlatikulu, Lavumisa, Siteki, Ngwenya and Vuvulane). There are also six (6) waste control areas at Buhleni, Lomahasha, Mpaka, Siphofaneni, Kwaluseni and Lobamba. Existing biomass waste recycling activities in the country are currently taking place within the municipalities, driven mainly by economic forces and implemented primarily by the private sector. The biomass burning aim to strengthen the implementation of Rural Electrification project to reduce the use of firewood by rural poor communities and promote advanced harvesting method for green cane at Big Bend and Simunye. The University of Swaziland, in Mbabane Campus, has a module on waste management and environmental disposal initiatives within the Degree Programme on Environmental Management. However, the POPs related capacity is weak and the institution does not have research laboratory. There are no public or private entities to monitor uPOPs or perform uPOPs sampling in the country.
35. According to the NIP preliminary inventory in **Tanzania**, the uncontrolled burning represented 785.395 g- TEQ/a PCDD/F emissions out of the total of 946.60 g-TEQ/a of PCDD/PCDF estimated releases. Biomass burning covered mainly forest and grassland fires (166.33 g-TEQ/a and 244.96 g-TEQ/a respectively). No data was available for agricultural residue burning. The rest of releases were caused by domestic waste burning. It was assumed that the major portion of solid waste in rural areas was of organic origin and that it was used on farms or as animal feed. The remaining portion, containing inorganic waste materials, was not burned but buried. In urban areas, less than 30% of domestic waste is collected for final disposal at municipal disposal sites, while the rest is burned or buried at a household level. This subcategory accounts for some 172.11 g-TEQ/a. However, according to the NIP update inventory of January 2015, air emissions of fires at waste dumps are 10.14 gTEQ/a generated by 33,800 t/a wastes, while open burning of domestic waste generates 54.8 g-TEQ/a uPOPs from 1,352,000 t/a waste. The annual biomass burning of 1,301,315 tonnes generates 36.55 g-TEQ/a uPOPs.
36. Some programs in the waste management sector started in 1994, including training in cleaner production concept for industry workers, sustainable cities programs in five municipalities, solid waste collection in Dar Es Salaam City, and the establishment of water and waste water authorities in certain urban centers. Several tools have been introduced (i.e. the cost sharing method in waste management in Dar es Salaam), the researches on waste treatment and disposal technologies have been conducted, and community based environmental sanitation projects have been promoted. There is only one large sanitary landfill of approximately 65 hectares in Tanzania, but it is not working properly due to lack of funding. Waste collection and transport are undertaken by private sector, municipalities and NGOs. No specific waste management technologies are applied, with the exception of a few small incinerators in hospitals to treat medical wastes. Ilala and Kinondoni Municipalities are the biggest municipalities in the country and both are using Pugu Kinyamwezi dumpsite, which is an open dumpsite located about 29km from Dar es Salaam city center. Its capacity averages about 800-1000 tons of wastes from the two municipalities. Other collection points or methods are skip buckets. Biomass waste recycling is done informally at household and/or community levels through informal private sector. There are several institutions specialized in providing training

on waste management and environmentally sound disposal operations in Tanzania such as the College of Engineering and Technology (CoET) of the University of Dar es Salaam; ARDHI University, Dar es Salaam; Government Chemist Laboratory Agency (GCLA) that provides training on Management and Disposal of Chemical wastes to stakeholders and to inspectors of facilities for compliance; Sokoine University of Agriculture, Morogoro; and Nelson Mandela African Institute of Science and Technology, Arusha. Waste management and environmentally sound disposal operations are also part of their curriculum. There are no public or private laboratories that perform uPOPs sampling and analysis in Tanzania. The GCLA can be made capable of conducting such analysis through specific training on uPOPs. The GCLA already has the basic facilities for doing the analysis as the laboratories are equipped with modern devices such as GC-MS and HPLC. Furthermore, GCLA staff are experienced in doing the analysis of most environmental samples. Experience in analysing uPOPs is limited because monitoring of uPOPs has not been recently conducted. There is no private or financial sector initiative relevant to the project except the above-mentioned biomass waste recycling by informal private sector.

37. In **Zambia**, national initiatives emerged from the original NIP. According to the 2004 national inventory, the releases of PCDD/F were 483.1 g-TEQ/a and this was shared as follows: air 289.7 g-TEQ/a; residue 144.9 g-TEQ/a; land 48.4 g-TEQ/a. The largest source of these releases were uncontrolled combustion processes, (438.0 g TEQ/a) i.e. forest fires and open air burning, which emitted significant amounts to all release sectors. According to the NIP update inventory of March 2014, open air burning processes releases 12.71 g-TEQ/a uPOPs.
38. A number of legal instruments have been promulgated to regulate various aspects of the environmental management including the use of chemicals such as POPs. Specific activities are planned to reduce PCDD/PCDF releases from uncontrolled domestic waste burning by 75%, such as increasing domestic waste collection in peri-urban and rural districts (increasing number of waste collection trucks) and implementing the Zonal system in pilot districts to promote waste collection and segregation in municipal councils of major cities as well as increasing taxes on importers and producers. With the support from the Danish International Development Agency (DANIDA), the first engineered sanitary landfill with environmental protection mechanisms was built at the cost of about US\$ 2.8 million. It covers 24 hectares with five cells. The expected life is 20-25 years for the entire site. Some 200 tonnes of waste are received daily. The collection rate has improved from about 5-10% to 35-40% within three years. Only licensed and approved waste transporters and generators are permitted to operate. Other methods used for waste storage locations include temporal-skips such as primary collection into the skips and the Secondary collection from the skips to the landfill. In order to reduce PCDD/PCDF releases from agricultural residue burning and forest fires, the NIP foresees development and implementation of awareness raising campaigns for landfill managers as well as the introduction of financial initiatives and alternative income generation mechanisms for waste pickers. There are also biomass waste recycling practices, which include recycling of biomass in Solwezi and by Enviroserve in Livingstone. These waste recycling operations are dominated by private sector. The Ministry of Science, Technology and Vocational Training (MSTVT) has set up a bureau to review all technologies currently in use in the country with the objective of recommending BAT/BEP in the context of POPs management. The University of Zambia of Great East Campus- Department of Geography and Environmental Studies and Mulungushi University- Department of Environment offer training in waste management, and waste management and environmentally sound disposal operations are also part of the latter two universities' curriculum. Zambia is using the guidelines provided in the SC to monitor POPs including uPOPs. There are no public or private entities performing uPOPs sampling in the country.
39. Several initiatives mentioned above have been incepted, and most of the participating countries have made attempts to control the releases of chemicals. However, it is necessary to accelerate, broaden and further facilitate the implementation of these initiatives in order to ensure their sustainability. The identified gaps on relevant regulatory framework, institutional and human capacity to manage and treat uPOPs releases in an environmentally sound manner and lack of awareness on the effects of uPOPs releases on the environment in the participating countries should be addressed so that all aspects of uPOPs releases from open burning are covered in national and regional contexts. Special attention is required for awareness raising and law enforcement, and considerations on climate change adaptation in waste management sector should be introduced. Innovative business approaches in waste management should be developed and involvement of private entities and other financial sector in the implementation of the BAT/BEP interventions should be explored in the project for sustainability and replicability.

- A. 5. 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) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

## **THE GEF PROJECT**

40. The primary objective of the project is the continuous minimization of uPOPs releases in the open burning sector of participating countries of SADC region in a sustainable manner through the introduction of BAT and BEP measures at selected priority demonstration sites.
41. The incremental reasoning for the project implementation relies on the fact that the project complements initiatives in participating countries and substantially contributes to the achievements of global environmental objectives in the region. More precisely, given the overall very initial stage of integrated waste management in all participating countries and lack of awareness of the effects of uPOPs releases on the environment, the ongoing improvements in waste management sector show several gaps to avoid generation of uPOPs from open burning. The implementation of all components of the project will ensure a holistic and cost effective approach in developing waste management sector in the region, by introducing missing aspects of uPOPs topic and filling in the gaps. In addition to this reasoning, as a general rule, each government should provide guidance for the private and public sectors for inclusive and sustainable development, put in place the relevant regulatory framework and ensure sustainability of its implementation. However, given other priorities in participating countries, the governments need substantial external support to fulfill these task in the case of uPOPs reduction. The project targets institutional gaps and provides examples of BAT/BEP on selected demonstration sites. Addressing these two aspects will enable comprehensive assessments of costs and benefits of developing environmentally sound waste management options that take into account the uPOPs reduction, and eventually lead to the implementation and effective enforcement of legally binding agreements aligned with and integrated into the national development policies and regulatory frameworks.
42. With the GEF support, the participating countries will enhance their institutional capacity and the technical capability of public and private stakeholders, by reviewing and updating current regulations and policies and filling in the gaps. The best practice examples will be identified and used as references, and the BAT/BEPs will be designed to maximize the impacts in the local contexts and implemented on the selected local demonstration sites. The project will build on the opportunities provided by the existing regional and international conventions and/or agreements, and ensure all relevant stakeholders involvement in an inclusive and sustainable manner.
43. From the outset, the main project activity will be to collect comprehensive information on the current uPOPs inventories of the open burning practices. Special attention will be given to the existing major source categories, such as dumpsites, landfills, agricultural residue burning practices, taking as a reference the recently modified releases factors in the UNEP dioxins toolkit of January 2013. The proposed project will conduct the validation of the reported releases of uPOPs from open burning practices in each participating country. The GEF support will enable adequate technical assistance through local and international experts capable of collecting reliable on-site data and correctly evaluating the methodologies to be used. In order to sustain national capabilities, training of trainers in inventory validation will be carried out. National baseline inventories and the regional baseline inventory will be projected, and the regional action plan will be developed on the basis of these inventories. The implementation of the regional action plan developed in such way will ensure the achievements of long-term global environmental objectives.
44. The management and regulation of waste and biomass disposal are usually addressed by different ministries or public/private organizations entrusted with environment and agriculture sectors. The support of the project and the international assistance will encourage participating countries to develop and maintain their own national programmes to address uPOPs releases problem in open burning.
45. The participating countries lack the technical and institutional capacity, regulations and financial support to monitor the releases of uPOPs and other harmful contaminants arising from open burning practices. Several project activities will focus on strengthening monitoring capabilities of selected regional laboratories or scientific institutions through the introduction of standardized analytical procedures, data collection and reporting. Moreover, targeted training programmes will be carried out for laboratory technicians on the internationally used methods for uPOPs sampling and analysis, and updated instrumentation will be provided in order to progressively



enhance the internal skills. Technicians will be trained in each participating country in required analytical techniques. The monitoring and analytical capacity in SADC region will increase ensuring that uPOPs releases will be monitored not only in open burning activities but in other Annex C sectors of the SC as well. All the activities will be carried out in cooperation with similar ongoing international projects in order to maximize the results, use synergies and ensure cost-efficient use of international financial resources. There are Government laboratories in some participating countries to perform sampling and preparation of samples, however, the project will use TUT laboratory in Pretoria to perform the analysis.

46. The proposed project will be based on viable BAT/BEP with the main goal of establishing a solid basis for progressive phasing out of open burning practices, by setting up demonstrative programmes in some selected dumpsites, landfills (possibly with different waste streams) and sites where agricultural residues are disposed. At least two (2) demonstration program in each participating countries will be developed. The demonstration activities will be carried out at sites where the environmental, economic and social benefits can be maximized not only at the national, but at the regional level as well. Such holistic approach will further contribute to the efficient use of international financial resources.
47. More specifically, immediate measures to improve management of waste during disposal operations will be implemented at several selected major dumpsites. These will involve the integration of waste pickers living close to the selected dumpsites in the waste management process. They will focus on the reduction and, where possible, the complete segregation of the mixed and hazardous materials. The overall aim is to demonstrate that feasible and inexpensive measures can be implemented to reduce uPOPs releases and the releases of other harmful contaminants (particulate matter, polycyclic aromatic hydrocarbons, heavy metals and mercury) from these types of sources. Semiautomatic collecting/recycling systems will be implemented in major dumpsites in the participating countries for the separation of glass, tins and bulk metals and paper from the main stream of organic waste. Waste containing chlorine (such as PVC) and/or bromine waste oils known as precursors or catalysts for the formation of PCDD/PCDFs will also be addressed. The recycling of materials will offer opportunities to local public or private waste management companies to open new markets and sustain the process.
48. Concerning biomass waste burning, demonstration sites in the participating countries that are close to industrialized areas will be selected for the implementation of demonstrative collection programmes on alternative use of the seasonal agricultural waste streams (such as sugar cane, cotton, edible oil, animal wastes, etc.) as fuels for industrial boilers or as raw materials for compost based products. Climate change mitigation aspects of using waste for energy production will be emphasized.
49. Institutionalizing the informal sector by groupings into NGOs/CBOs will enable provision of dedicated trainings on recycling activities and health safety protection, introducing more efficient and innovative business practices and awareness raising on risks connected with the exposure and accident prevention. These activities will be carried out with the cooperation of local authorities and with the support of international organizations operating in the region.
50. As described in the baseline scenario, there are already landfills operating in some of the participating countries. However, in most cases the current waste management practices do not include all technological and economic measures required for the environmentally sound operations, usually due to the lack of expertise and funding. The long term measures on selected landfills will specifically address existing obstacles by providing necessary international support to introduce proper BAT/BEP measures and ensure their sustainable implementation after the project. The means of cooperation and innovative financial schemes for environmental interventions such as leverage, combined finance and importantly the alternative sources of financing the small and medium sized enterprises (SMEs) will be explored with selected municipalities as public-private partnership (PPP) projects. PPP models has been recognized as the most suitable way to introduce modern waste management practices including BAT/BEP measures in developing countries. In SADC region, there are very few examples of successful and sustainable PPPs. However, the project will support PPPs in biomass waste-to-energy and waste segregation as well as recycling pilot demonstration programmes. These regional examples would pave the way to similar pilots in each participating countries and thus create regional cooperation for dissemination and replication of these new technologies.
51. Options to set up waste separation and pretreatment plants before the final disposal in the landfill will be investigated at sites where other programmes are being implemented, in order to segregate and send for recycling

the composite waste of the municipality. Different types of composting plants will also be evaluated on the basis of similar activities carried out in the SADC region and following the current approaches in developed countries (i.e. the policies for progressive reduction of the biodegradable part of waste in the European Union before sending waste to landfill).

52. Selected municipalities will be involved in the waste collection and segregation programmes for local authorities. This will promote more rational and effective approach to waste disposal at the demonstration sites and enable local authorities to gain experience on using new systems. The separation of organic matter and all other recyclable wastes directly from households and public offices will be encouraged through proper awareness raising programmes for the public, education of the scholars, as well as through the introduction of technical and financial measures and regulations.
53. Monitoring programmes will be set up before and after the implementation of modifications at the selected facilities. They will provide comprehensive information on the changes in uPOPs releases and releases of other related contaminants, such as particulate matter, mercury and greenhouse gases in the main environmental media. The project will therefore deliver valuable data and contribute to the further enhancement of the UNEP Dioxin Toolkit.
54. Moreover, the project will facilitate efforts to develop quantifiable indicators for economic and social impacts, such as the cost-effectiveness ratios for pollutant reduction and the return rate on investment of BAT/BEP measures in different sub sectors of open burning. It will also increase knowledge and awareness of climate change risks by introducing climate change mitigation component in this sector of waste management. All participating countries are vulnerable to climate change, and these considerations are not present in this sector in most of them.
55. With the GEF project, the participating countries will undertake open burning related programmes within a coordinated regional cooperation and information sharing platform (BAT/BEP Forum). The lessons learnt from the local interventions will be available for other countries in the African region and abroad for replication, thus the global impacts of the project on the environment and human health will be maximized.

**Five (5) substantive Components/Outcomes** are anticipated to achieve the project objectives.

**Component/Outcome 1: Updated regional information on current open burning practices and establishment of uPOPs baseline inventories**

56. Outcome 1 is expected to provide a platform for updating information on current open burning practices at the regional level and establishing uPOPs baseline inventories at the national level. The participating countries will be supported to establish a national database information system that will be linked to a regional database information system established within the SADC region to enhance information sharing on waste management best practices and regional networking among the participating countries. National inventories on locations of open burning practices and uPOPs releases, which are identified by the participating countries in the original NIP and NIP update will be reviewed and validated to establish a uPOPs baseline inventories. A workshop to train the trainers in preparing inventories of uPOPs releases from open burning of wastes will be conducted at regional level for at least 14 national experts (2 experts from each participating country). The trained experts will then conduct the national workshop to sensitize relevant stakeholders (at least 20 participants in each participating country) on inventorying uPOPs releases from open burning practices.

***Output 1.1: National information on current locations of open burning practices validated and updated uPOPs inventories reviewed***

57. The main national institutions (Ministry of Environment) involved in the Stockholm Convention implementation in the participating countries have developed their NIPs and some of them are currently developing their NIP updates. The NIPs and update NIPs have identified current locations of open burning practices, which will be reviewed and validated by this project to identify sites such as dumpsites, landfills and other related hotspots for the environmentally sound waste management and BAT/BEP intervention. A regional workshop to train the trainers will be conducted and national workshops (one each in the participating countries) will be carried out to sensitize relevant stakeholders (at least 20 participants in each participating country) on the inventory process of uPOPs releases from open burning of waste.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 1.1.1:</i> Conduct a regional workshop in preparing inventories of uPOPs releases from open burning of wastes with participation of at least 2 national experts from each participating country	UNIDO, Government departments, Municipalities, BSRC- SADC, Academia, NGOs
<i>Activity 1.1.2:</i> Carry out national inventories identifying locations of dumpsites, landfills and other related hotspots, prioritize and validate open burning sites	Government departments, Municipalities, NCPCs and members of NPMU, NGOs
<i>Activity 1.1.3:</i> Carry out national sensitization seminars for at least 20 participants in each participating country and validation workshops to review NIP updates and make the data on inventory of uPOPs releases from open burning of wastes available	Government departments, Municipalities, NCPCs and members of NPMU, Academia, NGOs, Private Sector

***Output 1.2: Regional information on open burning practices and data on uPOPs releases exchanged and respective regional cooperation and networking consolidated***

58. National inventories of uPOPs on open burning releases will be reviewed and updated through the NIPs update exercise. A regional database information system will be established in SADC region to share know-how on alternatives to open burning practices and disseminate information on uPOPs releases from open burning of wastes. A national database in each participating country will be established and linked to the regional database and UNIDO website so that data/information on uPOPs releases from open burning sources can be shared and consolidated. Training of at least 2 national experts for each participating country will be carried out for the development and maintenance of the database.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 1.2.1:</i> Support creation of national database information systems in each of participating country that are accessible for all stakeholders including training of at least 2 national experts capable in developing and maintaining the database	UNIDO, Academia, NCPCs, BSRC-SADC
<i>Activity 1.2.2:</i> Conduct national workshops (one each in participating country) on using established national database on uPOPs releases from open burning practices	UNIDO, Government departments, Academia, NGOs
<i>Activity 1.2.3:</i> Create a regional database information system within the SADC region, linked to UNIDO website, to share and disseminate data/information on alternatives to open burning practices	UNIDO, Academia, BSRC- SADC

**Component/Outcome 2: Strengthened legislation and human resources capacity in implementing BAT/BEP at selected priority sites of open burning**

59. Outcome 2 is expected to support the participating countries to review existing laws and regulations, and provide additional regulatory provisions with the aim to reduce releases of uPOPs from open burning of waste as well as identifying business opportunities linkages benefiting from these laws and regulations. Under this outcome, support will be provided to participating countries to help them develop a national action plan for ESM and reduction of uPOPs releases from open burning of wastes and agricultural residues as well as supporting activities that aim on preventing irrational dumping and open burning of wastes. BAT/BEP guidance document for the reduction of uPOPs releases in dumpsites/landfills and other sources of open burning practices and agricultural residues that will include regional, local and traditional practices, environmental and socio-economic considerations and introduction of climate change adaptation will be developed and implemented in accordance with the national situations. Adequate technical infrastructure for implementing BAT/BEP and waste management practices will be built where provision of field sampling toolkits and other related sampling devices to measure uPOPs releases from open burning of wastes will be provided to an existing laboratory facility in each of the participating country. Furthermore, using the aforesaid BAT/BEP guidance documents, at least one (1) targeted training in each of the participating country for relevant stakeholders (giving special attention to gender for at least

10 participants) on BAT/BEP concepts, banning of irrational dumping of wastes, preventing open burning practices, promoting occupational health safety and hygienic measures at the landfill sites will be carried out.

**Output 2.1: Regulatory measures aimed at discouraging open burning practices of different waste streams and agricultural residues formulated or amended**

60. Regulatory measures aimed at discouraging open burning practices of different waste streams and agricultural residues foreseen by existing laws and regulations in all participating countries have been initiated and the process of developing and reviewing existing laws will be undertaken to render enforcement more practical. Given the baseline scenario that shows different countries are moving with different strategies and pace, the project will focus on filling in the gaps in regulatory frameworks and on enabling effective enforcement of laws and regulations related to uPOPs from open burning. In the participating countries such as Botswana, Madagascar and Zambia that were not included in previous GEF projects aimed at updating regulatory framework on uPOP, documents will be revisited. All relevant legislation and rules will also be reviewed on completeness and compliance with the international chemicals agreements, and updated to ensure comprehensive coverage of uPOPs from open burning practices. In other participating countries such as Lesotho, Mozambique, Swaziland and Tanzania where other GEF projects have established the Model Framework Law, the regulatory framework will only be reviewed on completeness. Additional regulatory provisions aimed at creating more business opportunities in the area of chemical wastes management will be included to specifically enhance private sector involvement.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 2.1.1:</i> Initiate the process for developing and reviewing existing laws and regulations, identify gaps, and provide additional regulatory provisions (with the involvement of relevant stakeholders) to reduce releases of uPOPs from open burning of waste	NPMU, Government departments, Municipalities, Academia, NGOs, Private Sector
<i>Activity 2.1.2:</i> Carry out national multistakeholder consultations with relevant stakeholders including the private sector involved in waste management to identify business opportunities linkages benefitting from enforcement of laws and regulations	NPMU, Government departments Municipalities, Academia, NGOs, Private sector

**Output 2.2: Country action plans for managing and phasing out the open burning of wastes and agricultural residues reviewed and strengthened**

61. One (1) targeted training in each of the participating country on BAT/BEP concepts will be conducted with the aim to strength the participating countries' capacities in managing and preventing open burning practices. Country action plans for ESM and phasing out open burning practices of wastes and agricultural residues will be reviewed and strengthened by assisting participating countries to further develop their national capacity on the management of open burning of waste, as well as by providing support to the activities aimed at preventing irrational dumping and open burning of waste.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 2.2.1:</i> Strengthen national capacity on the management of open burning of wastes through targeted training for at least ten (10) relevant stakeholders in each participating country (giving special attention to gender) on BAT/BEP concepts, banning of irrational dumping of wastes, preventing open burning practices, promoting occupational health safety and hygienic measures at the landfill sites	UNIDO, Government departments, BSRC- SADC, NCPCs, Academia, NGOs, Private Sector and the public



<i>Activity 2.2.2:</i> Formulate a national action plan for ESM and reduction of uPOPs releases from open burning of wastes and agricultural residues	NPMU, Government departments, Municipalities, Academia, NGOs, Private sector
<i>Activity 2.2.3:</i> Provide support for implementation of activities to prevent irrational dumping and open burning of wastes	UNIDO, Government departments, BSRC- SADC, NCPCs, Academia, NGOs, Private Sector

***Output 2.3: Regional BAT/BEP guidance for uPOPs reduction formulated for respective Ministry of Environment's adoption at country level for substantial reduction and/or collective elimination of wastes and agricultural residues in open burning practices***

62. Regional BAT/BEP guidance for uPOPs will be formulated for respective Ministry of Environment's adoption at country level to substantially reduce open burning practices of waste and agricultural residues. The BAT/BEP guidelines and provisional guidance documents will include regional, local and traditional practices and socio-economic considerations, and introduce climate change adaptation aspects. Manuals, procedures, and guidelines on applying BAT/BEP measures to eliminate and/or reduce open burning of waste and agricultural residues on a local level will be prepared. A regional training of trainers/workshop on BAT/BEP guidelines, guidance and procedures on how to reduce and/or eliminate open burning of wastes as well as alternative best practices will be conducted for at least 14 participants (2 each participating country). As a result of these activities, uPOPs releases from open burning will be significantly reduced in all participating countries.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 2.3.1:</i> Formulate and adopt BAT/BEP guidance document in the reduction of uPOPs releases from open burning practices of wastes and agricultural residues	UNIDO, SC Centres, NCPCs, Academia, NGOs, Private Sector,
<i>Activity 2.3.2:</i> Implement the BAT/BEP guidelines and provisional guidance document at regional and national levels taking into consideration the traditional practices and socio-economic conditions and introduce climate change adaptation aspects	UNIDO, SC Centres, NCPCs, Academia
<i>Activity 2.3.3:</i> Prepare manuals, procedures and guidelines using BAT/BEP measures on how to eliminate and/or reduce open burning of wastes and agricultural residues for local use in the participating countries	UNIDO, Academia, institutions responsible for the environment
<i>Activity 2.3.4:</i> Conduct a regional training workshop to train at least two (2) experts from each participating country on the prepared manuals, procedures, and guidelines on reduction and/or elimination of open burning of wastes and agricultural residues	UNIDO, SC Centres, NCPCs, Academia, BSRC-SADC

***Output 2.4: Adequate technical infrastructure for implementing BAT/BEP and waste management best practices built***

63. Adequate technical infrastructure for implementing BAT/BEP and waste management best practices will be built by assisting participating countries to improve the capacity of an existing laboratory in each participating country where field sampling toolkits and other related sampling devices to measure uPOPs releases from open burning of waste will be provided. There are Government laboratories in some participating countries to perform sampling and preparation of samples, however, the project will use TUT laboratory in Pretoria to perform the analysis. Participating countries will also receive assistance to train national experts (2 experts each participating country) in research institutions to carry out studies in the area of BEP transfer and adoption.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 2.4.1:</i> Strengthen capacity of existing national laboratory facilities to implement BAT/BEP and waste management best practices	UNIDO, SC Centres, NCPCs, Academia, TUT
<i>Activity 2.4.2:</i> Provide field sampling toolkits and other related sampling devices to measure uPOPs releases from open burning of wastes (liquid and residues)	UNIDO, TUT
<i>Activity 2.4.3:</i> Train at least two (2) national experts (each participating country) in research institutions to carry out studies in the area of transfer and adoption of BEP	UNIDO, SC Centres, NCPCs, Academia, TUT

**Component/Outcome 3: Implementation of BAT/BEP to reduce uPOPs releases in the open burning sector at national and regional levels**

64. Under this component, two (2) municipalities in each of the participating country will carry out pilot projects which focuses on implementing waste management best practices with economic incentives and PPP models in managing uPOPs releases from open burning of wastes with due consideration to climate change mitigation. Waste management plans introducing BAT/BEP measures will be developed and implemented by supporting two (2) demonstration pilots for segregation of collected waste materials of added value through provision of equipment such as conveyor belts, sorting, washing, compacting, etc. in identified existing waste recycling enterprises in selected participating countries. Two (2) demonstration pilots to promote alternative waste management plan such as biomass waste recycling and disposal options (waste-to-energy) will also be supported in selected participating countries by creating and contracting national Micro- or small enterprises (MSEs). The reduction of greenhouse gases (GHG) emissions (climate change mitigation aspect) in using biomass for energy production will be emphasized. New innovative financing mechanisms for environmental interventions are emerging such as leverage, combined finance and importantly the alternative sources of financing the Small-and Medium enterprises (SMEs). These innovative financing solutions are expected to play a significant role in mobilizing private sector participation in waste management and making BAT/BEP sustainable and replicable. A regional workshop with the participation of at least 14 experts (2 from each participating country) will be conducted to develop harmonized methodology for setting up regional uPOPs release reduction targets from open burning of wastes. A national survey will be conducted to evaluate and assess socio-economic impacts of the project intervention on private and informal sectors. Alternative waste management plans with recycling plans will be developed and private and informal sectors will be supported to promote recycling. Awareness raising campaigns will be conducted at national level to promote the role of private sector and informal sector.

***Output 3.1: Waste management best practices carried out at two (2) selected priority demonstration municipalities in each participating country***

65. One (1) regional workshop with at least two (2) participants each from participating country and one (1) national workshops with at least 20 participant each participating country on best practices in waste management in relation to open burning of waste will be carried out. Studies will be conducted at the national level to identify two municipalities in each country for carrying out pilot demonstration projects on managing uPOPs releases from open burning of waste. Selection process criteria for the pilot demonstration projects will be, but not limited to, the dedicated government landfill site, size of daily waste collected, existence of private contractors involved in municipal waste management, available waste recycling facilities and presence of a formal management structure.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 3.1.1:</i> Conduct a regional workshop on best practices in waste management in relation to open burning of wastes with at least two (2) participants from each participating country	UNIDO, SC Centres, NCPCs, Academia, POPs focal points, BSRC-SADC
<i>Activity 3.1.2:</i> Carry out national workshops with at least 20 participants each participating country on best practices in waste management in relation to open burning of wastes	UNIDO, NPMU, POPs Focal Point, NGOs, Institutions responsible for the environment, Academia, NCPCs

<i>Activity 3.1.3:</i> Identify two (2) municipalities in each participating country to carry out waste management best practices	UNIDO, MoE, Municipalities, NPMU, POPs Focal Point, NGOs, Academia, NCPCs
<i>Activity 3.1.4:</i> Implement waste management plans with economic incentives and PPP mechanisms (e.g creation and contracting of national Micro-and small enterprises) in municipalities where demonstration sites have been identified	UNIDO, SC Centres, NCPCs, Academia, NGOs, Private Sector

***Output 3.2: Waste management plans introducing BAT/BEP measures (segregation system) developed and implemented in two (2) selected major dumpsites and landfills in the participating countries using PPP models***

66. Waste management plans including the introduction of BAT/BEP measures will be developed and implemented in the selected major dumpsites and landfills in the participating countries using innovative financial mechanisms such as tax incentives, collection of fees and rewards from recycling. Private partners will, most probably, be the private waste collector and transport companies, existing recyclers, etc. Under this output, two (2) existing waste recycling enterprises in the participating countries will be selected to host the BAT/BEP demonstration pilots for segregation systems in collecting waste materials of added value with the provision of equipment such as conveyor belts, sorting, washing, compacting, etc.). The PPP model such as creation and contracting national Micro or small enterprises (MSEs) will be supported by the project. National awareness raising seminars (one each participating country with at least 10 participants) on the waste management plans will be conducted for private sector workers and employees, including SMEs. Climate change adaptation considerations will be introduced.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 3.2.1:</i> Prepare waste management plans introducing BAT/BEP measures using PPP models and implement them in selected dumpsites / landfills with due consideration to climate change adaptation	UNIDO, SC Centres, NCPCs, municipalities, Academia, Private Sector
<i>Activity 3.2.2:</i> Identify existing waste recycling enterprises in the participating countries and enhance their performance by supporting two (2) pilots of segregation systems for collecting waste materials of added value (conveyor belts, sorting, washing, compacting, etc.)	UNIDO, MoE, Municipalities, NPMU, NCPCs, Private Sector
<i>Activity 3.2.3:</i> Carry out national awareness raising seminars on the waste management plans to workers and employees of the private sector including SMEs with at least ten (10) participants	MoE, Municipalities, NPMU, NCPCs, Academia, NGOs, Private Sector

***Output 3.3: Biomass waste recycling and disposal options promoted in two (2) demonstration sites in selected participating countries through alternative waste management plans for better value addition***

67. Biomass waste recycling and disposal options will be promoted in two (2) demonstration sites in selected participating countries through alternative waste management plans for better value addition. Existing data will be reviewed and national inventories of existing biomass waste recycling and disposal options will be conducted. Support will be provided to PPP models aimed at the creation and contracting of national Micro- or Small Enterprises to develop alternative waste management plans and promote the use of biomass waste recycling (waste-to-energy). Field testing of biomass waste recycling and disposal options will be conducted through the assistance of research institutions. Climate change mitigation (GHG emissions reductions) aspect of using biomass for energy production (waste-to-energy) will be emphasized. During the implementation of the demonstration sites, participating countries will be encouraged to visit the biomass waste recycling and disposal sites to ensure sustainability and replication of waste-to-energy concepts. A training workshop will be conducted at regional level to "train the trainers" (at least 2 experts each participating country) on biomass waste recycling and disposal options. Trained experts will then conduct the training at national level for at least 10 participants each participating country.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 3.3.1:</i> Review existing data and conduct national inventory of	MoE, Municipalities, NPMU, Academia, NGOs, private



existing biomass waste recycling and disposal options	sector,
<i>Activity 3.3.2:</i> Support PPP models for creation and contracting of national Micro- or Small Enterprises to produce and promote the use of biomass waste recycling through alternative waste management plans	UNIDO, NPMU, POPs Focal Point, NGOs, private sector, Institutions responsible for the environment, Academia, NCPCs
<i>Activity 3.3.3:</i> Establish two (2) pilot demonstration projects on waste-to-energy (biogas, bricketing, etc.) using PPP models in selected participating countries	UNIDO, MoE, Municipalities, NPMU, NCPCs, private sector
<i>Activity 3.3.4.:</i> Facilitate field testing of biomass waste recycling and disposal options in selected areas in cooperation with research institutions	UNIDO, MoE, Municipalities, NPMU, POPs Focal Point, NGOs, Academia, NCPCs
<i>Activity 3.3.5:</i> Organize one (1) regional "train the trainers" workshop (at least 2 participants each participating country), one (1) national training for at least 10 participants in each participating country and initiate site visit to promote biomass waste recycling and disposal options and consultations with the relevant stakeholders to ensure replication and sustainability of waste-to-energy concepts	UNIDO, MoE, Municipalities, NPMU, NCPCs, Academia, NGOs, Private Sector, BSRC-SADC

***Output 3.4: Harmonized methodology developed to set-up uPOPs release reduction targets for open burning sector at regional level***

68. A regional workshop with the participation of at least 14 experts (2 experts from each participating country) will be conducted to develop harmonized methodology for setting up regional uPOPs release reduction targets from open burning of wastes. Regional uPOPs release reduction targets in open burning of waste will be developed. Monitoring of uPOPs releases from open burning of waste will be carried out. Replication of the methodology for setting up uPOPs release reduction targets will be promoted at the global level.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 3.4.1:</i> Conduct regional workshop for at least 14 experts (2 each participating country) to harmonize methodology for setting-up uPOPs release reduction targets from open burning of wastes	UNIDO, SC Centres, Academia, POPs focal point, BSRC-SADC
<i>Activity 3.4.2:</i> Develop uPOPs release reduction targets in open burning of wastes in the participating countries	UNIDO, SC Centres, Academia, TUT
<i>Activity 3.4.3:</i> Carry out monitoring of uPOPs releases from open burning of wastes	MoE, Municipalities, NPMU, NCPCs, Academia, NGOs,
<i>Activity 3.4.4:</i> Conduct series of global workshops (at least 5 during the project life) as part of the Global Annual Conference on Dioxins to promote replication of the methodology for setting up uPOPs release reduction targets	UNIDO, Dioxin Conference Secretariat, academia, BSRC-SADC

***Output 3.5: Socio-economic impacts of the project intervention on private and informal sectors including recycling business plans assessed***

69. Socio-economic impacts of the project on private and informal sectors will be assessed. The mechanism to engage informal sector will be based on competition, segregation of duties, supervision responsibility and recognition by government on best records of delivery to the society. If waste segregation and recycling become an industrial process, this new industrial activity will employ many waste pickers of informal sector and in such a way at least part of the informal sector will become formal. Alternative waste management plans with recycling plans will be developed, and private and informal sectors will be supported to promote recycling. A socio-economic survey to evaluate the impacts of the project intervention on private and informal sector will be conducted. Awareness raising campaigns and study tours to promote the role of private and informal sectors in waste recycling will be carried out. Environmental and socio-economic impacts on informal sectors will be assessed during and after the project intervention.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 3.5.1:</i> Support private and informal sectors to promote recycling through alternative waste management plans	UNIDO, SC Centres, MoEAcademia, Private Sector
<i>Activity 3.5.2:</i> Conduct socio-economic baseline and result surveys to evaluate the impacts of the project intervention on private and informal sectors in participating countries	UNIDO, SC Centres, NCPCs, MoE,Academia, Private Sector
<i>Activity 3.5.3:</i> Carry out awareness raising campaigns and study tours to promote the role of private and informal sectors in waste recycling	MoE, Municipalities, NPMU, NCPCs, Academia, NGOs, Private Sector, BSRC-SADC

**Outcome 4: Knowledge transfer on BAT/BEP for replication and awareness raising on uPOPs related risk and exposure in open burning sector**

70. This component will serve as a platform to raise awareness on uPOPs related risks and exposure in open burning of waste through knowledge transfer on BAT/BEP measures and establishing educational programmes for introducing lessons learned and alternatives to open burning practices. A series of regional training workshops and national awareness raising campaigns to all stakeholders on the health risks resulting from exposure to open burning will be carried out. Furthermore, alternatives to open burning of waste practices will be showcased targeting groups such as decision makers, professionals associations, women and youth group associations, community leaders, farmers, private industries, waste pickers, NGOs, media and the general public observing appropriate gender representations. The already established BAT/BEP Forum in the sub-region, as well as other forums, will also be used as a platform for information sharing amongst the participating countries on the use of BAT/BEP to reduce emission of uPOPs from open burning practices. A national BAT/BEP database and website in the SADC sub-region to share and disseminate data/information collected from alternatives to open burning practices will be created and linked to UNIDO website. Also, a financial mechanism to mobilize funds in the participating countries to support and implement best alternatives to open burning practices will be developed.

***Output 4.1: Targeted training and awareness campaigns emphasizing health and environmental risk and exposure hazards of open burning practices for all relevant target groups observing appropriate gender representations (decision makers, professional associations, women/youth group associations, community leaders, farmers, women's groups, private industries, waste pickers, NGOs, media and the public at large) carried out***

71. Health and environmental risk and exposure hazards of open burning practices for all relevant target groups observing appropriate gender representation (decision makers, professional associations, women/youth group associations, community leaders, farmers, private industries, waste-pickers, NGOs, media and the general public) will be emphasized and supported by the proejct through one (1) targeted training and awareness campaigns. Through the participating country's co-financing contribution, several awareness raising campaigns can be conducted at national level. A regional training workshop for at least 14 national experts (2 each participating country) from the relevant institutions about the potential risks and exposure hazards to humans, wildlife and the environment emanating from open burning practices will be conducted. Furthermore, targeted sensitization seminars will be carried out to educate workers and waste-pickers at major dumpsites and landfills about the health risks associated with collection, transport and segregation of waste and measures that have to be taken while handling waste.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 4.1.1:</i> Organize a regional training workshop for at least 14 experts (2 each participating country) from relevant institutions about the potential risks and exposure hazards to humans, wildlife and the environment emanating from open burning practices	UNIDO, SC and Basel Centres, NCPCs, Academia, POPs focal point, BSRC-SADC
<i>Activity 4.1.2:</i> Organize awareness raising campaigns at national level (one each participating country) for major stakeholders, including decision makers, professional associations, women/youth group associations, community leaders, farmers, private industries, waste pickers, NGOs,	UNIDO, POPs Focal Point, NGOs, SC and Basel Centers, NCPCs, MoE, MoH

media and the general public, on the health risk that may result from the exposure to open burning practices	
<i>Activity 4.1.3:</i> Organize at least one (1) seminar in each participating country to educate workers (men/women) and waste-pickers at major dumpsites and landfills on the health risks associated with collection, transport and segregation of waste and measures that have to be taken while handling wastes	MoE, MoH, Municipalities, NPMU, NCPCs, Academia, NGOs, Private Sector, BSRC-SADC

***Output 4.2: Educational programmes for introduction of lessons learned and alternatives to open burning practices established at all levels in each participating country***

72. Seminars, workshops and media campaigns will be conducted at national level to educate (men/women) decision makers, experts, workers and the public at large about lessons learned from the NCPCs, SC, Basel and Rotterdam centres concerning alternatives to open burning of waste practices. Furthermore, educational programmes on environmentally sound management (ESM) practices as alternatives to open burning practices will be integrated into the curricula of educational institutions. These curricula will be regularly updated using the knowledge, experience and lessons learned from the aforementioned institutions and other relevant institutions in the alternatives to open burning practices.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 4.2.1:</i> Conduct seminars, workshops and media campaigns at national level for decision makers, experts, workers and the public on alternatives to open burning of waste practices	UNIDO, SC, Basel and Rotterdam centres, NCPCs, Academia, MoE, MoH, NPMU, NGOs
<i>Activity 4.2.2:</i> Integrate ESM practices and lessons learned from NCPCs, SC, Basel and Rotterdam Centres on alternatives to open burning of waste practices into the educational curricula	UNIDO, POPs Focal Point, MoE, MoH, MoEdu, NGOs, SC, Basel and Rotterdam centres
<i>Activity 4.2.3:</i> Use knowledge, experience, scholarships and lessons learned to disseminate BAT/BEP	MoE, MoH, MoEdu, Municipalities, SC, Basel and Rotterdam centres, NCPCs, Academia, NGOs, Private Sector

***Output 4.3: Regional cooperation on BAT/BEP and uPOPs and information sharing established through the BAT/BEP Forum***

73. A regional database and website for SADC region linked to UNIDO website will be created to share and disseminate data/information collected from alternatives to open burning practices. Regional workshop for sharing experience and information on BAT/BEP to minimize uPOPs releases from open burning will also be conducted. If the demonstration programmes would show financial viability, it would motivate private investors to enter into waste management business.

<b>Activities</b>	<b>Responsibility</b>
<i>Activity 4.3.1:</i> Create regional BAT/BEP database and website in the SADC region linked to UNIDO website to share and disseminate data/information collected from alternatives to open burning practices	UNIDO, SC centers, NCPCs, Academia
<i>Activity 4.3.2:</i> Conduct a regional and global workshop for sharing experiences and information on BAT/BEP to minimize uPOPs releases from open burning practices in collaboration with BAT/BEP Forums, Ecotown- Kitakyushu and RENPAP	UNIDO, SC centers, NCPCs, Academia, POPs focal points, BSRC-SADC
<i>Activity 4.3.3:</i> Develop mechanism such as the SADC Secretariat strategy to mobilize funds in the participating countries to support and implement	UNIDO, NCPCs, SC Centers, institution

best alternatives to open burning practices	responsible for environment, Private Sector
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**Component/Outcome 5: Design and implementation of Monitoring and Evaluation (M&E) framework in accordance with UNIDO and GEF requirements**

**Output 5.1: Project intervention monitored and project progress evaluated**

74. Monitoring and evaluation framework will be designed and implemented in accordance with UNIDO and GEF requirements. The following milestones will be established and/or met: (i) Regional Project Steering Committee (RPSC) and National Project Steering Committee (NPSC); (ii) Organize and hold stakeholder consultation workshop; (iii) Introduce monitoring and impact indicators; (iv) Carry out annual project financial audits, and prepare Annual Project Implementation Reports (PIRs); (v) Hold semi-annual/annual Regional Project Steering Committee meetings; (vi) Carry out mid-term review; (vii) Carry out terminal evaluation; (viii) Prepare Terminal report; and (ix) Establish a project data management system (PDMS) linked to national and regional databases.

Activities	Responsibility
Activity 5.1.1: Organize and hold stakeholder consultation workshop	UNIDO, and SADC governments
Activity 5.1.2: Introduce monitoring and impact indicators	UNIDO, Sub-contractor
Activity 5.1.3: Carry out annual project financial audits, prepare Annual Project Implementation Reports	UNIDO, consultants
Activity 5.1.4: Hold annual Regional Project Steering Committee meetings	UNIDO, GEF, SADC countries
Activity 5.1.5: Carry out mid-term review	UNIDO, consultants
Activity 5.1.6: Carry out terminal evaluation	UNIDO, consultants
Activity 5.1.7: Prepare Terminal report	UNIDO, consultants
Activity 5.1.8: Establish a project data management system (PDMS)	UNIDO, consultants

64. The summary of incremental cost matrix is given in Table 1 below. Detailed project budget is given in Annex C.

**Table 1: Summary of Incremental Cost Matrix in US\$**

Outcome	Baseline	Increment	Alternative
<b>Outcome 1:</b> Updated regional information on current open burning practices and establishing uPOPs baseline inventories	787,000	196,000	983,000
<b>Outcome 2:</b> Strengthened legislation and human resources capacity in implementing BAT/BEP at selected priority sites of open burning	2,163,000	528,000	2,691,000
<b>Outcome 3:</b> Implementation of BAT/BEP to reduce uPOPs emissions in the open burning sector at national and regional levels	23,346,500	4,966,000	28,312,500
<b>Outcome 4:</b> Knowledge transfer on BAT/BEP and awareness raising on uPOPs related risks and exposure in open burning sector	1,007,500	379,000	1,386,500
<b>Outcome 5:</b> Design and implementation of M&E framework in accordance with UNIDO and GEF requirements	236,000	216,000	452,000

Project Management Cost	821,000	330,000	1,151,000
<b>TOTAL</b>	<b>28,361,000</b>	<b>6,615,000</b>	<b>34,976,000</b>

### Innovativeness and potential for scaling up

75. In line with the GEF-5 objectives related to POPs, the project will promote innovative waste management processes and techniques to prevent POPs formation due to open burning of different categories of wastes, such as agricultural residues, municipal, hazardous and medical wastes. It will demonstrate that the waste is not waste but has commercial value that would, if properly managed, sustain newly developed industrial activities. It will also strengthen regulatory measures, institutional capacities and technical capabilities in this part of waste management sector in all participating countries, simplify and foster replication of environmentally sound practices throughout the region. Effort will be made on collection of fees and rewards from recycling to ensure sustainability of the pilots and PPP models. If the value of waste is appreciated, the waste would consciously be collected and segregated having a scaling up effect, which is the strategy of the project. In addition, scaling up would be done through publication of these success stories as well as promotion of the business models for attracting domestic and foreign investments.
76. The Regional BAT/BEP Forum for Africa will be used to accumulate and disseminate knowledge and experience gained through the implementation of the project in the region. The Forum will ensure the continuation of efforts to reduce/eliminate releases of uPOPs including PCDD/PCDF by maintaining and further developing guidelines on different aspects of BAT and BEP in open burning. It will identify best practices in enforcement of relevant laws and regulations and support their replications in the region. An important development component of the Forum's functions is also to facilitate transfer of environmentally sound technologies by building capacity in the region, and to foster cooperation among regions in Africa.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

77. Some particular risks that maybe encountered in the implementation of the project as well as the risk mitigation measures are given in Table 2 below:

**Table 2: Risks and risk mitigation measures**

<b>Risks</b>	<b>Level</b>	<b>Risk Mitigation Measures</b>
<b>Outcome 1: Updated regional information on current open burning practices and establishing uPOPs baseline inventories</b>		
1. The surveys and the updated uPOPs inventories will not be conclusive as national staff appointed to the surveys and inventory update might not be sufficiently skilled in uPOPs evaluation.	Low	Information collection will address some of the representative regions/provinces and the data will be extrapolated for the whole country. National staff will be trained in proper inventory methodologies by international experts who will be recruited for conducting field surveys and review of inventories.
<b>Outcome 2: Strengthened legislation and human resources capacity in implementing BAT/BEP at selected priority sites of open burning practices</b>		
2. Laws and regulations are partially developed in some countries. Relevant stakeholders and technicians not sufficiently trained in BAT/BEP and uPOPs monitoring and not all participating countries have the required resources to maintain uPOPs laboratory up to the standards.	Low	Special attention and support will be given to national authorities to ensure enforceability and a full coverage of the partially developed regulatory frameworks. This will be done by institutional capacity building and conducting targeted trainings to law enforcement authorities. National technical and laboratory staff will be trained



		<p>on technical aspects of BAT/BEP in open burning sector and the specific methodologies for uPOPs monitoring. The network of laboratories in the SADC region will be enabled to deal with specific requirements of uPOPs analyses. Funding for equipment purchases and supporting institutions will be mobilised.</p> <p>Eventhough it is not expected that all laws and regulations be amended in all participating countries, targeted awareness campaigns and seminars on best practices to manage releases of uPOPs from open burning of waste, will be undertaken focusing on law enforcement personnel and other relevant multistakeholders.</p>
<b>Outcome 3: Implementation of BAT/BEP to reduce uPOPs releases in the open burning sector at national and regional levels</b>		
3. BAT/BEP implementation programs in small dumpsites may not be feasible and cost-efficient; BAT/BEP measures in large landfills will not achieve the assumed positive results, thus will not be cost-effective within the project life-time.	Medium	Upon reviewing the baseline, demonstration sites will be selected and alternative simplified technology adoption programs will be identified. To address costs and time constrains, the project will focus on the existing hot-spot landfills to demonstrate cost-effective BAT/BEP implementation and technology transfers. The BAT/BEP will be developed and implemented using financial models that mobilize private sector participation to ensure cost effectiveness and continuation of new practices after the project life-time.
4. Higher cost of waste management measures may cause stakeholders to abandon the project activities; release reduction targets will not be confirmed and adopted in the national context.	Low	Incentive and regulatory programmes, and direct technical and financial assistance will be included in the project to reduce or eliminate these risks. Adequate mechanisms for mobilizing private sector will be identified, developed and implemented. The release reduction targets will be aligned with the on-going national programs in order to set realistic and achievable targets in each participating country.
<b>Outcome 4: Knowledge transfer on BAT/BEP replication and awareness raising on uPOPs related risks and exposure in open burning sector</b>		
5. Due to low participation and interest of stakeholders and general public the project will not be able to create the critical mass of human resources to support BAT/BEP.	Low	Dedicated workshops will address broader issues than uPOPs, such as waste management and related agricultural activities. BAT/BEP concerning open burning will be integrated in higher level education. Experiences from BAT/BEP Forums of other regions will also be used.
6. Effects of climate change will influence	Medium	National Communications to the UNFCCC

<p>project implementation and minimize the results; GHG emissions from existing open burning activities and BAT/BEPs will not be considered; risks and changes in behavioral patterns arising from climate change (extreme weather events, changes in open burning practices and disaster management, etc.) will disable implementation of project components.</p>		<p>and other relevant assessments of vulnerability of all participating countries to the effects of climate change will be considered. All project components will introduce adaptation aspects in waste management sector of participating countries on the basis of their specific climate change related situation. Given the infancy stage of waste management in all participating countries, open burning activities and improperly managed landfills are significant contributors to greenhouse gas releases including carbon dioxide and monoxide (from improper waste burning) and methane and nitrogen oxides (due to anaerobic digestion of waste). Introducing BAT/BEP at the disposal sites will mitigate GHG emissions compared to the baseline situation. GHG emissions from new practices and BAT/BEP will be estimated and the reductions emphasized. Climate change adaptation aspects will be assessed for each demonstration site and strongly considered when identifying, developing and implementing BAT/BEP. If necessary and appropriate, international climate change expert will be involved to estimate mitigation/adaptation effects and requirements of specific project components and activities in detail.</p>
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#### A.7. Coordination with other relevant GEF financed initiatives

78. The participating countries are members of the SADC region and participate at the programmes to address pollution control and environment protection and facilitate the introduction of new technologies. UNIDO field offices network as well as National Cleaner Production Centres (NCPCs), Stockholm Convention and Basel Convention Centres will be part of the coordination effort.
79. The participating countries are members of the Regional BAT/BEP Forum in Africa, launched in September 2012. This forum uses experiences of similar regional organizations worldwide (ESEA, CEECCA and GCC). This project is the first priority sector of the Regional Action Plan adopted in Addis Ababa, Ethiopia in January 2012 and will closely cooperate with other existing BAT/BEP Forums and initiatives in other sectors.
80. The project will benefit from the results of the GEF-funded UNIDO project “*Regional project to develop appropriate strategies for identifying sites contaminated by chemicals listed in Annexes A, B and/or C of the Stockholm Convention*”, especially in collecting data for contaminated sites, dumpsites and landfill in the region and will use the UNIDO toolkit methodologies for data collection. Lessons learnt from the GEF supported UNDP/WHO/HCWV global project on “*Demonstrating and promoting best techniques and practices for reducing healthcare waste to avoid environmental releases of dioxins and mercury*” will also be beneficial for the project. The project will also exchange experiences during project implementation with the uPOPs related activities of the GEF/UNDP project on “*uPOPs Reduction and Mainstreaming of Sound Chemicals Management in Kenya*”.
81. The project will seek linkages with other POPs related ongoing regional projects in Africa and Asia, such as the UNIDO/UNEP projects “*Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the COMESA,*



ECOWAS and SADC regions” and the GEF supported UNIDO regional project on “*Demonstration of BAT and BEP in open burning activities in response to the Stockholm Convention on POPs*” as well as the GEF/UNDP project on “*Reducing uPOPs and mercury from the health sector of Africa*”, the newly approved GEF funded project on “*Investment Promotion on Environmentally Sound Management of Electrical and Electronic waste: Up-scale and Promotion of activities and initiatives on environmentally sound management of electrical and electronic waste in Ethiopia*” and the GEF-funded UNIDO projects on “*National Implementation Plan (NIP) review and update*” that are already approved for most of the participating countries. It will coordinate with these ongoing projects in the region, use synergies and share experiences with them. Importantly, the project complements some of these initiatives and will build upon the results of some of them - the main objective is to ensure that all aspects and issues connected with the uPOPs releases from open burning will be addressed in each participating country and that this topic is covered in the SADC region in an adequate way.

82. To ensure proper monitoring of the project, the UNEP projects “*Supporting the Implementation of the Global Monitoring Plan of POPs in Eastern and Southern African Countries*” and “*Continuing Regional Support for the POPs Global Monitoring Plan under the Stockholm Convention*”, the activities of the Global Atmospheric Passive Sampling (GAPS) Network and of MONET-Africa-RECETOX Program will be considered. Special attention will be given to avoiding overlappings and maximizing benefits of measures aimed at strengthening regional laboratories.
83. The proposed project will explore linkages with ongoing initiatives of international agencies such as UNHABITAT and others in the SADC region on proper collection and management of wastes to ensure coherence and minimize duplication of work. It will also build linkages with the national and regional on-going plans to set up new landfills, with new waste management programmes and with projects and initiatives that address management of agricultural residues, as described in the baseline scenario.

## **B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

B.1 Describe how the stakeholders will be engaged in project implementation.

84. **UNIDO** is the implementing agency that will primarily provide the support base for technical component of the project. UNIDO will monitor and oversee the overall project implementation through an assigned Project Officer (PO), assisted by a support staff and supervised by a senior professional staff engaged in the management and coordination of UNIDO's Stockholm Convention programme. A project assistant will be recruited to assist the UNIDO PO on the administrative requirements of the project. The project implementation structure is given in Figure 1 below.
85. The Ministry of Environment, Wildlife and Tourism (Botswana), Ministry of Tourism, Environment and Culture (Lesotho), Ministry of Environment and Forests (Madagascar), Ministry for Coordination of Environmental Affairs (Mozambique), Swaziland Environment Authority (Swaziland), Vice President's Office-Division of Environment (Tanzania) and Zambia Environmental Management Agency (Zambia) are the main national counterparts for the project implementation. Further, agencies and institutions in each participating countries will be identified to support project execution at national level. UNIDO will enter into contractual agreements with the above-mentioned national counterparts or their subsidiary departments to support the delivery of some project activities at national level such as Outputs 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 4.1 and 4.2. UNIDO will also enter into contractual agreements with the Basel and Stockholm Regional Centre for SADC region (BSRC-Africa Institute) based in Pretoria, South Africa for some project activities at regional level including arrangements of regional meetings and workshops, developing regional database as well as regular monitoring and analysis of performance of the project. Other contractual arrangements on the agreed BAT/BEP interventions in the pilot demonstration sites will be arranged depending on the requirements of the project.
86. **Regional Project Steering Committee (RPSC)** will consist of representatives from participating countries' MoEF, MoH, MoA, UNIDO, Regional Coordinator (RC), National Project Director (NPD), National Project Coordinators (NPCs), SADC Secretariat, BSRC-Africa Institute, Africa BAT/BEP Forum and others. The RPSC will provide guidance and support to the project as well as to the National Project Management Unit. Every project amendments will be done in accordance with the approved Project Document and the GEF policy (GEF C.39/04). RPSC will meet twice a year during the first three years and once a year thereafter to report on the progress of the project and provide necessary inputs. RPSC will consider networking with other agencies, including state

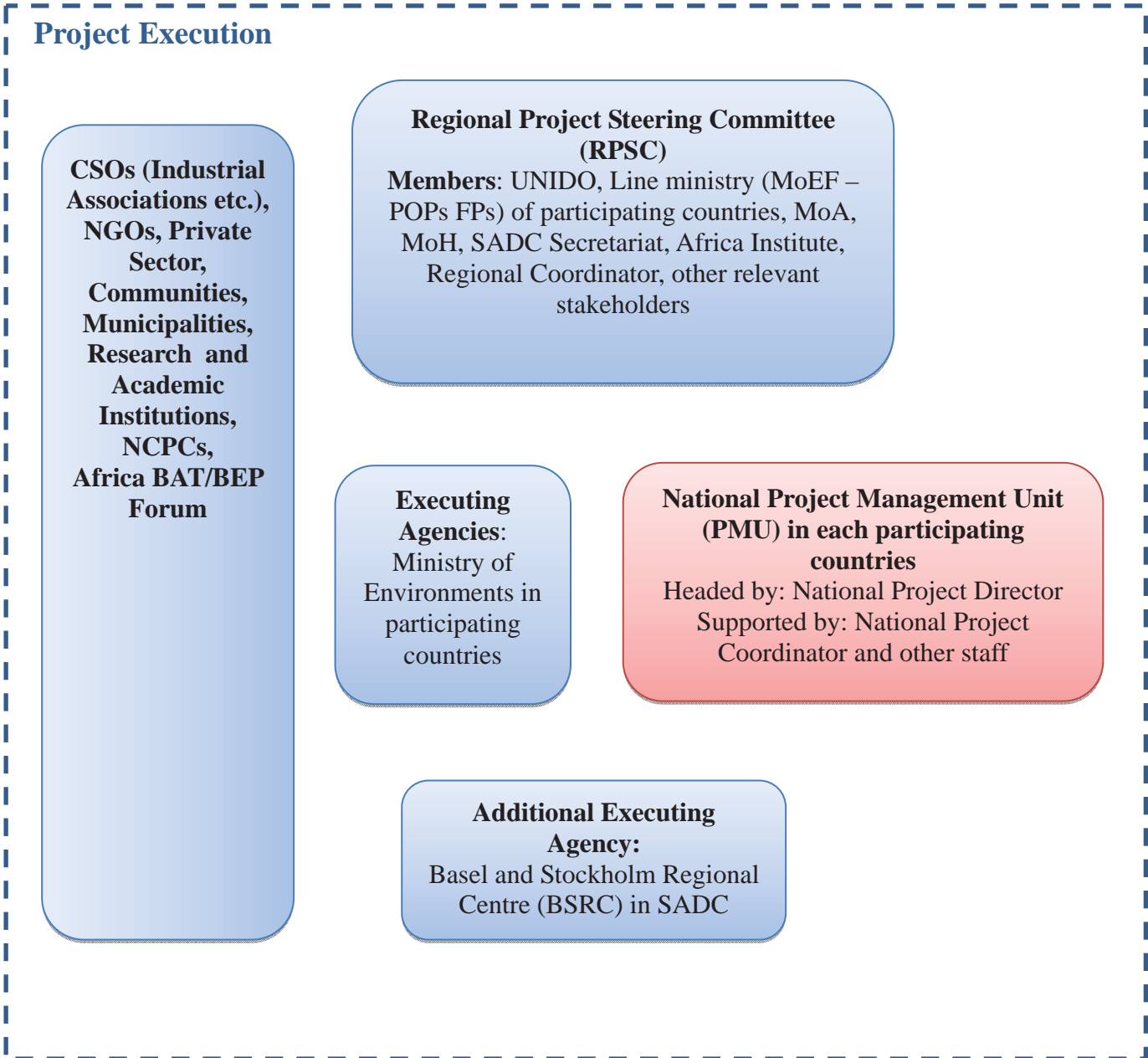
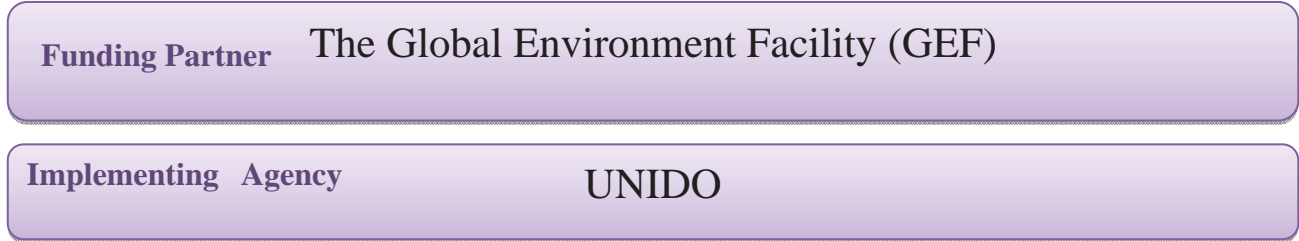
authorities, national and international NGOs and private sector institutions and foster advocacy work.

87. As part of the national level agreements, a **National Project Management Unit (NPMU)** will be established within the main national counterparts/Ministries in the participating countries. NPMU will be headed by the **National Project Director (NPD)** to be appointed by the Government as government co-sharing to the project. The NPD will ensure political and institutional support for the project and be responsible for the supervision of the NPMU as well as for planning and monitoring of the project implementation progress based on the project's annual work plan and its indicators. NPMU will also establish its **National Project Steering Committee (NPSC)** to monitor the project progress at national level. The NPD will be supported by the **National Project Coordinator (NPC)** who will be recruited on a part-time basis. The NPC will be responsible for coordinating the day-to-day implementation of project activities at national level and will prepare national project workplan based on the agreed regional workplan and contribute to the UNIDO and GEF reporting requirements. The NPMU, through the NPD will inform the Regional Coordinator and UNIDO of any delays or difficulties faced during project implementation, so that all appropriate corrective measures can be adopted in a timely and remedial manner.
88. A **Regional Coordinator (RC)** will be recruited by the project under the supervision of UNIDO. The role of the RC includes but not limited to assisting the supervision of the overall project implementation; coordination of timely inputs of different stakeholders, provision of technical assistance supporting the NPCs of the participating countries as required by the annual workplans; assist in organization of regional workshops/project meetings/study tours ensuring the highest coverage by participating countries; prepare annual workplans and ensure that proceedings and reportorial requirement to UNIDO and the GEF including relevant progress reports and annual Project Implementation Reports (PIRs) are delivered in a timely manner. The RC will also ensure that the project database information system is continuously updated with relevant information and accomplishments of the project.
89. Relevant ministerial agencies and other key stakeholders that will be involved in each country are given below:
- In **Botswana**, the key stakeholders include: Ministry of Environment, Wildlife & Tourism, Department of Waste Management & Pollution Control; Ministry of Local Government, Environmental Health; Ministry of Health; Ministry of Trade and Industry; Ministry of Minerals Energy and Water resources; Botswana Chamber of Mines; Botswana Confederation of Commerce Industry and Manpower (BOCCIM).
  - In **Lesotho**, the Ministry of Local Government-District Councils; Maseru Municipal Council; Water & Sewerage Company; Ministry of Tourism, Environment & Culture – Department of Environment; Ministry of Health – Environmental Health Division (Healthcare waste); Lesotho National Development Corporation (Industrial waste); Lefielo Cleaning Service; Tlhoeko Environmental Consulting Services; Environmental Culture Lesotho; Lesotho Council of Non-Governmental Organisations; Lesotho Consumers Organisation will support project implementation in the country.
  - In **Madagascar**, stakeholders in the management of municipal waste are: Ministries of Environment, Health, Urban Municipality, Research centres, laboratories, territory, NGOs, businesses that works with municipalities and other civil society entities.
  - Key relevant stakeholders in **Mozambique** include: MITADER, the municipalities, relevant NGOs and other civil society entities.
  - In **Swaziland**, Ministries and other governmental agencies such as the Ministry of Health, Ministry of Tourism and Environmental Affairs, Ministry of Agriculture, Ministry of Housing and Urban Development, Ministry of Tinkhudla Administration and Development, Ministry of Labour and Social Security. NGOs: Coordination Assembly for Non-Governmental Organizations; Associations: Consumer Association, SHERQ Forum & Sugar Associations; Private sector: Royal Swaziland Sugar Association, Illovo, Swaziland Electricity Company are the key official stakeholders.
  - Tanzania's** key relevant stakeholders include: Ministries and government agencies: Vice President's Office-Division of Environment (VPO-DoE); National Environment Management Council (NEMC); Cleaner Production Centre of Tanzania (CPCT); Ministry of Industry and Trade (MIT); Ministry of Agriculture, Food Security and Cooperatives (MAFC); Ministry of Health and Social Welfare; Government Chemist Laboratory Agency (GCLA); Prime Minister's Office- Regional Administration and Local Government Authorities (PMO-RALG); Occupational Safety and Health Authority (OSHA); Tropical Pesticides Research Institute (TPRI); Dar es Salaam City Council. NGOs and private sector: AGENDA for Environment and Responsible Development

(AGENDA); Environment, Human Rights Care and Gender Organization (ENVIROCARE); Tanzania Association of Public Occupational Health and Environmental Experts (TAPOHE).

- g) **Zambia** will have the following key stakeholders: Zambia Environmental Management Agency; Ministry of Health; Ministry of Local Government and Housing; University of Zambia; Ministry of Commerce Trade and Industry; Ministry of Lands, Natural resources and Environmental Protection (Department of Environment and Forest Department); Ministry of Finance-Climate Change Secretariat; Zambia Competition and Consumer Protection Commission; Road Safety and Transport Agency; Ministry of Agriculture and Livestock; Ministry of Transport and Communication (Department of Civil Aviation) and The Nature Conservancy.
90. Farmers, cooperatives and NGOs involved in agricultural activities (such as sugar cane harvesting) will receive assistance in implementing advanced waste to energy recovery (such as the use of biomass for compost production or as fuel), and/or alternative solutions.
  91. Women's association groups and others engaged in the healthcare of children will be involved in the activities of waste recycling and in the training of waste pickers to reduce the exposure to harmful contaminants and improve the quality of working and living conditions.
  92. Waste pickers at dumpsites, as well as other informal actors, significantly contribute to solid waste management, by recycling materials that would otherwise need to be handled through the formal sector. They also make a positive contribution to resource management through the recovery of valuable materials from the waste stream.
  93. The project will seek partnerships with private sector to invest in BAT/BEP and sound waste management plans. Terms of cooperation will be promoted at national and international companies already involved in similar activities.
  94. Relevant government institutions, departments and laboratories will be involved in trainings and awareness raising activities in order to develop human resources in the region necessary for carrying out the project activities. The capacity building programmes will contain activities directed at addressing awareness raising and stakeholders' participation already at the early stage. This will help identify other concerned stakeholders representing the private sector, academia, workers and public interest groups that should be invited to participate in the implementation of the project. The responsibilities of other stakeholders will be delineated on a case by case basis. In this regard, BAT/BEP related measures will be integrated into educational curricula to enhance local knowledge and awareness on BAT/BEP.

**FIGURE 1: PROJECT ORGANOGRAM**



- B.2 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):
95. The project's most significant contribution to the achievement of global environmental benefits is the reduction of uPOPs releases. The project targets to decrease uPOPs releases of the open and uncontrolled burning by 17% annually or 341.9 gTEQ/a. However, in dealing with open burning, the project addresses several sections of waste management in the participating countries. The project's components cover regulatory/legal framework and policy development, knowledge transfer and awareness raising as well as pilot demonstrations at selected sites to promote integrated waste management. Such approach enables delivery of additional benefits, and ensures broad and sustainable impacts on local, national and regional levels. Given the large scale of the project and cooperation with various stakeholders, and in particular with the private sector, the implementation of the project will deliver significant socioeconomic and global environmental benefits, and support inclusive and sustainable industrial development (ISID) efforts in the participating countries. The socio-economic and environmental benefits including climate change mitigation co-benefits are given in Annex G.

### **Global environmental benefits**

#### ***Climate Change Mitigation***

96. The project will introduce best waste management practices, both by promoting them at the regional level and by implementing them at selected sites. Improved practices at demonstration sites will emphasize mitigation effects and contribute to streamlining future developments of waste management sector into the low-carbon development path, supporting long-term reduction of GHG emissions on local, national and regional levels. The implementation of waste-to-energy demonstration plants at selected municipalities will generate measurable GHG emission reductions and encourage implementation of similar measures on other sites; the outcomes of *Monitoring and evaluation* will deliver data to assess Climate Change mitigation effects of BAT/BEP in open burning and enable their utilization in the SADC region.

#### ***Climate Change Adaptation***

97. Risks connected with climate change and requirements to adapt waste management sector to the expected effects have not been adequately addressed in most of the participating countries. Given that all participating countries are highly exposed to the effects of climate change, the implementation of the project will significantly contribute to the adaptation and disaster management efforts in participating countries, by raising awareness and delivering effective and immediate results. All project components will consider the expected effects of climate change, especially the selection of BAT/BEP. National Communications to the UNFCCC and other relevant sources will be consulted to identify, develop and implement most adequate adaptation measures. There is also a very limited capacity for specific climate change adaptation requirements in waste management (particularly in open burning) in the region; the knowledge gained through the project will be replicable, hence valuable for adaptation and disaster management initiatives in the whole SADC region.

#### ***Environmental Benefits***

98. Implementation of the project will discourage highly damaging open burning practices and promote the implementation of BAT/BEP practices on a long term. Overall diverting waste streams from burning and promoting reduction, recycling and reuse of articles that will be achieved through the project will reduce the emissions of PAHs, particulate matter, Mercury, NO<sub>x</sub>, SO<sub>x</sub>, and diminish releases of dust, fly ash and odors, hence significantly contribute to the improvement of air quality on local and national levels. By discouraging open burning practices, the project will also reduce soil contamination. Through the promotion of components of improved and integrated waste management systems on dumpsites and landfills the project will also contribute to preventing soil erosion and support producing/using compost.

#### ***Socioeconomic Benefits***

99. The implementation of the project will create short and mid-term jobs within all project components. The outcomes of the project will generate new long-term jobs in waste management, government, education and environment NGOs. The project has a potential to create new businesses, and help mobilize investments with



significant employment opportunities. Long term disease prevention and reduction of accidents are major socio-economic benefits of the project. Current research indicates that the practice of open burning is a more serious threat to public health than previously thought. There is enough evidence that high level of human exposure to open burning over the long term, such as those experienced by waste management workers and waste pickers, may contribute to increasing birth defects, fertility problems, greater susceptibility to disease, reduced intelligence and some types of cancers. Collection of adequate data will enable monitoring and evaluation of health and safety impacts of the project, and provide valuable database knowledge for dealing with open burning in the SADC region. The project will deliver major benefits in education and knowledge dissemination, capacity and awareness, particularly for women and youth as they are constituting a high segment of scavengers. The implementation of project components will build the capacity of all relevant stakeholders (observing appropriate gender representation) in the participating countries in various topics connected with open burning and waste management, notably including technical knowledge and expertise. The selection of demonstration programmes and sites will be made with the objective of maximizing the educational/capacity building impacts. Finally, the implementation of the project will improve occupational environment of workers and create a cleaner environment for those who live close to open burning places. These activities will be conducted having in mind gender equity and country-specific socio-demographic circumstances to ensure women's empowerment and the improvement of wealth distribution.

### ***Gender dimension***

100. Gender and Development (GAD) considerations will be made an integral part of the project strategy in consideration of the Gender policies of the GEF, UNIDO as well as those of the Governments of the participating countries. Gender is a critical component in the area of sound management of chemicals because men and women have different health reactions when they are exposed to toxic chemicals. The health implications arising from even low levels of POPs and hazardous chemicals for society in general is serious. As a group, POPs are of concern to human health, most notably, because of their potential effects on the endocrine system, but also because of how they affect the immune system, liver, cognitive ability and the reproductive system. Genetic and other biological differences may contribute to differing susceptibility to chemicals between men and women. Susceptibility may be increased or it maybe reduced due to gender. Therefore, patterns of cancer among women exposed to certain chemicals may well differ from pattern observed among men. Gender considerations in POPs management plays a critical role because of the transfer of POPs chemicals from child bearing mothers to unborn children, making this group as well as women intending to have children a particular risk group.
101. Although waste pickers/scavengers and recycling communities have distinctive characteristics, women and children predominate in the lowest levels of waste gathering, that is, those that depend on the least valuable wastes whose retrieval demands the greatest amount of simple labor for the lowest cash returns. Thus, on dumpsites that receive largely organic and inert rubbish in SADC region, one finds women and children, except in rare cases men join them. Waste pickers and informal waste recycling communities working on dumpsites/landfill have negative effect on their health due to unhygienic conditions and nature of their work that exposes them to various infectious diseases and toxic substances that may cause illnesses. The abundance of fleas and offensive odors in waste disposal sites, along with lack of proper protective devices, make working conditions even more unhygienic. In addition, they face social abuse from certain elements of society, which may lead to social problem. However, many people in SADC countries depend on recycling material from waste for their livelihoods.
102. The implementation of the project in each participating country will be conducted having in mind the global and the specific national and local gender dimensions following the principles of the Guidelines on Gender Mainstreaming for Environment Management Projects developed by UNIDO. The project will generate educational, training and employment opportunities for women and the youth, and respecting gender rights in education and employment will be observed. Participation of women and the youth at all activities will be encouraged, and monitored. The project also foresees human resource development at governmental institutions and environmental NGOs. These initiatives are open for all genders, however, the project will encourage the participation of women. In general, given the gender issues in the region, the project implementation will significantly improve long-term gender equality in education and employment, notably at the professional and higher-skilled jobs levels, and contribute to women empowerment.

103. In addition, mandatory UNIDO gender markers will be applied and the project shall be rated for gender relevance. Gender marking entails inclusion in project reporting of the following data by year 2 and completion including: (i) total number of full-time project staff that are men/women; (ii) number of jobs created by the project that are held by men/women; and (iii) number of gender sensitive publications produced.

### *Sustainability*

104. The project will ensure collection of adequate data to enable continuous monitoring of the implementation and the achievements of environmental and socioeconomic impacts. Such data will also be useful for the post-implementation evaluation purposes. Relevant stakeholders and civil society will be included in knowledge and data sharing, and thoroughly informed about the project's results. Communities will be included in the decision making process to an adequate and reasonable extent to ensure project ownership. The valuable data and knowledge gained through the project will be managed and shared to ensure replicability of the project's outcomes, as well as to enhance regional and global impacts of the project. Often, the major difficulty in ensuring sustainability of improved waste management practices in the region is lack of funding; usually once the donor funding is exhausted, all improved practices will also finish. The project will invest more efforts in developing and testing innovative PPP business approaches and improving existing business practices to ensure their self-sustainability.

### *Supporting Inclusive and Sustainable Industrial Development (ISID) in participating countries:*

105. Although participating countries have different baseline situations, waste management systems in all participating countries are at the infancy stage. Current open burning practices have severe negative impacts on health, and health protection has usually the highest priority when dealing with waste management in the region. Hence, the most important effects of the Project for inclusive and sustainable industrial development (ISID) of the participating countries will be in the categories of Air, Health & Safety and Education, followed by Welfare, Energy and Climate Change. Participating countries/municipalities have different development contexts, financial, economic and socio-economic status, as well as the capacities to improve their situation. However, gender equality, poverty, education and energy are among inclusive and sustainable industrial development (ISID) priorities in all of them.

#### B.3. Explain how cost-effectiveness is reflected in the project design:

106. By addressing broad issues of uPOPs releases in the open burning sector, the project complements other waste management development projects in the region, and contributes to the achievement of global environmental objectives. Such approach enables synergies and cooperation with ongoing activities in the region and ensure cost-effective and holistic implementation of the GEF strategy for chemicals. The project aims at providing an innovative 3-pronged approach to continuously minimize the uPOPs releases from open burning at landfills/dumpsites and from burning of agricultural residues by (i) introducing BEP in two (2) selected landfills / dumpsites in each participating country; (ii) setting up two (2) pilot demonstration segregation systems (including conveyor belt, sorting, washing, compactin, etc.); and (iii) setting up two (2) pilot demonstration projects on waste-to-energy (biogas, bricketing, etc.). The pilot demonstrations will be set up in close cooperation with the private sector through mutually accepted PPP models.
107. As far as project interventions are concerned, the UNEP Toolkit (that is the official PCDD/PCDFs release estimation method for the Stockholm Convention) lists the emission factors for estimating PCDD/PCDFs releases according to different source categories. The main source category No 6 is related both to biomass (category 6a) and waste burning (category 6b). These emission factors take into account waste burning activities in both developed and developing countries. The last update of the Toolkit (January 2013) proposed updated values that specifically addressed the releases of PCDD/PCDFs from open burning activities. Some new and lower emission factors have been introduced for biomass burning and the emission factors for municipal waste burning (at landfills or backyard) have been generally reduced.
108. Additionally, PCDD/PCDFs related to landfills are also addressed in the UNEP Toolkit main source category 9, Disposal/landfill. In this case emission factors consider the PCDD/PCDF releases to landfill leachate and residues. These releases are due to PCDD/PCDF already present in the wastes that are considered as a reservoir source of uPOPs. The UNEP Toolkit recommends emission factors depending on the type of waste (hazardous,



mixed, domestic).

109. Taking into consideration that the project will use the above described UNEP Toolkit methodology, the project targets to decrease uPOPs emissions of the open and uncontrolled burning by 17% annually or 341.9 g-TEQ/annum that would ease the global environmental burden. A cost analysis table showing the estimated revenues from potential recyclables collected at dumpsites/landfills is given below:

**Table 3: Estimated revenue from potential recyclables collected at dumpsites/landfills**

Country	Volume of waste dumped (t/a)	Uncontrolled burned waste at dumpsites (t/a)	PCDDs/PCDFs releases in air (g-TEQ/a)	Volume of recycled waste (t/a)	Estimated value (USD)	During project life about 10% could be commercialized (USD in million)
Botswana	90,000	27,000	9.00	36,000	28,800,000	2.88
Lesotho	86,900	26,070	8.69*	34,760	27,808,000	2.78
Madagascar	169,200	50,773	16.92	67,680	54,144,000	5.41
Mozambique	120,500	36.15	12.05	48,200	38,560,000	3.86
Swaziland	105,028	7,998	11.67	42,011	33,608,000	3.36
Tanzania	111,266	33,380	10.14	44,506	35,604,800	3.56
Zambia	103,766	31,130	12.71	41,506	33,204,800	3.32

\*Estimated from household burning of waste

110. The cost analysis table used the most recent data from NIP update of Swaziland, Tanzania and Zambia using the UNEP Toolkit of 2013. For Botswana, Lesotho and Madagascar the original NIP data were used while the data of Mozambique has been reported by a government official. The prices of secondary materials were taken from Eurostat 2014 at a rate of US\$800/t. For practical reasons, as many of other publications, it was assumed that 30% of the dumped waste was burned and 40% was recycled. It should be noted that the volumes of uncontrolled burning of waste at dumpsites were significantly lower in the NIP update surveys than the same in the original NIP inventories due to the updated values in the UNEP toolkit of January 2013. At the same time it is also worthwhile to mention that the volumes of biomass burning and the open burning of domestic waste are about 40 to 50 times higher than those of waste burning at dumpsites. It is also clearly shown that commercialization of only 10% of potential recyclables collected at the dumpsites would result in good revenues.

111. At this stage it is not possible to estimate the costs of interventions and the possible earnings coming from selling the recyclables and from the waste-to-energy pilots. However, the project will be able to report on it at a later stage of its implementation.

### **C. DESCRIBE THE BUDGETED M & E PLAN:**

112. Project monitoring and evaluation (M&E) are conducted in accordance with established UNIDO and GEF procedures. The M&E activities are defined by Project Component 5 and the concrete activities for M&E that are specified in the strategic results framework (which details the means of verification), and the annual work plans. M&E will make use of the GEF tracking tools, which will be submitted to the GEF Secretariat three times during the duration of the project: at CEO endorsement, at mid-term review and at project closure.

113. UNIDO as the Implementing Agency will involve the GEF Operational Focal Point and project stakeholders at all stages of the project monitoring and evaluation activities in order to ensure the use of the evaluation results for further planning and implementation.

114. According to the M&E policy of the GEF and UNIDO, follow-up studies like Country portfolio evaluations and thematic evaluations can be initiated and conducted. All project partners and contractors are obliged to (i) make

available studies, provide reports or other documentation related to the project and (II) facilitate interviews with staff involved in the project activities. This section of the project document presents a concrete and fully budgeted M&E plan of the project. The types of M&E activities, responsible parties, the budget requirements and timeframe to implement these activities are indicated in table 6 below.

**Table 4: Monitoring and Evaluation**

M&E activity categories	Feeds into	Timeframe	GEF Budget USD	Co-financing USD	Responsible parties
Measurement GEF Tracking Tool specific indicators	Mid-term Review and Terminal Evaluation Reports	At project mid-term and completion	21,000	14,000	M&E consultant provide feedback to project executing partner / PMUs
Monitoring of project impact indicators (as per logframe)	Project management; semi annual progress report; annual GEF PIR	semi-annually	75,000	125,000	RC and M&E consultant provide feedback to project executing partner; PMU submit inputs for consolidation and approval by RPSC; RPSC submits final reports to UNIDO PM
Periodic Progress Reports	Project management; Annual GEF PIR	semi-annually	65,000	91,000	RC and technical experts submit progress reports to RPSC for approval; RPSC submits final reports to UNIDO PM
Mid-term review	Project management	at project mid-term	25,000	3,000	UNIDO PM or independent evaluator
Independent Terminal Evaluation	Terminal Evaluation Review (TER) conducted by UNIDO EVA and/or GEF IEO	Project completion (at least one month prior to the end of the project and no later than six months after project completion)	30,000	3,000	Independent evaluator for submission to UNIDO PM
<b>Total indicative costs</b>			<b>216,000</b>	<b>236,000</b>	

***Monitoring and reporting responsibilities***

115. A detailed schedule of project review meetings will be developed by the project management team in consultation with the project implementation partners and stakeholder representatives and incorporated in the first project

stakeholder's consultation report. The schedule will include (i) tentative timeframes for RPSC; and (ii) project related M&E activities.

116. Day to day monitoring of the national project implementation will be the responsibility of the NPCs of the participating countries who will report to RC and UNIDOPO on a regular basis. The NPCs will prepare the Annual Workplan and its indicators in coordination with UNIDOPO and RC. The NPCs will inform UNIDO and RC of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be taken in a timely and remedial fashion.
117. UNIDO PO and the RC will fine-tune the progress and performance/impact indicators for the project in consultation with the project experts team (PET) at the 1<sup>st</sup> project stakeholder workshop. Specific targets for the first year implementation progress indicators together with their means of verification will be developed in this workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. Targets and indicators for subsequent years will be reviewed annually as part of the internal review and planning processes undertaken by the project management.
118. UNIDO, through RPSC meetings or exchanges with project counterparts, or as frequently as deemed necessary, but not less than semi-annually, will undertake periodic monitoring of the project implementation progress. RPSC meetings will take place at least semi-annually during the first three (3) years and once a year thereafter. The first such meeting will be held within twelve (12) months of the start of the project. This will allow parties to troubleshoot any problems pertaining to the project timely, to ensure the smooth implementation of project activities.
119. Measurement of impact indicators related to global benefits will be done according to the schedules defined in the 1<sup>st</sup> stakeholder workshop. The measurement of these will be undertaken through subcontracts with relevant institutions, or through specific studies that are to form part of the projects activities. Indicators of project goal, progress and performance will be continuously monitored and evaluated throughout the whole project life. Impact indicators to be measured include but not limited to:
  - Number of institutions adopting BEP and/or cleaner production measures
  - Number of facilities adopting BAT/BEP
  - Quantitative and qualitative change in the process management targeted to the decrease of uPOPs releases
  - Quantitative reduction of uPOPs releases
  - Level of the stakeholder awareness of and participation in adopting BAT/BEP
  - Status of PCDD/PCDF inventories
  - Social and economic benefits from adoption of BAT/BEP
120. UNIDO will conduct periodic visits based on agreed schedules, to be detailed in the 1<sup>st</sup> project stakeholder's Report /Annual Work Plan to assess project progress. Other members of the PSC may also accompany these visits. A Field Visit Report will be prepared by UNIDO and will be circulated to the project team and the Steering Committee members one month after the visit.
121. A Project Data Management System (PDMS) will be established to support the Project Manager and the project management team to ensure that all project activities will be completed on time, in quality and within budget. The PDMS will include a database containing (in electronic format or scanned PDF) all the project technical and administrative documentations. The PDMS will keep baseline records of annual work plans and contracts with consultants and subcontracts with performance indicators, result reports, responsibilities and budgets, allowing easy comparison of them with the progress of activities. The RC and NPCs will be responsible in updating and uploading the relevant documentation in the PDMS.

### ***Project Inception phase***

122. A Project stakeholder workshop will be conducted with the full project team, relevant government counterparts, co-financiers, UNIDO and other partners, as appropriate.

123. The objective of this stakeholder workshop will be to assist the project team in understanding and assimilating the goals and objectives of the project, as well as to finalize the preparation of the project's first annual work plan on the basis of the project's logical framework matrix. This work will include reviewing the logical framework (indicators, means of verification, assumptions), imparting additional detail as needed, and completing an Annual Work Plan (AWP) for the first year of project implementation, including measurable performance indicators.
124. Additionally, the stakeholder workshop will: (i) introduce project staff to the UNIDO team, which will support the project during its implementation; (ii) delineate the roles, support services, and complementary responsibilities of UNIDO staff vis-à-vis the project team; (iii) provide a detailed overview of UNIDO reporting and M&E requirements, with particular emphasis on Annual Project Implementation Reports (PIRs), RPSC meetings, as well as mid-term review and terminal evaluations. Equally, the stakeholder workshop will provide an opportunity to inform the project team on UNIDO project related budgetary planning, budget reviews and mandatory budget rephrasing and administrative issues.
125. The stakeholder workshop will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines and conflict resolution mechanisms. The Terms of Reference (TOR) for project staff and decision-making structures will be discussed, as needed, in order to clarify each party's responsibilities during the project's implementation phase.

### ***Project Monitoring Reporting***

126. The RC in conjunction with UNIDO will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and are specifically related to monitoring.

(a) 1<sup>st</sup> Project Stakeholder's Report

127. A Project Inception Report (IR) will be prepared immediately following the stakeholder consultation workshop. It will include a detailed First Year AWP divided into quarterly timeframes, which detail the activities and progress indicators that will guide the implementation during the first year phase of the project. The Work Plan will include the dates of specific field visits, support missions from UNIDO and/or UNIDO consultants, as well as timeframes for meetings of the project's decision-making structures. The report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the AWP, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 month timeframe.

128. When finalized, the report will be circulated to project counterparts, who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, UNIDO will review the document.

(b) Annual Project Report

129. The Annual Project Report (APR) is a UNIDO requirement and part of UNIDO internal oversight, monitoring, and project management. It is a self-assessment report by project management to UNIDO, as well as a key input to the RPSC. The APR will be prepared on an annual basis prior to the RPSC to reflect the progress achieved in meeting the project's AWP and assess performance of the project in contributing to the intended outcomes through outputs and partnership work.

130. The format of the APR is flexible but should include the following:

- Analysis of project performance over the reporting period, including outputs produced and information on the status of the outcome;
- Constraints experienced in the progress towards results and the reasons for these;
- Expenditure reports;
- Lessons learned; and
- Recommendations to address key problems in lack of progress, if applicable.

(c) Project Implementation Report

131. The Project Implementation Report (PIR) is an annual monitoring process mandated by the GEF. It is an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project will be under implementation for a year, the project team shall complete the PIR. The PIR is prepared observing the GEF cycle (July-June). The PIR includes the following: (a) analysis of the achievement of project objectives; (b) analysis of project performance over the reporting period, including outputs produced and information on the status of the outcome; (c) management of risks; (d) co-financing accounting (resources provided both as in kind or cash contribution). Expenditure reports, lessons learned and recommendations to address key problems, if applicable, are reported. Likewise, part of the PIR is the reporting/updating of the co-financing committed and the UNIDO Stockholm Convention Unit indicators.

(d) Periodic Thematic Reports

132. As and when called for by UNIDO, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNIDO and will clearly state the issue or activities that need to be reported on. These reports will be used as a form of lessons learned exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered.

(e) Project Terminal Report

133. During the last three months of the project, the RC will prepare the Project Terminal Report (PTR). This comprehensive report will summarize all activities, achievements and outputs of the project, lessons learned, objectives met (or not met), and structures and systems implemented. The PTR will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's activities.

134. The UNIDO PO and RC will develop criteria for participatory monitoring of the project activities. Appropriate participatory mechanism and methodology for performance monitoring and evaluation will be established at the very outset of the project. M&E activities will be based on the Logical Framework Matrix. The overall M&E format for the project will follow the instructions and guidelines of the GEF M&E unit and it will be laid out in detail at the stakeholder Workshop.

***Independent Evaluations***

135. The project will be subjected to at least two (2) independent external evaluations as follows:

(a) Mid-term review: An independent Mid-term review (MTR) will be undertaken at the end of the third (3) year of project implementation. The MTR, performed by an independent consultant, will measure progress made towards the achievement of outcomes and will identify corrections, if needed. The MTR will focus on the project performance in terms of relevance, effectiveness, efficiency and timelines of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned on project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project's terms. The organization, terms of reference and timing of the MTR will be decided after consultation between the parties to the project document. The Terms of Reference for the MTR will be prepared by UNIDO in accordance with the generic TORs developed by the GEF Evaluation Office.

(b) Terminal Evaluation: An independent Terminal Evaluation (TE) will take place after the operational completion of the project, and will focus on the same issues as the MTR, with a greater focus on project impact and sustainability of results, including the contribution to capacity development and achievement of global environmental goals. The TE should also provide recommendations for follow up activities of future projects, based on lesson learned and success stories. The Terms of Reference for this evaluation will be prepared by UNIDO in accordance with the generic TOR developed by the GEF and UNIDO Evaluation Offices.

***Terminal Project Workshop (TPW)***

136. The Terminal Project workshop will be held in the last month of project operation. The RC is responsible for the preparation of the draft Terminal Report (TR) and its submission to UNIDO. The draft TR will be prepared at least two months in advance of the TPW in order to allow more time for its review. This will serve as the basis for



discussions in the TPW and a venue to consider the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results and acts as a means, which lessons learned can be captured for use in other projects under implementation or formulation.

### ***Prior Obligations and Prerequisites***

137. The Project Document will be signed by UNIDO and the Governments of the SADC participating countries. Any project amendments will be done in accordance with the approved Project Document and the GEF Policy (GEF C.39/04). GEF assistance will be provided subject to UNIDO being satisfied that the obligations and prerequisites listed below have been fulfilled or are likely to be fulfilled. When fulfilment of one or more of these prerequisites fails to materialize, UNIDO may, at its discretion, either suspend or terminate its assistance.

- Prior to project effectiveness: legally binding co-financing agreements other than the GEF and UNIDO specified in the project document and respective commitment letters are made available to the project.
- During project implementation: Progress Reports and Annual Project Implementation Review reports should be prepared. The work plan and consequently the project budget will be updated on a regular basis.

### ***Legal context***

#### **Botswana (Republic of)**

*“The Government of the Republic of Botswana agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 14 May 1975.”*

#### **Lesotho (Kingdom of)**

*The Kingdom of Lesotho agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 31 December 1974 and entered into force on 17 December 1976.*

#### **Madagascar (Republic of)**

*The Government of the Republic of Madagascar agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 19 March 1991 and entered into force on 14 April 1992.*

#### **Mozambique (Republic of)**

*“The Government of the Republic of Mozambique agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 15 September 1976.*

#### **Swaziland (Kingdom of)**

*“The Kingdom of Swaziland agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 28 October 1977.”*

#### **Tanzania (United Republic of)**

*“The Government of the United Republic of Tanzania agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 30 May 1978.”*

#### **Zambia (Republic of)**

*“The Government of the Republic of Zambia agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 14 October 1983.”*



**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 form. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Khulekani Mpofu	GEF Operational Focal Point	Ministry of Environment, Wildlife and Tourism, Botswana	01/09/2015
S. M. Damane	GEF Operational Focal Point	Ministry of Tourism, Environment and Culture, Lesotho	11/11/2014
Rabeantoandro Marcellin	Secretary General of Environment, GEF Operational Focal Point	Ministry of Environment, Ecology and Forests, Madagascar	11/19/2014
Marilia Telma Manjate	GEF Operational Focal Point	Ministry of Coordination and Affairs, Mozambique	01/16/2015
Stephen M. Zuke	Executive Director and GEF Operational Focal Point	Swaziland Environment Authority, Swaziland	11/19/2014
Dr. J.K. Ningu	GEF Operational Focal Point	Vice President's Office, Tanzania	01/15/2015
G.F. Gondwe	Director and GEF Operational Focal Point	Ministry of Lands, Natural Resources and Environmental Protection	12/19/2014

**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 CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Mr. Philippe R. Scholtès Managing Director Programme Development and Technical Cooperation Division UNIDO GEF Focal Point		01-25-2016	E. Galvan 	+431 26026 3953	e.galvan@unido.org

## ANNEX I: COMMITMENT LETTERS FROM PARTICIPATING COUNTRIES



Republic of Botswana

Telephone: (267) 3902050  
Fax: (267) 3902051/ 3914687  
Email: [envirobotswana@gov.bw](mailto:envirobotswana@gov.bw)

Department of Environmental Affairs  
Ministry of Environment, Wildlife and Tourism  
*All Correspondence to be addressed to the Director*

Private Bag 0068  
Gaborone  
Botswana

**REF:** DEA I/12/7 I (9)

9<sup>th</sup> January 2015

To: Mr. Philippe Scholtès  
Managing Director  
Programme Development and Technical  
Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
Wagramerstrasse 5, P.O. Box 300  
A-1400 Vienna, Austria

**Subject:** Co-financing commitment for UNIDO regional FSP project "Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region" - Botswana.

In my capacity as GEF Operational Focal Point for Botswana, I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the Botswana under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2,664,300 (in-kind) and US\$700 (grant) will be contributed by the Ministry of Environment Wildlife and Tourism, together with other national Ministries and partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the uPOPs BAT/BEP project activities in Botswana for the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
National Government	Ministry of Environment Wildlife and Tourism Ministry of Local Government and Rural Development.	In-kind	2,664,300
National Government	MEWT	grant	700
TOTAL			2,665,000

Sincerely,

Khulekani Mpofo  
GEF-Operational Focal Point (GEF-OFPP)

Annex I (a): Additional co-financing from private sector and bilateral



National Environmental Laboratory Building  
Plot 20576 Magochanyama Road, Block 8 Industrial,  
Gaborone, Botswana  
Private Bag BR 132, Gaborone, Botswana  
Tel: +267 3911802 / 3934479  
Fax: +267 3934486 / 3909953  
email: [wmpe@gov.bw](mailto:wmpe@gov.bw)



ALL CORRESPONDENCE TO BE ADDRESSED TO THE DIRECTOR

**REF:** WMPC 1/8/2 I (87)

28<sup>th</sup> September 2015

To: Mr. Philippe R. Scholtès  
Managing Director  
Programme Development and Technical  
Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
P.O. Box 300  
A-1400 Vienna, Austria

**Subject: Co-financing commitment for UNIDO regional FSP project “Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region”**

In my capacity as GEF Operational Focal Point for The Republic of Botswana, I hereby confirm that the partners mentioned in table below have expressed their willingness to participate in the subject project and will be contributing a total amount of **US\$ 2,000,000** (Two million US Dollar); for Activity 3.3.3 of the project document: “Establish two (2) pilot demonstration projects on waste-to-energy (biogas, bracketing, etc) using PPP models”.

The funds will be allocated according to the aforesaid project activity (Activity 3.3.3) in the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
Private sector	1. Botswana Meat Commission	In kind	1000,000
	2. Botswana International University of Science & Technology	In kind	1000,000
<b>TOTAL</b>			<b>2,000,000</b>

Yours faithfully

**Khulekani Mpofo**

**GEF Operational Focal Point - Botswana**

1

**Our Vision:** To protect the environment; Conserve the country's renewable and natural resources; Derive value out of environment for the benefit of Botswana







LESOTHO

Ministry of Tourism, Environment and Culture  
**Department of Environment**  
Box 10993  
Maseru 100

**Tel: +266 22 311767**  
**MTEC/NES/CONV/12**

**Fax: +266 22 311139**  
**25<sup>th</sup> September 2015**

Mr. Philippe R. Scholtès  
Managing Director  
Programme Development & Technical Cooperation Division  
UNIDO GEF Focal Point, Vienna International Centre  
Wagramer Strasse 5, P. O. Box 300, A-1400 Vienna, Austria

Dear Sir,

**Subject: Co-financing commitment for UNIDO regional FSP project “Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region”**

In my capacity as GEF Operational Focal Point for Lesotho, I hereby confirm that the partner mentioned in table below has expressed willingness to participate in the subject project and will be contributing (in-kind) a total amount of USD 2, 000, 000 (Two million United States Dollars) over five years period; for Activity 3.2.2 of the project document: *“Identify exiting waste recycling enterprises in the participating countries and enhance their performance by supporting two (2) pilots of segregation systems for collecting waste materials of added value (conveyer belts, sorting, washing, compacting, etc”.*

The funds will be allocated according to the project activity (Activity 3.2.2) in the project document.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (USDS)
Private Sector	Tlhoeko Sanitary Solutions (Pty) Ltd	In-Kind	2,000, 000
<b>Total Co-financing</b>			<b>2,000, 000</b>

Yours faithfully,

S. M. Damane  
**GEF Operational Focal Point**





**REPUBLIC OF MOZAMBIQUE**  
**MINISTRY OF LAND, ENVIRONMENT AND RURAL DEVELOPMENT**  
**NATIONAL DIRECTORATE OF ENVIRONMENT**

To: Mr. Philippe R. Scholtès  
Managing Director  
Programme Development and Technical  
Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
P.O. Box 300  
A-1400 Vienna, Austria

Our Ref: 1071 /MITADER/DINAB/032.4/2015

Maputo, 07 October 2015

**Subject: Co-financing commitment for UNIDO regional FSP project "Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region"**

Dear Sir,

In my capacity as GEF Operational Focal Point for The Republic of Mozambique, I hereby confirm that the partners mentioned in table below has expressed their willingness to participate in the subject project and will be contributing \$2,300,000 (two million and three hundred thousand US dollars) in cash and \$2,700,000USD (two million and seven hundred thousand US dollars) in kind contribution, over five years period ; for Activity 3.1.3 of the project document: "Identify two (2) municipalities in each participating country to carry out waste management best practices".

The funds will be allocated according to the aforesaid project Activity (Activity 3.1.3) in the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
Bilateral	Korean Government to establish a landfill for Maputo and Matola in Mozambique	Cash	2,300,000
Bilateral	Korean Government to establish a landfill for Maputo and Matola in Mozambique	In-Kind	2,700,000
Total Co-Financing			5,000,000

Sincerely,

Marilia Telma Manjate

(GEF Operational Focal Point)



LESOTHO

Ministry of Tourism, Environment and Culture  
**Department of Environment**  
Box 10993  
Maseru 100

**Tel: +266 22 311767**  
**MTEC/NES/CONV/12**

**Fax: +266 22 311139**  
**11<sup>th</sup> November 2014**

Mr. Philippe Scholtès  
Managing Director  
Programme Development & Technical Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
Wagramer Strasse 5, P. O. Box 300  
A-1400 Vienna, Austria

Dear Sir,

**Re: Commitment of Co-financing for UNIDO regional Full Size Project "Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region".**

In my capacity as GEF Operational Focal Point for Lesotho, I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the Government of Lesotho under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2, 132, 000 (in-kind) and US\$ 533, 000 (grant) will be contributed by the Ministry of Tourism, Environment & Culture, together with other national ministries and partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the project activities in Lesotho for the project document.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (US\$)
Government of Lesotho	Department of Environment, Ministry of Tourism, Environment & Culture	In-Kind	2, 132, 000

Government of Lesotho	Department of Environment, Ministry of Tourism, Environment & Culture	Grant	533, 000
<b>Total Co-financing</b>			<b>2, 665, 000</b>

Yours faithfully,

S. M. Damane  
GEF Operational Focal Point



SECRETARIAT GENERAL

Antananarivo, le 19 NOV 2014

The secretary General of Environment  
GEF Operational Focal Point

To

Mr. Philippe Scholtès,  
Managing Director, Program Development and Technical  
Cooperation Division,  
UNIDO GEF Focal Point,  
Vienna International Centre  
Wagramerstrasse 5, P.O. Box 300, A-1400 Vienna, Austria

N° 763  
-14/MEEF/SG.

**Subject:**Co-financing commitment for UNIDO regional FSP project "Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region".

In my capacity as GEF Operational Focal Point for Madagascar, I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the Madagascar under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2 834 000 (in-kind) and will be contributed by the Ministry of Environment, Ecology and Forest, together with other national Ministries and partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the project activities in Madagascar for the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
National Government	Service Autonome de maintenance de la Ville d'Antananarivo	In-kind	2 834 000
National Government		In -Kind	377 000
TOTAL			3 211 000

Sincerely,



RAFAEL ANTOANDRO Marcellin



REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO PARA A COORDENAÇÃO DA ACÇÃO AMBIENTAL

Direcção da Cooperação

TO  
Mr Philippe Scholtes  
Managing Director Programme  
Development and Technical and Cooperation  
Cooperation Division UNIDO/ GEF, Focal Point  
Vienna International Centre.  
Wagramer strasse 5, P.O Box 300  
A-1400 Vienna, Austria

16//January/015

Subject Co- Finance Commitment for UNIDO REGIONAL FSP Project .Promotion of BAT and  
BEP on reduce UPOPs released from the waste open burning in the participating African  
Countries of SADC Sub -region

In my capacity as GEF Operational focal point for Mozambique I confirm that the above project  
proposal is in accordance with the national governments national priorities and commitment made  
by the Mozambique under the relevant global Environmental Convection and has been discussed  
with relevant stakeholders

I hereby confirm that the total of 2,665.000 USD will be supported by in- kind and 0 grand will be  
contributed by Ministry for Coordination Environmental Affair together with other National  
Ministries and partners to the project as counterpart funding during five years project  
implementation period. The funds will be allows to be allocated according to the project activities  
In Mozambique project document.

Sources of co-financing	Name of co-financer	Type of co financing	Amount (USD)
National Government	MICOA –Mozambique	IN-KIND	2,665.000.00 USD
National Government	MICOA Mozambique	GRAN 0	0
TOTAL			2,665,000.00USD

Sincerely,

Maria Telma Manhate

GEF – Operacional (Focal Point GEF-OFP)





# SWAZILAND ENVIRONMENT AUTHORITY

RHUS Office Park  
Lot 195, Karl Grant Street  
Mbabane

P.O.Box 2602  
Mbabane, Swaziland  
Tel: 2404 6960/7893 Fax: 2404 1719  
Email: reception@sea.org.sz or ceosec@sea.org.sz  
www.sea.org.sz

**Our Ref:** SEA/PRJ/5.2

19 November 2014

Mr. Philippe Scholtès  
Managing Director  
Programme Development and Technical Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
Wagramerstrasse 5, P.O. Box 30  
A-1400 Vienna, Austria

**Subject:** Co-financing commitment for UNIDO regional FSP project "*Promotion of BAT and BEP to reduce uPOPs releases from waste open burning in the participating African countries of SADC sub-region*".

In my capacity as GEF Operational Focal Point for the Kingdom of Swaziland, I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the Kingdom of Swaziland under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2, 660, 000 (in kind) and US\$ 5, 000 (grant) will be contributed by the Ministry of Tourism and Environmental Affairs, together with other national Ministries and partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the project activities in the Kingdom of Swaziland for the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
National Government	Ministry of Tourism and Environmental Affairs	In-kind	2, 660, 000
National Government	Ministry of Tourism and Environmental Affairs	grant	5, 000
TOTAL			2,665,000

Sincerely,

  
**Stephen. M. Zuke**

**Executive Director & GEF-Operational Focal Point (GEF-OFPP)**

*Ensuring the integration of environmental concerns into Swaziland's development*



THE UNITED REPUBLIC OF TANZANIA  
VICE PRESIDENT'S OFFICE

Telegraphic address: "MAKAMU",  
Telephone: +255 22 2113857 /2116995  
Fax No. : +255 22 2113856 /2113082  
Email: [ps@vpo.go.tz](mailto:ps@vpo.go.tz)



6 Albert Luthuli Street,  
P. O. BOX 5380,  
11406 DAR- ES- SALAAM,

In reply please quote:

Ref No: **BC/78/276/01**

15<sup>th</sup> January, 2015.

Mr. Philippe Scholtès  
Managing Director  
Programme Development and  
Technical Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
Wagramerstrasse 5, P.O. Box 300  
A-1400 Vienna  
AUSTRIA.

**RE: CO-FINANCING COMMITMENT FOR UNIDO REGIONAL PROJECT  
"PROMOTION OF BAT AND BEP TO REDUCE uPOPs RELEASES FROM WASTE  
OPEN BURNING IN THE PARTICIPATING AFRICAN COUNTRIES OF SADC SUB-  
REGION".**

In my capacity as GEF Operational Focal Point for Tanzania, I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the Government of the United Republic of Tanzania under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2,665,000 (in-kind) will be contributed by the Government of Tanzania, together with other partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the project activities in Tanzania for the project document.

Sources of co-financing	Name of Co-financier	Type of co-financing	Amount (in USD)
National Government	Government of Tanzania	In-kind	2,665,000
TOTAL			2,665,000

Sincerely,

A handwritten signature in black ink, appearing to read 'Dr. J. K. Ningu'.

Dr. J. K. Ningu

GEF-Operational Focal Point (GEF-OFP)

Telephone:252288/252323/252320

Fax: Lusaka 250120

Telefax 40681 MIDLANDS ZA

Telegrams: LANDS



In reply please quote:

No: **MLN-REP/6/7/6**.....

REPUBLIC OF ZAMBIA

**MINISTRY OF LANDS, NATURAL RESOURCES AND  
ENVIRONMENTAL PROTECTION**

19<sup>th</sup> December, 2014

OFFICE OF THE PERMANENT SECRETARY

P.O. BOX 50694  
15101 RIDGEWAY  
LUSAKA

Mr. Philippe Scholtes  
Managing Director  
Programme Development and Technical  
Cooperation Division  
UNIDO GEF Focal Point  
Vienna International Centre  
Wagramerstrasse 5,  
P.O. Box 300  
A-1400 Vienna,  
**AUSTRIA**

**RE: CO-FINANCING COMMITMENT FOR UNIDO REGIONAL FSP PROJECT  
"PROMOTION OF BAT AND BEP TO REDUCE UPOPs RELEASES FROM  
WASTE OPEN BURNING IN THE PARTICIPATING AFRICAN  
COUNTRIES OF SADC SUB-REGION ".**

In my capacity as GEF Operational Focal Point for **Zambia** I confirm that the above project proposal is in accordance with the government's national priorities and the commitment made by the **Zambia** under the relevant global environmental conventions and has been discussed with relevant stakeholders.

I hereby confirm that the total of US\$ 2,665,000 (in-kind) and US\$ 0 (grant) will be contributed by the Ministry of Lands, Natural Resources and Environmental Protection, together with other national Ministries and partners to the project as counterpart funding during the five year project implementation period. The funds will be allocated according to the project activities in Zambia for the project document.

Sources of co-financing	Name of Co-financier	Type of Co-financing	Amount (in USD)
National Government	GRZ	In-kind	2,665,000
National Government	GRZ	Grant	0
<b>TOTAL</b>			<b>2,665,000</b>

Sincerely,



G. F. Gondwe

Director/GEF Operational Focal Point  
Environment and Natural Resources Management Department  
for/Permanent Secretary

**MINISTRY OF LANDS, NATURAL RESOURCES AND ENVIRONMENTAL  
PROTECTION**

cc. GEF Political Focal Point, Lusaka

Director General, Zambia Environmental Management Agency  
Lusaka