



Government of Nigeria
United Nations Development Programme
Global Environment Facility

UNDP Project Document

Less burnt for a clean earth: Minimization of dioxin emission from open burning sources in Nigeria

PIMS 4221; ATLAS NGA10; Award 00059851; Project 00075041

May 3rd, 2010

SIGNATURE PAGE

Country: **Nigeria**

UNDAF Outcome(s):

Productivity and employment for wealth creation with a bias towards the poor and help to help build a private sector-led on non-oil economy particularly in agriculture and agro-industry.

Expected CP Outcome(s):

Environmental governance at Federal level and in selected States based increasingly on policy, legal and regulatory frameworks and actions that are more likely to protect natural resources as well as livelihoods.

Expected CP Outputs:

A comprehensive framework for environmental governance at both Federal and State level put in place.

Implementing partner: Federal Ministry of Environment.

Other Implementing partners: NESREA, Kano State, Anambra State Environment Protection Agency

Programme Period: UNDP Strategic Plan 2009-2012

Programme Component: Environment and Sustainable Development

Project Title: Less burnt for a clean earth: minimization of dioxin emission from open burning sources in Nigeria

Project ID: PIMS 4221: Atlas Award 00059851: Project 00075041

Project Duration: (4 years) 2010-2014

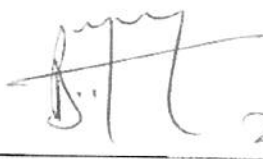
Total budget*: \$ 23,950,736

Allocated resources:

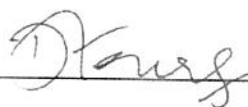
- Regular -TRAC \$ 100,000
- Other:
 - GEF* \$ 4,150,000
- In kind contributions
 - Govt of Nigeria (FMoW) \$ 9,970,000
 - Govt of Nigeria (NESREA) \$ 120,000
 - Onitsha-Anambra State \$ 2,348,992
 - Kano State \$ 7,261,744

* Note: Doesn't include US\$ 260,000 PPG

Agreed by (Government):

 27/07/10

Agreed by UNDP:

 30/07/2010.



Government of Nigeria
United Nations Development Programme
Global Environment Facility

UNDP Project Document

Less burnt for a clean earth: Minimization of dioxin emission from open burning sources in Nigeria

PIMS 4221; ATLAS NGA10; Award 00059851; Project 00075041

May 3rd, 2010

Brief Description

The project is designed to apply GEF eligible incremental measures that build on and go beyond an emerging baseline of improved integrated municipal and agricultural waste management practices in Nigeria.

In the absence of a GEF project, high levels of UPOPs generated by open burning of municipal and agricultural waste (MAW) will continue to affect the environment and people in Nigeria and worldwide. Nigeria is in the early stages of investing in integrated municipal waste management (IMWM) through a federal government programme in partnership with seven states and private sector partners in each state. Work to strengthen policies and guidelines and reduce UPOPs releases will be hampered by unreliable data on the nature and extent of the problem. Although IMWM plans have been developed, they pay little attention to designing and implementing UPOPs reduction strategies or to key elements of the participatory process that is so critical to effective waste management steps such as sorting and separation of waste at the source.

The pace of adoption of specific practices that reduce UPOPs releases will likely remain slow, hampered by an emphasis on infrastructure rather than processes and people. For example, a low level of stakeholder participation in municipal waste source reduction, re-use/recycle, composting, and other related community-level activities will likely continue to be the norm and will hamper the implementation of IWM overall, much less UPOPs-specific aspects of it. Large scale open burning will likely continue as the norm in most dumpsites as will the non-sorting of waste and the recycling of a small number of materials. Without an incremental “push” to overcome experiential and capacity barriers, the implementation of IMWM is likely to fall short in reducing UPOPs emissions in Nigeria.

GEF support will therefore focus on introducing new practices and approaches and building capacity to apply international standards and to ensuring that the institutional abilities and policy framework are adequate to support action to better understand UPOPs and reduce their releases in Nigeria.

Nigeria’s National Implementation Plan for the Stockholm Convention estimates that scavengers burn approximately 20% of the collected waste at dumpsites, mainly for recuperating valuable waste streams. The project’s incremental strategy is to organize and bring the informal scavenger sector into the formal waste management sector. By doing so, the project’s focused incremental efforts will result in reduced UPOPs emissions from two sources: open burning of collected waste and open burning of uncollected waste.

The reduction of open burning of *collected* and *uncollected* waste will be significant by the implementation of IWMS together with UPOPs targeting activities. UPOPs releases from the open burning of collected waste in dumpsites in the two pilot cities (Kano and Onitsha) are estimated to be: 489.1 g I-TEQ/a. The project’s incremental input to sort waste and organize scavengers will remove the incentive to burn waste in the pilot site dumpsites, preventing the burning of 20% of collected waste and avoiding the release of 97.8 g I-TEQ/a.

The project’s incremental input will also enable the avoidance of burning of uncollected waste, which is not included in the baseline IWMS activities, resulting in the avoidance of 85.12 g I-TEQ/a of UPOPs in two pilot sites. The project’s conservative estimate of the total anticipated reductions of UPOPs releases to air and land from cropland burning by end of the project is 5.55 g I-TEQ/a. This will result in a total anticipated reduction and measurable global benefit during the project’s lifespan of 188.47 g I-TEQ/a in both pilot sites.

It is estimated that the total UPOPs releases from open burning of MAW in Nigeria is approximately 5,300 g I-TEQ/a. The aim of the GEF UPOPs project is to lower the barriers for introducing non-burning waste management for MAW and demonstrate BAT/BEP approaches for wide replication throughout the country. Assuming effective replication of the project’s incremental input to improve UPOPs reductions under the national IMSWM programme, a realistic assumption holds that future UPOPs activities could reduce nationwide municipal waste burning by 20%, resulting in a 20% overall reduction in UPOPs releases from open burning of MAW, or 1,060 g I-TEQ a year reduction of PCDD/Fs.

Table of Contents

Acronyms.....	4
SECTION I: ELABORATION OF THE NARRATIVE	5
PART I: Situation Analysis.....	5
Context and global significance.....	5
Baseline Description	5
IWM Programme & Pilot Site Baseline	6
Barriers analysis.....	9
Stakeholder analysis.....	12
Summary Baseline Analysis	14
PART II: Strategy.....	15
Institutional, sectoral and policy context	15
a) Law and Policy context	15
Project Rationale and Policy Conformity	17
Project Goal, Objective, Outcomes and Outputs/activities	17
Project Indicators, Risks and Assumptions.....	30
Incremental reasoning and expected global, national and local benefits.....	33
Country Ownership: Country Eligibility and Country Drivenness.....	34
Sustainability.....	35
Replicability	35
PART III: Management Arrangements.....	36
PART IV: Monitoring and Evaluation Plan and Budget.....	37
Project Inception Phase.....	37
Monitoring responsibilities and events	37
Project Reporting	38
Independent Evaluation.....	40
Audit Clause.....	41
Learning and Knowledge Sharing.....	41
PART V: Legal Context	42
SECTION II: STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT.....	43
PART I: Incremental Reasoning.....	43
A. Introduction.....	43
B. Business as usual scenario vis-à-vis the project's main components:.....	44
PART II: Strategic Results Framework, SRF Analysis	49
SECTION III: TOTAL BUDGET AND WORKPLAN	55
SECTION IV: ADDITIONAL INFORMATION.....	60
PART I: Other agreements	60
PART II: Organigram of Project	61
PART III: Job Descriptions and Terms of Reference for project staff and sub-contracts	63
PART IV: Technical Annexes.....	68

Acronyms

ADP	Agricultural Development Programme
ANSEPA	Anambra State Environment Protection Agency
APR	Annual Project Report
AWP	Annual Work Plan
CO	Country Office
EIA	Environmental Impact Assessment
FMoE	Federal Ministry of Environment
FMoANR	Federal Ministry of Agriculture and Natural Resources
FMoF	Federal Ministry of Finance
FSP	Full Size Project (GEF terminology)
GEF	Global Environment Facility
GoN	Government of Nigeria
HCB	Hexachlorobenzene
IP	national Implementing Partner
IR	Inception Report
I-TEQ	Internationally agreed TEQ - 1 g TCDD equals 1 g I-TEQ
IW	Inception Workshop
IWM	Integrated Waste Management
IMSWMP	Integrated Municipal Solid Waste Management Programme
KNARDA	Kano Agricultural Rural Development Agency
LGA	local government area
MAW	Municipal and Agricultural Waste
NESREA	National Environmental Statutory Regulatory Enforcement Agency
NEX	National Execution
NIP	National Implementation Plan (re Stockholm Convention on POPs)
NPD	National Project Director
PCBs	Polychlorinated biphenyls
PCDD/PCDFs	Polychlorinated dibenzo-p-dioxins and Polychlorinated dibenzofurans
PIF	Project Identification Form (GEF terminology)
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit (PMU)
POPs	Persistent Organic Pollutants
SEPA/B	State Environmental Protection Agency/Board
SRF	Strategic Results Framework
STA	Senior Technical Advisor
STAP	Scientific and Technical Advisory Panel (to GEF)
TEQ	Total dioxin toxic equivalence (toxicity as if a mixture is pure TCDD)
TTR	Terminal Tripartite Review
UNDP	United Nations Development Programme
UNDP-CO	United Nations Development Programme Country Office
UPOPs	Unintentional POPs

SECTION I: ELABORATION OF THE NARRATIVE

PART I: Situation Analysis

Context and global significance

1. Background/Baseline:The unintentional release of persistent organic pollutants is an undesired side effect of the open burning of municipal and agricultural waste. The POPs chemicals of concern are: polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF); hexachlorobenzene (HCB); and polychlorinated biphenyls (PCB). Measures to reduce or eliminate releases from such sources of unintentional POPs production are the subject of Article 5 of the Stockholm Convention.
2. Unintentional persistent organic pollutants or “UPOPs” is a relatively newly highlighted issue in Nigeria. The nation’s first preliminary inventory of UPOPs was conducted in 2007 as part of the process to develop Nigeria’s National Implementation Plan (NIP) for the Stockholm Convention on POPs. This project is designed to enable Nigeria to begin reducing total UPOPs emissions with a focus on reducing UPOPs emissions from the open burning of municipal and agricultural waste.
3. UPOPs are released in large quantities in Nigeria. According to the NIP inventory, total UPOPs releases in Nigeria are approximately 5,450 g I-TEQ annually. The bulk of these emissions come from open burning of municipal and agricultural waste (MAW).
4. With a population of 140 million, Nigeria generates approximately 20 million tons of municipal waste annually, which is deposited in un-managed waste dumpsites by private and municipal waste collectors. The NIP conservatively estimates that 20% of municipal waste is burned, due to spontaneous combustion and/or intentional fires set to recuperate valuable waste streams and compact the volume of the waste. The total initial estimate of UPOPs releases from this practice is approximately 5,300 g I-TEQ/a. The percentage of waste that is burned is likely to be higher, given that over the course of a year the entirety of a typical waste dump will burn in Nigeria. Approximately 50% of the collected waste is organic, aggravating the potential UPOPs releases from open burning but also providing opportunities for alternatives such as composting for this portion of the waste stream. Other waste categories that are not currently recycling priorities in Nigeria can be re-used or recycled to a higher degree.
5. The burning of agricultural stubble and waste in preparation for planting, is a common agricultural practice in Nigeria (and worldwide), leading to local air pollution in the form of particulate emissions as well as UPOPs releases. These releases have been estimated to some 153 g I-TEQ/a nation-wide. Much of the formed UPOPs are left in the land and make their way into the human food chain through absorption by crops and ingestion by domestic animals.

Baseline Description

6. *Disposal of municipal solid waste.* Municipal solid waste management in Nigeria is evolving from a situation where there was little to no waste collection or management to the current situation of intermittent collection and dumping in a designated dumpsite to a future characterized by a modern integrated waste management approach. Municipal waste management structures exist in most of the urban and rural areas in Nigeria. However, the overall system is characterized by the large-scale informality of operators & operations. Solid waste management in Nigeria is based on co-mingled collection (including organic components) and co-disposal of municipal waste streams in open dumps or waste piles along the streets, existing burrow pits or wetlands.
7. The typical city in Nigeria utilizes semi-formal designated dumpsites that are essentially un-managed and within which there is no designated area for any category of waste. The wastes are simply surface tipped onto any vacant available space of land. When the waste pile becomes large enough as to be

unmanageable, the tendency is to dispose this waste into any nearby burrow pit and leveled off with a bulldozer. The results: unmanaged dumpsites of municipal waste that spontaneously ignite or are intentionally burned, generating large quantities of UPOPs. In Nigeria, most of the dumpsites were established in the early 80s and 90s and are nearing the end of their life span as un-managed, non-engineered sites.

IWM Programme & Pilot Site Baseline

8. The Federal Executive Council endorsed the Integrated Municipal Solid Waste Management Programme (IMSWMP) to be implemented by the Federal Ministry of Environment (FMoE). The programme represents a sizable down payment by Nigeria on the modernization of its municipal solid waste management practices at the state and local levels. The IMSWMP takes a tripartite approach, involving the Federal government, host State governments and private investors.

9. The FMoE is working to facilitate the adoption of IWM through public-private partnerships in major population centers across the country. FMoE has inaugurated an IWM Programme in seven cities. These seven cities have developed or are developing IWM Plans, and have been granted approximately US\$2 million each for implementing these plans, which are being topped-up by states and private sector partners for their implementation. This initiative serves as the critical baseline for the incremental GEF investment under this project.

10. The IMSWMP programme includes key infrastructure to support integrated waste management in each pilot city, including: materials recovery facilities; composting plants; incinerators where needed; landfill cells, a methane recovery system and leachate treatment facility; and plastic recycling plant.

11. The programme design focuses more on “things” – a center, two plants, an incinerator and a facility. This infrastructure and overall approach that they represent have been adopted by two of the seven cities (Kano and Onitsha) as the core of a locally approved IWM Programme. Under this programme, the Federal Government has provided a project concept fund that has been used to conduct EIA studies, prepare sufficient land for IWM, and obtaining processing and collection of government permits. The private investor on the ground in both pilot sites is responsible for funding the purchase of equipment and construction of the necessary infrastructure to deal with the five components of the adopted approach as agreed among the local government entity, the FMoE and the private partner.

12. Three of the IMSWMP’s main components (materials recovery facility centre, the composting plant and the plastic recycling plant) require that there is proper sorting and segregation of waste at the source or at the designated location in the dumpsite. However, this is not in place at the moment and to put this into practice will require sustained public education, awareness raising and mobilization of the community/citizenry regarding the benefits and value added. Current waste management practice can still be characterized as “collect and dump.” Municipal waste is still collected from neighborhoods and households and dumped at designated dumpsite in both pilot states with no sorting before and no management after dumping. This approach will continue until the investors have secured enough funds to build the infrastructure for all the itemized five components.

13. But even in the project’s pilot sites, this investment is in its early stages and the Nigerian States with IWM plans have minimal capacity to design and implement basic IWM programs. Without an incremental “push” to overcome experiential and capacity barriers, the implementation of improved waste management practices is likely to fall short when it comes to reducing UPOPs emissions.

14. In an overall baseline scenario, work to strengthen policies and guidelines and reduce UPOPs releases will continue to be hampered by inadequate data on the nature and extent of the problem. The pace of adoption of specific practices that reduce UPOPs releases will likely remain extremely slow,

hampered by an emphasis on “things” rather than “processes” and people. For example, a low level of stakeholder participation in municipal waste source reduction, composting, and other related community-level activities will likely continue to be the norm and will hamper the implementation of IWM overall, much less UOPs-specific aspects of it. Large scale open burning will likely continue as the norm in most dumpsites as will the non-sorting of waste, the recycling of only a small number of preferred materials and taking no measures to sort and isolate relatively toxic waste typically found in municipal waste streams. Such baseline practices have the effect of increasing (rather than decreasing) UOPs releases from open burning of MAW. Therefore, GEF funds will be utilized to conduct targeted demonstrations in each pilot site of the most pressing IWM-related activities to reduce UOPs.

15. The FMoE is planning to prepare standards and guidelines on IMSWM. The FMoE has also developed a technical guidelines manual to prevent open air burning from seized goods. The project included a series of workshops, and a study tour to the United States by key staff members to receive hands-on training in best practices in disposal of seized goods.

16. Waste Management in the two Pilot States (Kano and Onitsha): The project will focus its efforts under Components 2 and 3 on catalyzing the adoption of new UOPs-reducing municipal and agricultural waste management practices and approaches in two pilot areas: Kano State, located in northern Nigeria, and Anambra State located in southern Nigeria.

17. The 8 Kano Metropolitan Local Government Areas (LGA) generate approximately 1,314,000 tonnes/annum of waste. The 2005 NIP survey estimated the level of waste generated in Kano to be 1,880,112 t/a. The discrepancy highlights a common problem in Nigeria – the challenge of generating, managing and utilizing reliable data to inform planning and decision-making. The Refuse Management and Sanitation Board (REMASAB) reports that 60% of the waste generated in Kano is being collected, or approximately 788,400 tonnes/per annum is collected and transferred to dumpsites. The NIP determined that approximately 50% of the waste in dumpsites actually burns, yielding a figure of 394,200 tonnes/annum waste burned in dumpsites in Kano. Forty percent of the municipal solid waste in Kano is not collected: approximately 525,600 tonnes/annum. Assuming a 50% burn factor on this uncollected waste yields a total figure of 262,800 t/a of uncollected waste burned along roadsides and in backyards in Kano.

18. In Onitsha City, it was reported that 237,250 t/a of municipal solid waste is being generated within the two metropolitan LGA. Of these, about 80% or 189,800 t/a is being collected. Actual tonnage burned in dumpsites in Onitsha is approximately 94,900 t/a. The remaining 20% is not collected, or 47,450 t/a. With a 50% burn rate, 23,725 t/a of uncollected waste is burned along roadsides and in backyards. Simple calculations utilizing two UNEP Toolkit Emission Factors, one for landfill fires (1,000 ug I-TEG/a) and one for domestic burning (300 ug I-TEQ/a), yields the following baseline figures for UOPs emissions from open burning of municipal waste in the two pilot sites.

19. Table 1: Baseline UOPs releases in pilot sites from open burning of municipal solid waste.

Pilot State	UOPs from open burning in landfills	UOPs from uncontrolled domestic burning
Kano	394 g I-TEQ/ annum	78 g I-TEQ/annum
Anambra	95 g I-TEQ/a	7 g I-TEQ/a
Total	489 g I-TEQ/a	85 g I-TEQ/a

20. Waste collection in both pilot sites is intermittent and is the responsibility of the State Waste Management Board in urban areas and the Local Government Councils in suburban/rural areas. In Anambra State, there are twenty-one LGA and in Onitsha the pilot cities have two metropolitan LGA: Onitsha North and Onitsha South. The wastes generated by the two Onitsha metropolitan councils have

been collected traditionally by ANSEPA. Onitsha's new IMSWMP implemented in partnership with the FMoE and the private sector was taken over in October 2009 by the private waste management company, Laga International Ltd.

21. In Onitsha, a 40 ha IWM landfill site has been identified and an access road constructed, but no major work has started on the site. A survey plan has been done on the site while the private partner awaits the Certificate of Occupancy on the land from the State Government. However, meanwhile, the investor has commenced collecting waste and dumping at a designated temporary dumpsite, where open burning is very prevalent and there is no real management of the waste.

22. In Kano State, there are 44 Local Government Areas. The Refuse Management and Sanitation Board (REMASAB) collects waste from the 8 Metropolitan Local Government Areas of Kano City (the project pilot site) and the remaining 36 Local government council's areas outside the metropolitan city is taken care of by their respective area councils. Under the new integrated solid waste management programme, REMASAB, FMoE and a private waste management company have signed an agreement to modernize waste management in Kano. However, implementation of this agreement remains in limbo pending final guarantees from Kano state to the private sector investor. In the meantime, Kano stakeholders have identified a new 100 ha landfill site in accordance with the modern requirements for landfill site standards that are designed to meet the ground water quality parameters.

23. Until the IMSWMP begins however, this site will remain unused and current practice of municipal waste "collecting and dumping" will prevail. Over sixty private waste collectors collect waste and dump it in any available space around and outside the city. This large-scale informality and lack of sorting and management of waste has led to the development of a large informal group of stakeholders known as "scavengers." An estimated 10,000 scavengers pull recyclable material out of the municipal waste stream dumped in dumpsites or along roadsides all over Kano. Open burning of waste benefits scavengers because the waste is not sorted and burning it allows them to reduce the volume of waste and find recyclable materials more quickly. This is detrimental to the health of humans and the environment, and a main cause of open burning of municipal waste and thus UOPs releases in places like Kano all over Nigeria.

24. Agriculture in Kano State. Kano State has a total of 1,754,200 hectares of cultivable land. Approximately 840,000 farm families farm approximately 90% of the cultivable land, with an average land holding of two hectares.

25. The main crops grown in Kano State are: sorghum, millet, rice, maize, and sugarcane. In Kano, as in many states in Nigeria, farmers traditionally have practiced shifting cultivation, where one plot of land is farmed one year and allowed to rest in fallow for up to 10 years, during which time other plots were farmed by the same farmer. In this traditional system, the open burning of farmlands in preparation for planting has been the traditional practice used to clear debris that accumulated during the long fallow period.

26. In recent years, demographic pressure has reduced the amount of land available to each farmer for shifting cultivation. This also has reduced the fallow period that each farmer is able to allow the land to rest prior to re-planting. Now, the average fallow period is only two years. However, the same open burning of agricultural land continues to be practiced, even though the land lies fallow for less time than traditionally was the case. This only serves to reduce the already depleted humus in the soil and its ability to retain moisture.

27. Farmers clear the land and burn the residue towards the end of the dry season prior to planting at the onset of the rainy season. Pastoralists are allowed to graze on the stubble prior to burning and cultivating the land and farmers welcome the herds since the grazing cows drop manure onto the fields, although the quantity is typically insufficient to increase soil fertility measurably. Expensive inorganic fertilizers are used by a small minority of farmers able to afford these inputs.

28. In the absence of a GEF project, high levels of UPOPs generated by opening burning of MAW will continue to affect Nigeria's environment, Nigerian communities near and far and indeed the global community and the global environment. GEF support will therefore focus on introducing new practices and approaches and building capacity to apply international standards and to ensure that the institutional capacities and policy framework are adequate to support action to better understand UPOPs and reduce their releases in Nigeria.

29. A two-step process is applied to calculate the baseline release of UPOPs from open burning of coarse grain croplands in Kano¹. First, the amount of material consumed by agricultural burning must be calculated. The amounts of material consumed by agricultural burning (Mc) can be calculated from annual crop harvest figures by applying factors that estimate the residual material available for burning after harvesting and the proportion of crop areas subject to burn management.

30. Table 2: Baseline UPOPs releases in Kano State from open burning of existing coarse grain croplands.

Kano State	UPOPs Air Emissions	UPOPs land emissions
Sub-totals	27.733 g I-TEQ/annum	9.245 g I-TEQ/annum
Total	36.978 g I-TEQ/a	

Barriers analysis

31. Several barriers have limited Nigeria in its ability to reduce UPOPs releases from the open burning of MAW—barriers that this project is designed to mitigate in order to catalyze progress. The three main barriers are:

- (1) inadequate policy and regulatory framework to enable effective reductions of UPOPs;
- (2) inadequate institutional and individual capacity (knowledge, experience, essential equipment) to implement critical steps to remediate the release of UPOPs from open burning of municipal waste and agricultural residue;
- (3) low level of public awareness, knowledge and empowerment to enable key stakeholders (waste managers, scavengers, farmers) to take action in reducing UPOPs releases.

32. Barrier #1: Inadequate policy and regulatory framework regarding UPOPs.

1. ¹ The total harvest figure (Hc) of 2,140,000 tonnes is multiplied by the residue fraction for calculation of material burned in agricultural burning. As only a proportion of the crop is available at the time of burning (post-harvest), the total crop harvest must be scaled by an appropriate fraction which is a function of the typical crop residue remaining at burn time, the dry matter content of the residue and the burning efficiency. The crop residue fraction (Rc) for coarse grains is 0.576.¹ The fraction of total harvest subject to burning (Fc) is estimated at 75% or .75. Plugging these numbers into the equation $Mc = Hc \times Rc \times Fc$, produces an Mc value of 924,450 tonnes/year burned.

2. Step 2 calculates the emissions of UPOPs from agricultural burning to the land and to the air: $Ecj = EFcj \times Mc$. The EF figures (ug I-TEQ/t of material burned) utilized in this calculation are the emission factors from the UNEP toolkit emission factor for Uncontrolled Burning Category. Two separate calculations using Toolkit Emission Factors for impacted agricultural residues were made, one for air (30 ug I-TEQ/t material burned) and one for land (10 ug I-TEQ/t material burned). Multiplying these two EF separately to the Mc value above yields the total estimated emissions from open burning of coarse grain croplands in Kano of 27.733 g I-TEQ/a for air and 9.245 g I-TEQ/a for land, or a total baseline emissions figure of: 36.978 g I-TEQ/a.

33. Overall, waste management in Nigeria lacks a coherent law and policy framework to provide guidance and standards to support the development of modern integrated waste management practices that are so critical to the reduction of UPOPs releases in Nigeria.

34. In Nigeria, a wide range of work is either underway or has been undertaken in the policy arena with respect to waste management and agricultural land burning, but gaps remain. For example, *there are national guidelines on solid waste management* State and local officials are not supported in understanding and implementing these guidelines and the guidelines do not address UPOPs.

35. There is little strategic guidance or direction on the critical issue of UPOPs and no umbrella national waste management policy or strategy to provide a coherent approach to reducing UPOPs in Nigeria. There is no national Integrated Waste Management Strategies (IWMS). Not one State in Nigeria has developed an IWM policy (Lagos has a strategy and roadmap). At the same time, in Nigeria's decentralized system of government, the authority resides at the State level with State EPA/B, Municipal Councils, and other similar institutions.

36. Additionally, a piecemeal approach to waste management has predominated with little to no attention being paid to open burning of waste. Stakeholders have been busy developing policies based upon waste streams (hazardous, medical, agricultural) but there is no overarching policy for reducing UPOPs. FoME has developed some waste management regulations for solid and hazardous waste. The National Environmental Sanitation Policy (NESP) of 2005 contains a cursory waste management section. The Health Ministry has a health care waste policy with the provisional title of "Draft National Healthcare Waste Policy, 2009." Regulations are under development by NESREA regarding bush burning but they are silent on the burning of agricultural residue in farm fields.

37. The limited availability of high quality data on critical elements of the UPOPs "problem" in Nigeria *has hampered efforts to strengthen laws and policies related to UPOPs releases from the open burning of MAW*. The FMoE knows the sources of UPOPs in Nigeria, but they do not know how many officially designated dumpsites there are nation-wide. Similarly, no synthesized and quantified information exists on agricultural land burning each year – the scope and area burned each year. No one has quantified how much land is really burned or estimated the UPOPs releases based upon a solid analysis employing already available emission factors for the primary types of crops raised.

38. Enforcement policy in Nigeria is incomplete. Nigerian regulations are replete with "thou shall" and "thou shall not" statements but there are no sanctions imposed when regulations are violated. This absence of deterrence limits the effectiveness of the regulatory framework. In addition, enforcement is hampered by clear UPOPs related standards to enforce or measure against. Nigeria does not yet have national standards on acceptable levels of UPOPs in foods, animal feeds or soil for specific land use purposes. This means there are no Nigerian "triggers" that would prompt authorities at different levels to act on PCDD/PCDF contamination issues during food quality investigations, air and water quality monitoring, and so on.

39. Barrier #2: Inadequate institutional and individual capacity (knowledge of critical steps and experience in implementing them to remediate the release of UPOPs from open burning of municipal waste and agricultural residue.

40. Even with improved policies and regulations, there are significant capacity-related barriers that will likely prevent stakeholders from reducing the release of UPOPs from open burning of MAW. Nigeria's NIP identifies the importance of capacity building to enable stakeholders to reduce the release of unintentional POPs due to open burning of MAW. In particular, there is inadequate capacity at the institutional and individual levels among key stakeholder groups in the form of under-developed technical knowledge of and practical experience in implementing critical steps needed to reduce UPOPs releases.

There is a low level of experience utilizing existing best environmental practices (BEP) alternatives to reduce UPOPs releases.

41. *Sorting is yet to be formalized.* Sorting is one critical entry point to reducing the releases of UPOPs from open burning of municipal waste in Nigeria. No city in Nigeria has yet implemented a combined waste sorting and composting programme at the community level. In other words, there is no experience with or first-hand knowledge of an effective sorting programme in Nigeria. Without organized sorting, the burning of municipal waste will continue with or without city plans. The type of separation or sorting of waste at household level varies widely across the states with no standards and very little collaboration. The waste streams include those from households (mainly municipal), industrial and commercial, non-hazardous hospital waste, abandoned vehicles and recently electronic wastes. Though, there are similarities in solid waste characteristics in the different urban areas, there is a meager effort to tailor the system configuration to the waste characteristics. There is no target setting at the moment on level of cleanliness, on level of collection, on how to roll out collection programme with recycling and sorting focusing on job creation.

42. Burning prevention and management of unimproved dumpsites is unknown. There are no appropriate practices undertaken at these dumpsites to reduce open burning, such as sorting at the dump site prior to dumping and/or the clearing and compacting of the waste and applying soil cover after dumping in order to prevent future emissions of UPOPs. Virtually none of the dumpsites across the country have weighbridges, hampering the ability to measure the volume of waste entering the site and thus estimate the scale of the challenge.

43. *Local planning and management:* The capacity at the local and State levels to plan and manage UPOPs reductions is hampered by an under-developed ability among key stakeholders to qualify, quantify and interpret key data on UPOPs-related municipal and agricultural waste.

44. Agriculture is a huge sector of the economy and a significant contributor to Nigeria's UPOPs problem. However, for remediation efforts to be well prepared and effective, a much better understanding of the "problem" with respect to open burning in the agricultural sector must be developed. Reliable data on specific aspects of this problem must be generated – for example, how do UPOPs differ among different types of crops given different types and volumes of crop residue and pesticide use?

45. In Nigeria, there is no standardization for waste categorization and data generation. There is a low level of capacity and training in interpreting waste issues at state and local government levels responsible for waste management. This low level of experience and knowledge is particularly apparent with respect to critical aspects of IWM issues important for UPOPs release reduction. For example, none of the waste management authorities in any of the Nigerian States (apart from Lagos) has sufficient understanding of how to calculate and generate qualitative or quantitative data on waste composition, a key step in being able to understand the potential scope of a UPOPs releases from open burning in a municipality. There is an equally low level of experience among waste management professions in how to apply available emission factors for municipal and agricultural waste, and thus quantify and qualify the problem further in Nigeria. Hence, unreliable estimates support planning for UPOPs release reduction work.

46. *Institutional capacities for coordination of national and international partners.* In Nigeria, state agencies are independent of their federal counterparts, creating communication and funding gaps. There is no national UPOPs reporting mechanism and no coordination office to share BAT/BEP for UPOPs reduction practices and techniques. The web offers many interesting opportunities and new capacities to share information among key players of government in a large country like Nigeria. However, there is no mechanism in place to enable stakeholders around the country to continuously update the inventory of unintentional dioxin and furan releases from the open burning of MAW. This gap undermines the capacity of the FMoE to coordinate national partners on UPOPs-specific action.

47. Farmers burn their farm land in preparation for planting because: 1) it is a fast and inexpensive way to remove detritus from lands to be planted and 2) it is the traditional way and there are many assumed or perceived benefits; 3) there is a mistaken impression that burning agricultural residue provides worthwhile nutrients to the soil (and little understanding that wind and water erosion often renders the nutrients unavailable to plants); and 3) for pest control.

48. In summary, practical hands-on experience is lacking with respect to the sorting of waste at the source, composting, and low-tech steps apply to unimproved dumpsites to reduce burning. This in turns hampers implementation of simple steps that could contribute to dramatic reductions in UPOPs emissions from open burning.

49. Barrier #3: low level of public awareness, knowledge and empowerment to enable key stakeholders (waste managers, scavengers, farmers) to take action in reducing UPOPs releases. An informal survey of key stakeholders within the municipal waste and agricultural fields during the project preparation process revealed that few if any key stakeholders are aware of or understand UPOPs issues in the municipal waste management and agricultural extension organizations. The effective adoption of practices to reduce UPOPs releases from open burning will require careful and intentional communication of research findings to the general population, behaviour change, and local monitoring upon implementation of sorting and composting practices. Municipal waste management is happening across the country with a degree of public consultation, but local capacities for such specific and effective public education, mobilization, and monitoring are very limited. There are no education or training modules on UPOPs currently in use within Nigerian schools or university courses.

Stakeholder analysis

50. The main beneficiaries of the project activities are the people and communities affected by inadequate waste management and certain farm field preparation choices made by farmers. The health risks for local people from the resulting UPOPs releases (notably from breathing air or eating plants and animals contaminated with UPOPs) will reduce once the source of UPOPs is removed from the municipal waste stream and municipal waste is captured and managed. There may be employment opportunities for some local people during improved waste management activities and for monitoring and environmental recovery activities.

51. *Federal, State Environmental Ministries/Agencies.* Overall, waste management policy is established at the federal and the state levels. There is no policy or strategy or target with respect to waste management in general or UPOPs releases from open burning in particular. This project will seek to harmonize state policy with the federal policy that does exist in the form of NESP.

52. Both federal and state programs under development will play a role in determining whether IWM is successfully adopted and practiced in Nigeria. For example both KANO and Kaduna State Governments have plans to contract with private companies to set up new waste collection and treatment systems.

53. State and LGA officials will be key to the project's work in all four components. They will be the primary actors under this project, whether it is by utilizing project expertise and input to help overcome barriers to establishing and implementing a community-based composting and sorting programme, or by adopting new, immediately impactful practice at unimproved dumpsites to reduce UPOPs releases from open burning, or by adopting new by-laws and guidance notes to inform their policy and strategy work on municipal and agricultural waste issues. They will benefit from some of the training activities in addition to professional development related to the techniques and approaches that are introduced by the project.

Stakeholder Group/Institution	Relevant roles and responsibilities
-------------------------------	-------------------------------------

Stakeholder Group/Institution	Relevant roles and responsibilities
Waste Generators (local residents, businesses, farmers)	Traditionally considered as passive partners or obstacles to improved waste management in Nigeria. They have a largely under utilized capacity to contribute to reducing UOPs emissions from open burning of MAW by reducing, segregating, and properly discarding the waste as per the regulations or choosing alternatives to open burning in the agricultural sector. Close cooperation will be required between waste generators and waste collectors to increase effectiveness of this work and to reduce the open burning of UOPs.
Municipal Waste	
Federal Ministry of Environment (FMoE)	The FMoE is the main stakeholder at Federal level. FMoE is responsible for establishing federal municipal and agricultural waste management policy in cooperation with State EPA partners. FMoE is the lead agency in Nigeria for the Stockholm Convention. FMoE has developed and is implementing the IMSWMP. Officials from FMoE will be closely involved at all stages of project preparation, management and implementation. Other ministries will be involved through the project management structures (steering committee) and by taking part in some of the training activities.
National Environmental Standards and Regulations Enforcement Agency (NESREA)	Responsible for developing and enforcing environmental standards and regulations nationwide in close collaboration with the SEPAs at the State level.
The Senate and the House Committees on Agriculture and on Environment.	Consider issues and recommend action to be taken by legislative branch on agricultural and environmental issues.
Basel Convention Regional Coordinating Center (BCRC) University of Ibadan --	The BCRC is involved in training, dissemination of information, consulting, awareness raising activities and technology transfer on matters relevant to the implementation of the Basel Convention and to the environmentally sound management of hazardous and other wastes in the countries they serve. The specific activities are: training workshops, seminars, pilot projects on the management of priority waste streams; production of information material, and development of regional technical guidelines and tools (<i>i.e.</i> e-waste inventories).
State Environmental Protection Boards/ State Environmental Protection Agencies (SEPB/SEPA).	Responsible for most waste collection and dumpsite work nation-wide. SEPA are the key link in the new IMSWMP being implemented together with FMoE and the private sector in the project's two pilot states and in five other states.
Local Government Area (LGA) (county)	Key local stakeholder responsible for local governance, including waste management. Each LGA has six departments, one of which is the public works department. The LGA and the respective State government provide financing for waste management vehicles, crews, and other equipment and are responsible for the entire process.
Public Works Departments (PWD)	The PWD most often have operational responsibility for waste collection, transfer, treatment, and final disposal. The collection of recoverable materials or management of private contractors is often the responsibility of a different department, putting the two at cross-purposes.
Public Health and Sanitation Departments (PHSD)	The maintenance of public health and sanitation is under the jurisdiction of the Local Government Council's Public Health Department. The PHSD should play an important role in education, inspection, monitoring and enforcement of municipal and agricultural waste management. NESREA has similar enforcement functions and mandates that are not yet harmonized for effectiveness.
Waste Management Authority	WMA have overall responsibility for waste management operations --

Stakeholder Group/Institution	Relevant roles and responsibilities
(WMA)	ensuring that collection takes place and that the collected materials are delivered to processors, markets, or disposal facilities. They often have responsibility for landfills, incinerators, composting facilities, and have access to a stream of revenues from fees paid by waste collection companies for disposal. Most WMA simply collect solid waste and dump the waste in a dump site with no management.
Private sector companies	Private sector companies are increasingly involved in collection of waste, recovery of materials, the construction, operation and management of landfills, incinerators, and compost plants, and as concessionaires or contractors.
Jawura Environmental Services	Private laboratory – has unique capacity (in Nigeria) to analyze soil and plant samples for POPs.
Civil Society Organizations (CSO) / Faith-Based Organizations (FBO)	CSO and FBO are currently left out of the mix with respect to developing and implementing proactive solutions to reducing UPOPs-prone waste from the waste stream.
Residential Waste Generators	Local residents' preferences for particular types of waste service, their willingness to source separate recyclable materials, pay for the service, and move waste to communal collection points all have an impact on the overall waste system. Incentives can affect residents' preferences and behavior. In some private estates in the FCT, waste collection is combined with the rent or electricity bill. In the public estate however there is no willingness to pay for the same service for several reasons.
Business Waste Generators	Businesses (commercial/ factories/ workshops) also produce waste, and the business sector can become a significant player in the waste management system, particularly, as is increasingly the case, when businesses pay directly for their waste service. As with residents, incentives can play an important role in shaping business behavior and compliance.
Waste sorters and scavengers	Seek valuable waste amidst the municipal waste stream. They benefit from the open burning of municipal solid waste and have become an important stakeholder group within the waste management sector of Nigeria. In the absence of good sorting programme that formalizes their role, this stakeholder group will continue the practice of open burning of municipal solid waste.
Agricultural waste	
Federal Ministry of Agriculture and Natural Resources (FMoANR)	Agriculture law and policy development. Implementer of the FADAMA III Project. They work closely with State ADP on providing technical and financial assistance to farmers for myriad different purposes, among them being pest control, soil maintenance, and other issues relevant to the question of whether to burn farm fields or not.
State Agricultural Development Programme – State ADP	Located in every state, their responsibility is to provide extension services to farming nationwide. A joint Federal and State Government collaborative effort, the ADP is a nationwide, unified and all-inclusive extension delivery system.
Farmers Associations	Farmers associations serve as the local level institutions through which government aid and assistance is channeled to farmers.

Summary Baseline Analysis

54. In an overall baseline scenario, work to strengthen policies and guidelines and reduce UPOPs releases will continue to be hampered by inadequate data on the nature and extent of the problem. The pace of adoption of specific practices that reduce UPOPs releases will likely remain extremely slow, hampered by an emphasis on “things” rather than “processes” and people. For example, a low level of

stakeholder participation in municipal waste source reduction, composting, and other related community-level activities will likely continue to be the norm and will hamper the implementation of IWM overall, much less UPOPs-specific aspects of it. Large scale open burning will likely continue as the norm in most dumpsites as will the non-sorting of waste, the recycling of only a small number of preferred materials and taking no measures to sort and isolate relatively toxic waste typically found in municipal waste streams. Although municipal waste burns spontaneously in dumpsites, scavengers also intentionally ignite it, seeking access to recyclable waste. Such baseline practices have the effect of increasing (rather than decreasing) UPOPs releases from open burning of MAW. Without an effective sorting programme to remove recyclables and other waste that generates UPOPs when openly burned, municipal waste in Nigeria will continue to be burned no matter what laws and policies and strategies there are on the books. Therefore, GEF funds will be utilized to conduct targeted demonstrations in each pilot site of the most pressing IWM-related activities to reduce UPOPs.

55. In the absence of a Global Environment Facility (GEF) project, high levels of UPOPs will generated by opening burning of MAW will continue to affect the environment and communities living in close proximity and indeed worldwide. GEF support will therefore focus on introducing new practices and approaches and building capacity to apply international standards and to ensuring that the institutional abilities and policy framework are adequate to support action to better understand UPOPs and reduce their releases in Nigeria.

PART II: Strategy

56. The project will effectively reduce UPOPs releases in two pilot areas and address the policy, technical, institutional root causes to enable Nigeria to more easily replicate UPOPs-specific activities as the country increasingly adopts IWM and organic agricultural practices.

57. GEF support will focus on introducing and building capacity to apply international standards and to ensuring that the institutional and policy framework is adequate to support action on UPOPs. The GEF project proposal will initiate actions to address priorities identified under the NIP. Consequently, this project will focus on overcoming the three main barriers described above.

Institutional, sectoral and policy context

a) Law and Policy context

#	Policies & Guidelines	Relevance to UPOPs Project	Strengths & Weakness
1	The National Policy on Environment 1991 amended in 1999.	Section 3.6 deals with aspects of sanitation and waste management.	Generic goals defined but no mention of IWM as part of the strategies for waste management.
a)	Guidelines and Standards for Environmental Pollution Control in Nigeria (1991).	The only official guidelines and standards for environmental pollution in Nigeria.	Includes no provisions on POPs generated unintentionally from open burning of MAW.
b)	National Policy on Environmental Sanitation (2005)	Generic policy on all sanitation issues including solid waste.	Specifies the institutional roles and obligations of stakeholders.
c)	Guidelines on Solid Waste (2005)	Provides basis for Integrated Waste Management initiative of the FMOE (the baseline for this project)	Does not have guidelines specific to preventing/reducing POPs emissions from open burning of MAW.
d)	Draft National Policy on Electronic waste.	Electronic waste can be a source of POPs as a result of open burning.	Narrow focus does not allow for strategic approach to UPOPs release prevention and reduction.

#	Policies & Guidelines	Relevance to UPOPs Project	Strengths & Weakness
e)	Draft National Policy on Health Care Waste.	Health care waste can be a source of POPs as a result of open burning.	Narrow focus does not allow for strategic approach to UPOPs release prevention and reduction.
f)	Draft National Policy on POPs	Generic draft policy on POPs.	Focus on industrial POPs
	Laws, Decrees, and Regulations		
2	NESREA Act No 25 of 2007	Makes NESREA the top federal agency responsible for enforcing all environmental laws and regulations.	Broad mandate on environmental enforcement activities.
	Environmental Impact Assessment Decree 1992	Waste treatment and disposal is specified under mandatory study activities.	Makes EIA mandatory for all development projects likely to adversely affect the environment. Does not consider UPOPs emissions from open burning as a key factor.
	National Urban and regional Planning Decree no 58 of 1992	Emphasizes functional efficiency of Nigerian cities. Preparation & implementation of master plans development plans and maps for proper urban planning and management	Preparation of master plans for waste management. Implementation is weak.
	Public Health Law 2006 enacted as Anambra State of Nigeria Law 3 of 2007	Part B – Waste Management, Section 134, 136, & 137 Requires the collection and disposal of refuse generated in every premises.	The law empowers the prescription of the best options for MW management in the local government.
	Kano State Refuse Management and Sanitation Board Establishment Act	Key function is collection and disposal of refuse.	Calls for programmes to provide solutions to waste management issues including public participation.
	Regulations and Standards		
3	National Environmental (Sanitation and Waste Control) Regulation 2009 S.1 No 28	Stipulates that all manufacturers and importers of various products specified in the regulation (plastics, used tires, e-waste, newsprint and paper, batteries, metals, glass containers, refrigerators, etc.) shall: ▪ Undertake buyback of the containers for recycling ▪ Implement an individual or collective products stewardship programme; and; ▪ Support the Environmental Education and Awareness Programme of the Agency.	The newest regulation on solid waste in Nigeria (takes effect March 2010), it will require some capacity building in order to enforce and implement its main provisions. It is an ideal vehicle for enforcing waste recovery in Nigeria and preventing certain waste from being discarded in the first place – a key step needed to begin reducing UPOPs. Because this is the first regulation of its kind in Nigeria, NESREA's capacity to implement it in practical terms will need strengthening and a special focus on UPOPs-specific issues will also be needed.
	S.1.9 National Environmental Protection (Pollution Abatement in Industries and Facilities generating Waste) Regulations	Establishes a permitting system for industrial waste discharge/disposal.	Enforcement is weak. Does not consider UPOPs releases from open burning of MAW.

#	Policies & Guidelines	Relevance to UPOPs Project	Strengths & Weakness
	1991. Enacted Pursuant to FEPA ACT. National Solid And Hazardous Regulations' S.1. 15 of 1991.	Relevant to industrial solid waste and issues of burning seized goods or drugs by authorities.	

Project Rationale and Policy Conformity

58. In the area of unintentional POPs work, the Strategic Focus in GEF-4 will be concentrating on planning and policy development. Such planning and policy support is at the core of the intended project outcomes by directly assisting the planning of detailed action for tackling the various waste streams under the Integrated Waste Management Strategies. The intended support for policy development and planning is both timely and urgent at this early stage when Nigeria is taking tangible steps in introducing technologies and approaches which if correctly implemented can reduce UPOPs emissions considerably. Without the support it is expected that economic considerations rather than environmental (UPOPs) concerns will determine course of action.

59. As the project is aiming at developing legislative guidance, the planned activities are consistent with action included in POPs Strategic Programme 1 on Strengthening capacities for NIP implementation particularly concerning legislation and enforcement.

60. GEF-4 also allows for the possibility of small-scale demonstration and promotion of alternative “practices that prevent or reduce the generation and/or release of POPs” as included under the objective of Strategic Programme 2: Partnering in Investments for NIP Implementation.

61. In-line with these GEF priorities, the project outputs and activities are supporting i) development of policy and regulations in order to reduce uncontrolled burning of waste and hence reducing Unintentional POPs emissions ii) introducing and demonstrating Stockholm Convention approved BAT/BEP approaches in several sectors where absence of such best practices is resulting in considerable UPOPs emissions.

62. The project activities will further contribute towards general chemicals management particularly in the disposal stage of hazardous waste streams typically found in municipal waste. This support will be given as a part of the technical assistance given a priori to minimize UPOPs reduction but can in a restricted manner be extended to other problematic waste streams such as paints, solvents, mercury in light tubes batteries etc. Such integrated activities will support GEF’s overall cross-cutting efforts in supporting chemicals management as well as contribute to SAICM action plans dealing with the disposal step of chemicals’ management and efforts to re-cycle hazardous components.

Project Goal, Objective, Outcomes and Outputs/activities

Project Objective: Enhance human health and environmental quality by reducing releases and exposure to unintentional POPs originating from unsustainable municipal and agricultural waste operations.

COMPONENT 1. LEGISLATIVE STRENGTHENING AND POLICY DEVELOPMENT.(Co-FUNDING: 600,000; GEF: 600,000)

Outcome 1.1. Stakeholders assess and quantify baseline data on current and projected releases of UPOPs from open burning of municipal and agricultural waste (MAW).

Work under this Outcome will be led by the FMoE. GEF resources will be used to support model inventory work in the two pilot states for UPOPs production from municipal and agricultural waste. The purpose will be to revise estimates of UPOPs releases in order to better inform UPOPs-related policy development. Work under this outcome will follow the recommended five-step approach to establish a national PCDD/PCDF release inventory using the Toolkit².

1. Identify Main Source Categories.
2. Check subcategories to identify existing activities and sources in the country.
3. Gather detailed information on the processes and classify processes into similar groups.
4. Quantify identified sources with default/measured emission factors.
5. Apply nation-wide to establish full inventory.

Output 1: Inventory demonstration of UPOPs sources and releases from open burning of municipal waste in two pilot states.

Activity 1. Design and conduct inventory of sources and releases of PCDD/PCDF from open burning of municipal waste in Anambra and Kano States.

Work under this activity will enhance and refine the UPOPs inventory done under the NIP process by demonstrating a rigorous state-level inventory in each pilot state that will then be replicated in other states.

GEF resources will provide expert input to enable state-level stakeholders to “learn while doing” under this activity. The Basel Convention Regional Coordinating Center will be tasked with organizing and guiding two expert working groups, one in each pilot state. Each expert working group will be identified from the key stakeholder institutions at the state level (State Ministries of Environment, Kano Solid Waste Management Board, and Anambra State Environmental Protection Agency, and the FMoE). Project resources will enable UPOPs experts to train and guide each state-level expert working group in how to identify sources and sites of UPOPs emissions and prioritize them for further inventory work.

The inventories will be conducted in the following manner:

- Identify the designated and non-designated dumpsites, including other municipal waste sources of UPOPs releases in the two pilot states (uncollected waste along roadsides, in backyards, vacant lots);
- Quantify (tonnes and/or volume) of waste generated in each pilot state and means of disposal (dump sites, incineration, composting)
- Categorize and classify the types of municipal waste based upon UNEP toolkit categories.
- Inventory and quantify emissions from the designated dumpsites and other various sources of PCDD/PCDFs in the two pilot states;
- Utilize the data obtained to project future per capita UPOPs emissions in the pilot states up to 2020;

² UNEP. 2007. Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases. Edition 2.1 December 2005. Prepared by UNEP Chemicals, IOMC. Geneva, Switzerland

The data collected will be used to develop and maintain inventories of UPOPs releases utilizing the UNEP Toolkit. This information will be critical to State MoE and the FMoE in monitoring conformance with identified environmental performance measures. Each state UPOPs working group will conduct these inventories on an annual basis in order to monitor & update the reduction trends in UPOPs and provide the data to FMoE.

Output 2. Monitoring and reporting mechanism in place and operational for UPOPs generated from the open burning of municipal and agricultural waste (MAW).

Activity 1. Training of state EPA & ADP (KNARDA) on how to use the UNEP-Toolkit on Monitoring UPOPs.

Under this activity, project resources will support training of State EPA and ADP (KNARDA) staff in the use of the UNEP Toolkit for Monitoring UPOPs releases from open burning. Beginning in year two of the project and each year thereafter, an increasing number of State EPA and ADP will produce a UPOPs report and submit to the FMoE pollution control department. FMoE could incentivize this activity, with the help of relevant industry by introducing a “Cleanest State or City” award competition with a well-publicized award and/or either a monetary or relevant piece of equipment prize.

Work under this activity will devise a simple and straight-forward method of monitoring UPOPs emissions from open burning of MAW. GEF resources will support expert input to assist stakeholders in utilizing the UNEP toolkit to monitor the status of UPOPs releases from open burning of municipal and agricultural waste. Based upon existing reporting format from the UNEP toolkit, the project will develop an online reporting system and databank for UPOPs from open burning of MAW that will be domiciled in the project’s website initially and transferred to the FMoE’s website as an important end of project milestone.

This reporting mechanism will complement existing channels of communication, such as the African Stockpile website and the chemical information exchange network (CIEN). Project resources will enable stakeholders to learn from other experiences in Africa on this issue. For example, South Africa has been successful in managing and sharing of information and making sound policies and regulations based on a Waste Information System online database.

Outcome 1.2 Federal waste management policy adopted and UPOPs Reduction Strategy Endorsed.

Output 1. National municipal and agricultural waste (MAW) management policy developed.

Activity 1. Prepare draft MAW management policy and secure stakeholder and Government approval.

This activity will be co funded by the FMoE and GEF. GEF resources will be utilized to enhance the participatory nature of this process and to convene a working group of experts on critical UPOPs issues to be addressed by the MAW management policy. Government co-funding will support the development of the overall policy itself. This working group’s efforts will complement the FMoE’s parallel work to develop a national waste management policy.

They will assess Nigeria’s POPs related policies and laws to date and identify gaps to be filled and strengths to build upon. Policy development work will build upon the existing baseline of activity in this area. For example, The FMoE has developed a draft healthcare waste management policy, strategy and action plan. Also it is developing a draft e-waste policy and action plan. NESREA has developed a

number of regulations and in particular the National Environmental (Sanitation and Wastes Control) regulations 2009 and a draft e-waste regulation. The project's work will build upon this baseline.

Using this due diligence, the working group will draft an MAW management policy with specific UPOPs reduction provisions. For example, the policy will set recycling goals and priorities for waste materials prone to UPOPs releases during thermal combustion from open burning.

The policy will need to harmonize the three different roles of FMoE, NESREA, and the Legislative branch respectively with respect to UPOPs. The process of refining and completing a MAW management policy draft will be aligned with existing, related laws and policies in Nigeria such as the National Urban and regional Planning Decree no 58 of 1992, National Policy on Environmental Sanitation (2005), the Public Health Law 2006 and a number of State Environmental Sanitation Edicts. The process will also draw upon international BAT/BEP.

A series of workshops will be organized and funded by Government, beginning with one workshop in each of four geopolitical regions, culminating in a national workshop to approve the policy. This will allow groupings of states to review the policy, gather at the sub-regional level to discuss and provide input. A robust stakeholder mobilization effort supported by GEF resources will be conducted prior to each workshop to facilitate maximum level of participation in each locality. This input would then feed into the national process of finalizing the policy.

Output 2. Federal UPOP reduction implementation strategy.

Activity 1. Under this activity, GEF funds will be used to support the development of a federal UPOPs reduction strategy. The strategy will focus on how to implement the UPOPs-relevant aspects of the national waste management policy developed under Output 1 above. The experience generated by project-supported inventory activities in each pilot state will underly and support this work. Specifically, the improved understanding of the UPOPs "problem" enabled by this inventory work under Outcome 1.1 will highlight and clarify the strategic and practical steps needed to begin reducing UPOPs releases from the open burning of MAW.

The strategy will emphasize new and innovative approaches to engaging communities in UPOPs reduction work, including "waste-to-wealth" kinds of activities and programs such as the South African "Food for Waste" programme³. The strategy will emphasize the central importance of well designed public communication initiatives that empower communities to take action and will include examples of model programs of this type. The strategy will emphasize the importance of sorting waste prior to dumping, including composting.

The strategy will build upon the existing FMoE programme on integrated waste management being implemented in the pilot states. This strategy will be adapted by each of the two pilot states' MoE, as led by the two working groups on UPOPs created under Outcome 1.1.

The project will strengthen the capacity of the existing national waste management committee within the FMoE to serve as the national catalyst for the implementation of the UPOPs strategy. The committee is comprised of a cross section of relevant expert organizations, from FMoE, FMoANR, NESREA, State EPA, ADP, Ministry of Agriculture, the Center, the private sector and academia. GEF resources will support capacity building activities such as training seminars on UPOPs and targeted

³ The Food for Waste Programme in South Africa is designed to engage the residents of poor areas in the process of supplying waste management services to their areas. See Annex 1 for overview.

study tours to the pilot states to see first-hand the UPOPs reduction work underway. In addition, the mandate of the Committee, its expertise in MAW, and its focus on UPOPs will be strengthened. Part of the Committee's strengthened mandate will be to improve federal-State communication and coordination on UPOPs and waste management issues.

Outcome 1.3. Technical by-laws and guidance adopted by pilot state EPA.

Output 1. Technical by-laws, state and municipal guidance covering UPOPs reducing in municipal waste management developed.

Activity 1: Update and strengthen by-laws and guidance notes covering BAT/BEP for reducing UPOPs inform open burning of municipal and agricultural waste. Working closely with each respective State EPA in each of the two pilot States, two expert working groups will update and strengthen by-laws and guidance notes covering BAT/BEP for reducing UPOPs releases, including sorting and composting, recycling, fire suppression in dump site management, mulching of agricultural residue, crop rotation to manage pests without burning, and improved fallow, as well as the banning backyard burning of municipal and health care waste, disincentives for burning of agricultural residues. This will be done with NESREA involvement and input as well in order to ensure that regulations and by-laws have sufficient penalties included in them to serve as a deterrent.

Activity 2. Facilitate replication of these by-laws and guidance notes by making them easily accessible on the web to State and local level stakeholders. In addition, incentives for their replication will be incorporated into the FMOE's ongoing IWM programme whereby states receive new funds for IWM planning will be required to incorporate all or the most germane elements of other States' UPOPs reduction by-laws and guidance notes into their IWM planning and implementation process.

Activity 3. Conduct effective local sensitization campaign for these laws, policies. Civil society organizations and faith-based organizations will be crucial.

Outcome 1.4. Federal and state municipal waste policy setting and enforcement capacity increased.

Output 1. Strengthened capacity in UPOPs minimizing MAW management practice.

Under this output, GEF resources will be utilized to train federal, state and municipal staff in regulations, their enforcement and novel approaches to UPOPs minimizing waste management.

Activity 1. Conduct a training needs assessment. An international expert in UPOPs and training needs assessment will conduct a training needs assessment regarding UPOPs issues in the two pilot States initially. A training programme, drawing upon best practice world-wide will be designed in response bringing in at least 2-3 experts in key areas of need to conduct a series of training workshops, with the intention of training at least 2 Nigerian trainers to continue the process in Nigeria and to provide ongoing support.

Activity 2. Improve enforcement capacity of police and judicial stakeholders with respect to UPOPs regulations and by-laws. Under this activity, magistrates, law enforcement officers, waste management boards, NESREA and FMOE, state EPA, and agricultural extension officers will be trained in UPOPs and the danger they pose to human and ecosystem health. Training will also focus on UPOPs regulations and by-laws developed in activities above. Training will focus upon enforcement capacity and waste management practices that are specific to UPOPs reduction, including how to assess waste

composition of truckloads of at dump sites or how to intercept certain waste streams destined for burning. Targeted groups will include: judicial staff at the magistrate level; agricultural extension offices; forest guards and state EPA officers.

Activity 3. Develop a summer internship programme for Nigerian university students to encourage young promising scholars entry into the field of environmental protection and management, particularly UPOPs-focused work. This internship programme will carry through the project's work under Component 2 as well and will collaborate with the top 3-5 universities in Nigeria with programs in environmental management or protection.

COMPONENT 2. REDUCTION OF UPOPs EMISSIONS THROUGH INTRODUCTION OF NEW PRACTICES AND APPROACHES IN MUNICIPAL WASTE HANDLING. (CO-FUNDING: 18,550,736; GEF: 2,550,000)

Outcome 2.1. UPOPs emissions reduced Through Improved Sorting of Municipal Waste.

Output 1. Introduction of municipal waste separation at selected communities.

Work under this output will further implement the action plan developed under Outcome 1.2.

Activity 1. Demonstrate critical steps needed to sort waste materials given low priority for recycling.

Consider how best to avoid burning of various UPOPs prone waste streams such as plastic wrappings, PVC waste items, electronic waste items, tires, medical waste in open dump sites and by demonstrating re-use, recovery, recycling and treatment of such generated waste in each respective pilot area. This will be done in a way that develops a specific step-by-step approach given opportunities and constraints, available partnerships, and existing programs and policies.

Project resources would be used to top-up state-funded municipal waste management work by providing expertise in municipal waste management best practices to reduce UPOPs emissions and more specifically in how to transform the informal process of waste recycling that relies upon open burning of waste to a formal process absent the use of open burning.

Step 1. Provide sorting expertise to kick-start work at city-built and funded waste sorting centers and/or train onsite waste pickers in sorting priorities, establishing rules for pickers and organizing them into recycling groups.

This step will catalyze the establishment of city-wide recycling programs in each of the two pilot sites. State and city co-funding will support the bulk of this work, but GEF funds will enable certain experiential and knowledge barriers to be overcome within the ranks of the city municipal waste departments and the citizenry at large. For example, GEF resources will provide the sorting expertise necessary to elaborate and organize the work under this step.

The work will be led by State EPA and local municipalities in collaboration with FMOE and will focus on setting up a phased approach to a commercial-level citywide recycling programme in each of the two pilot cities in commercial and government office buildings, hotels and restaurants, hospitals, markets and schools. The national waste management committee's on role becomes critical as it will coordinate the activities and assist in finding markets for recyclables and facilitate buy-in from government – the required catalyst to make this activity happen. The elements of this step include:

- Conduct training for local waste management departments on how to set up culturally appropriate recycling programme that focuses on people as the critical factor and not just infrastructure and equipment;
- State EPAs, municipalities, local leaders and FMoE recruit community partners focusing on FBOs, NGOs and CBOs (youth service organizations) to be involved in the participatory process to formalize the informal waste picker/scavenger sector;
- Develop pilot initiatives based upon the “Food for Waste” programme in South Africa as a model.

Step 2. Conduct innovative public awareness campaign that sensitizes the public to environmental issues, occupational health and safety issues of UPOPs, values of recycling and recovery of materials and the type of materials eligible for recycling, and preparation requirements. Existing communication mechanisms and partnerships will be utilized (i.e. Community Development Associations, FBOs, and CBOs) to introduce neighborhood waste separation. Engage Nigerian students in organization effort in part by providing summer stipends for Nigerian university students to do field work supervised jointly by professors and SEPA staff in project pilot sites.

Step 3. Begin household sorting at the neighborhood level, starting with one neighborhood and monitoring, learning, listening and building up to more and more neighborhoods and residential estates. This will include distributing sorting receptacles to households and carefully monitoring feedback from the community as to their usefulness, and programme effectiveness.

This step will be centered around a two pilot demonstrations in each pilot site of a Food for Waste type of programme. Working closely with the local community authorities, the project will bring the best practices and experiences from the South African model to be applied in the Nigerian context with a focus on improving community participation in waste sorting and particularly in formalizing the non-formal waste sorting sector. This will be done in a participatory manner, where incentives and non-cash remuneration are discussed and agreed upon in advance.

Step 4. Invite private sector involvement in the set up of basic recycling center(s) or material reclamation facilities (MRFs) through a public-private partnership to which people can bring higher value recyclables for payment by recycling associations and small scale recycling industry such as private reclamation collection companies.

This will be initiated by NESREA and private sector partners as part of a pilot preliminary pilot implementation of the new National Environmental Sanitation and Waste Control Regulation 2009 (NES-09). GEF funds will help NESREA to structure this effort so as to achieve maximum UPOPs release reductions and to be replicable across other states in Nigeria. Under this activity, NESREA will pilot the full-scale implementation of the NES-09 regulation requiring manufacturers to assume responsibility for the full lifecycle of their products. This is a new regulation and NESREA is a relatively new government body, with minimal capacity and experience in implementing such a regulation. GEF resources will co-fund NESREA’s pilot implementation work in the two pilot sites and enable NESREA to focus in on companies and products that, once in the waste stream pose serious risk of releasing UPOPs.

Activity 2. Collaborate with local authorities to strengthen UPOPs-specific source and release aspects of existing IWM strategies in the project’s two pilot States/Cities.

Analyze two pilot site IWM strategies and recommend UPOPs reduction modifications for each pilot State strategy. The analysis will consider how UPOPs reducing efforts could strengthen the existing strategies through an incremental phased approach of each pilot city’s sorting, recycling and recovery

plans to meet city wide targets with respect to generation, storage, handling, collection, transportation, treatment, and disposal.

Recommendations will also focus on how to improve or establish basic success milestones and targets to promote a results-based approach to the development of sorting and composting strategies and their implementation. This will enable local authorities, with project support, to design a simple local-level monitoring framework to monitor city wide sorting and composting targets and to report this information to the information database developed by FMoE under Outcome 1.1 of this project. State implementation plans for existing IWM strategies will be made available in local languages and in user friendly modes, so as to maximize the availability of state plans to the general public

Outcome 2.2. UPOPs emissions reduced by improved composting.

Output 1. Establishment of composting, collection of compostable municipal waste at communities in 2 pilot cities.

Activity 1. Develop pilot composting initiatives in each pilot site.

Under this activity the Municipal Council in each pilot site will establish an organic waste sorting pilot. The pilots will focus upon diverting organic waste away from the waste stream before it is trucked to the dump-site and uncontrollably burned with resulting UPOPs releases. This organic waste sorting pilot will begin with an awareness initiative targeted at selected groups of organic waste generators (i.e. restaurants, households, hospitals, schools, open air markets). This is done in collaboration with State EPA co-funding sources and will consist of the following sub-activities:

- Define the goal & coverage of the compost programme (local markets or entire community).
- Conduct volunteer training and outreach to community.
- Conduct a waste audit for compostable food, yards, garden waste produced through consultation with resident association, landlords, principals, teachers, business property managers and community leaders.
- Establish a community compost committee to facilitate networking and implementation of the programmes goals and production of compost that meets the need of community.
- Identify and locate the green space for composting site (s) (a level area with good drainage).
- Provide compost bins to increase residents' interest in composting.
- Operationalize, monitor results, participation and diversion rates, and cost per ton diverted.

Activity 2. Develop market for composted products in pilot areas.

Work under this activity will learn from City of Lagos' experience in composting and how to design the composting programme with an understanding the market and the needs of local farmers and landscapers for specific types of compost fertilizer. The project will work with city, state, and federal government agencies in each pilot site to establish procurement policies for purchasing soil made from compost programme.

This could include the city and or state waste management officials formulate agreement to provide composted soil as fertilizer to the local branch of the "All Farmers Association" including an agreed upon price.

Conduct simple field studies of benefits provided by compost to local farms in terms of soil conditioning, fertilizing effects, or combinations thereof. Formulate economic arguments based upon these results as to why buying compost makes sense for a local farmer.

Outcome 2.3. UPOPs emissions reduced through improved incremental management of dumpsites to suppress/prevent burning.

Output 1. Model dumpsites managed incrementally to reduce burning.

Activity 1. Upgrade/rehabilitate existing waste dumpsites to prevent burning.

Work under this activity will be co-funded by local State EPAs and Waste Management Boards and their private sector partners as well as GEF.

GEF resources would provide expert input to enable stakeholders to elaborate critical steps to facilitate proper use of dumpsite areas. This would include the necessity to maintain access roads, drainage systems; the installation of control gate & perimeter/security fence, dumping and pile garbage at the farthest accessible section of the dumpsite to maximize utilization of the area, use of bulldozer for compaction of waste and planting of trees as buffer strip.

With GEF-supported expert guidance, co-funded work under this activity will demonstrate fire suppression techniques in the pilot states by excavation and dumpsite rehabilitation (applying soil cover, restructuring areas of the dumpsite, slope stabilization) to actually modify of all or a portion of the waste dumpsite with burning avoidance upgrades.

This could include the conversion of controlled dumps to simple landfills, depending upon the level of co-funded inputs available from project partners in the two pilot sites. During this phase, basic engineering techniques are gradually employed to stabilize the waste and control environmental releases. The waste is spread and compacted in layers and leachate is collected in preparation for transition from simple landfills to properly designed, constructed, and managed landfills.

Outcome 2.4: Five States Participating in Federal-State-Private Sector IMSWMP replicate demonstrated best practices for UPOPs reductions.

The projects replication work will focus upon using the FMoE's national Integrated Municipal Solid Waste Management Programme as the "vehicle" for replication of project-inspired UPOPs reduction activities. This replication will focus initially on each of the five other states participating in the IMSWM programme, which is co-funded by the Government of Nigeria (FMoE), State Governments, and the Private Sector. GEF resources under this outcome focus on enabling the replication of UPOPs reduction steps as demonstrated under Outcomes 3.1 and 3.2.

Activity 1. Incorporate UPOPs-specific priorities in each participating State's IWM strategy.

Under this outcome, the project will provide technical support to the five other States still in the process of developing their integrated waste management strategies under the FMoE's IWM programme. Such input will "top-up" each existing baseline initiative in each of the five States with "UPOPs-specific" priorities to be included in IMSWM strategic planning, such as sorting and how to bring the informal waste sorting sector (scavengers) into the formal process.

Activity 2. Provide expertise and training to each of the five States to help in establishing citywide targets to be included in the IWM strategy for minimizing UPOPs through sorting and formalizing the informal waste harvesting/scavenger sector.

This will include guidance in how to plan for a practical monitoring programme for citywide UPOPs reducing waste management targets and how to include clear indicators of success for the phased approach a State's or a city's IWM programme.

Training will focus upon:

- Planning and executing an efficient waste sorting programme, including a low-cost practical composting effort.
- Recycling and setting up of recycling programme on UPOPs prone waste materials;
- Disposal and sorting of hazardous waste and setting up of efficient materials recovery facility with an emphasis on disposal of hazardous waste streams typically found in municipal waste, targeting problematic waste streams such as paints, solvents, mercury, batteries, etc;
- Monitoring of UPOPs releases from open burning of municipal waste.

Activity 3. Develop simple and succinct training modules or guidance notes on how to integrate UPOPs reduction priorities into IWM strategic planning. A video documentary demonstrating UPOPs reduction activities in both pilot states will be utilized as part of the training modules. This video, together with the guidance notes, will be utilized by the five States as well as the remaining States across Nigeria who are yet to begin their IWM strategic planning process.

COMPONENT 3. REDUCTION OF UPOPs EMISSIONS FROM BURNING OF FARM FIELDS IN PREPARATION FOR PLANTING. (CO-FUNDING: 650,000; GEF: 700,000)

Outcome 3.1. Open burning of agricultural waste is reduced through changes in agricultural practices.

Output 1. Elaboration of UPOPs releases from the seasonal burning of farmlands in Kano State.

Activity 1. Total emissions from burning of sorghum, maize and millet residue in Kano State will be estimated on a per crop coverage basis.

Work under this activity will collaborate with the Kano Agricultural and Rural Development Authority (KNARDA) and the FMoANR Fadama III project. Project resources will support the clarification and elaboration of the UPOPs challenges facing agricultural activities in Kano State.

Total emissions from burning of maize, sorghum and millet farm waste in Kano State will be estimated on a per crop coverage basis and UPOPs emissions thereof calculated using the UNEP Toolkit.

Under this activity, a similar working group will be formed in Kano to demonstrate a model inventory of sources and releases of UPOPs from open burning of agricultural residue on croplands. The working group will be comprised of experts from the Agricultural Research Council, KNARDA, State Ministry of Agriculture, FMoANR and FMoE. GEF resources will bring international best practice expertise to guide the inventory and release quantification process. Drawing upon various emissions estimation techniques in practice worldwide, the inventory will be conducted utilizing the following steps:

- Identify the primary crop types in Kano and related hectares under cultivation in Kano state;
Quantify (tonnes and/or volume) of agricultural residue generated per crop type/per hectare and means of disposal (grazing, burning, composting)
- Categorize and classify the types of agricultural residue based upon UNEP toolkit categories for croplands.

Working closely with the State Agricultural Development Programme in Kano (KNARDA), estimates will be developed of the quantity of each type of cropland burned each year. The amounts of material consumed by agricultural burning can be calculated from annual crop harvest figures by applying factors that estimate the residual material available for burning after harvesting and the proportion of crop areas subject to burn management.

As only a proportion of the crop is available at the time of burning (post-harvest), the total crop harvest must be scaled by an appropriate fraction which is a function of the typical crop residue remaining at burn time, the dry matter content of the residue and the burning efficiency. The residue fractions for different crop types can be obtained from different source documents internationally. For example, a default fraction of 0.23 for wheat and coarse grain crops and 0.68 for cane crops can be used⁴.

- Inventory and quantify PCDD/PCDF emissions from each major crop in Kano utilizing well known emissions estimation techniques. The data required to calculate aggregated emissions from agricultural burning are the following and will be provided by the ADP:
 - annual harvest mass for different crop types by defined area;
 - post-harvest residue fraction of different crop types; and
 - # of hectares and percentage of land used for particular crops that is subject to a burn management regime.
- Utilize the data obtained to project future per hectare UPOPs emissions from open burning of agricultural residue in the Kano state up to 2020.

As part of the inventory process, KNARDA staff will be trained in the use of the UNEP tool kit to estimate UPOPs releases from open burning of agricultural residue. KNARDA staff with project help will develop a monitoring programme utilizing the existing agricultural extension network of agents to monitor open burning of agricultural lands each year prior to planting season. A simple, informative format for reporting will be developed.

Output 2. Increased level of awareness among farmers of the impact of burning on farm fields, both from an agronomic point of view (decreases soil water retention) and a UPOPs perspective.

Activity 1. Raise awareness on how open burning of agricultural waste (AW) harms the soil, negatively affects human health and generates UPOPs. For example, low intensity fires used for removing field stubble can have an immediate, direct effect on soil hydraulic properties.

⁴ DEST. 1996. *Agriculture: Workbook for Non-Carbon Dioxide Gases>From the Biosphere*, National Greenhouse Gas Inventory Committee, Department of the Environment, Sport and Territories, Canberra, Australia.

Awareness raising materials will be produced in local languages to get out the message to farmers in the pilot areas of Kano State. This activity will focus on specific target stakeholder groups such as farm families (farmers, women, and school children).

In Kano, project resources will enable the KNARDA to carry out public awareness campaign together with the two selected local government Areas (Doguwa and Dambatta). The State MoANR will oversee the implementation of the activities. Radio and television advertisements can be used to complement direct visits to communities and the use of printed awareness materials.

Output 3. Alternative approaches to crop residue burning at pilot-sites in Kano state introduced.

Activity 1. Establish pilot demonstrations on alternative approaches.

Under this activity, the project will work with KNARDA, two LGAs and relevant Fadama Community Associations (FCA) and Fadama User Groups (FUG) to select appropriate sites for the project demonstration activities.

This activity will work closely with the Fadama III project structures to complement work to target innovative agricultural practices for investment and piloting. The project will work with motivated farmers to develop specific proposals for investment from Fadama-III's programme that will demonstrate viable alternatives to burning of croplands and crop residues.

Suggested alternative approaches will focus on the primary reasons farmers burn croplands and crop residue in the first place: to control pests and to improve soil fertility. Possible alternatives will include:

- 1) Promote crop rotation (fodder legume and non-legume or cereal rotation) to reduce pest infestation, and improve soil fertility.
- 2) Demonstrate improved fallow systems as a sustainable alternative to the traditional burning of fallow lands. This innovative intervention will focus upon modifying and improving fallow practices in order to increase soil fertility and increase crop yields. Useful leguminous shrubs include *Flemingia macrophylla*, *Canjanus cajan*, *Sesbania sesban*, *Acacia auriculiformis*. The use of such fast growing leguminous shrubs/plants in fallow land also helps farmers who must reduce the time allowed for the land to be fallow.
- 3) Slash and mulch – Introduce slash and mulch practices through in the field demonstrations. Demonstrate cut and mulch as a sustainable alternative to open burning of agricultural residue to increase nutrient availability, reduce soil temperature, increase soil moisture, control weeds, and reduce labour cost for weeding. This demonstration will be conducted on three different farms to be selected by the FCA. GEF resources will provide technical assistance to design and guide the demonstration process, conduct training on the cut and mulch approach.
- 4) Demonstrate use of cover crops such as *Mucuna pruriens* to promote Integrated Soil Fertility Management (ISFM) technologies. This is done to control weeds and improve the productivity of the soil by adding nutrients to the soil. ISFM technologies seek to reduce weeds and labour requirements and control erosion.
- 5) Mixed farming or agrosilvopastoral systems. Demonstrating the integration of tree crops, food crops, and livestock into the same area.

6) Demonstration of the use of crop residue handling equipment among farmers/CBOs. Another reason farmers burn is because it requires relatively little labor. This demonstration will show farmers alternatives to burning that require minimal labor and will enable mulching and related practices to better recover nutrients from crop residue for the soil. Crop shredders or choppers are not known in Kano. Work under this activity will establish field demonstrations on plant shredder utilization. The project will work with the Fadama III project to facilitate the ability of the investment programme under Fadama III to consider shredder equipment as an eligible investment. This will enable FUGs or FCA to obtain financing to purchase such equipment for use by members.

Activity 2. Peer-to-peer training for farmers in the methods and practices of applying these alternative methods of improving fertility of the land and controlling pests without burning.

Project resources will enable agroforestry experts to train farmers and agricultural extension officers in alternatives to open burning of agricultural residue. Farmers' training workshops will be organized for selected farmers in the 2 LGAs identified and the farmers already working on the FADAMA III project. Study tours will be organized for the farmers to enable them visit demonstration plots and learn from other farmers.

Training topics will revolve around methods and practices demonstrated above and how to apply these alternative methods of improving fertility of the land and controlling pests without burning. This will include: organic and non-chemical pest control, composting techniques. A market survey can be conducted to gather reliable information on markets for the by-products. KNARDA can be approached to buy compost from farmers for their demonstration plots etc. These are important components of slash-and-mulch system.

These pilot demonstrations of the practices that are alternatives to burning will be organized through the Fadama III structure of FCAs and FUGs within the two pilot local government areas in Kano State. Project resources in terms of awareness raising materials, technical assistance, guidance notes, training modules and support for peer-to-peer training will be employed using the existing KNARDA/Fadama III project mechanisms, such as training programs for agricultural extension agents and farmers, small-scale community-owned infrastructure support, and input support in terms of seeds, fertilizers and advisory services.

Output 4. Replication of alternative, non-burning, farm field preparation methods throughout other LGA in Kano State and other States.

Work under this output also will collaborate closely with the FADAMA III project structure to ensure that the project's training modules, awareness materials and demonstration activities are incorporated into the agricultural support mechanisms in place under each state ADP.

Activity 1. Peer to peer training and organize workshops for extension officers and farmers. Exchange visits/study tours to pilot sites (Duguwa, Danbatta, KNARDA Office) for beneficial exchange of practical experience.

Activity 2. Development of training modules covering the different alternative methods for use by ADPs (KNARDA) and FADAMA III structures in other states.

Activity 3. Establishment of demonstration plots and farms in selected sites of other States to scale-up the process. Based on the success achieved in the two pilot sites in Kano, farmers from neighboring

sites and states are expected to adopt the non-burning practices. With training materials sufficiently developed and the farmers adequately trained, the adoption process is ensured.

Activity 4. ADP/KNARDA monitors progress and publishing of results in English and in local languages.

Project Indicators, Risks and Assumptions

63. The following indicators have been identified to measure progress towards the project Objective and Outcomes. For more information, and for information on Output indicators, please see the SRF table in Section II, Part II.

Objective: Enhance human health and environmental quality by reducing releases and exposure to unintentional POPs originating from unsustainable waste operations.

Objective Indicator: Number of g TEQ/annum released due to open burning of collected and uncollected municipal waste.

Onitsha Target: 20% reduction in open burning of collected waste at dumpsites and 100% reduction in open burning of uncollected waste:

- 19 g TEQ/a reduction by yr 4 in UPOPs from collected waste burning.
- 7.12 g TEQ/a reduction by yr 4 in UPOPs from open burning of uncollected waste.

Kano Target: 20% reduction in open burning of collected waste at dumpsites and 100% reduction in open burning of uncollected waste:

- 78.8 g reduction by yr 4 in UPOPs from collected waste burning.
- 78 g TEQ/a reduction by yr 4 in UPOPs from open burning of uncollected waste.

Total Combined Target:

- 97.8 g TEQ/a from open burning of collected waste in landfills (20% of baseline)
- 85.12 g TEQ/a from open burning of uncollected waste (100%) of baseline.

Outcome 1.1 Quantified baseline data on UPOPs generation.

Indicator:

- Updated MAW source inventory figures and UPOPs release figures from open burning of MAW.
- Updated emission data on UPOPs in pilot states and by projection for the country.

Target: More comprehensive UPOPs estimate elaborated and adopted by FMoE and incorporated into Stockholm convention report.

Outcome 1.2 Federal waste management policy adopted and UPOPs reduction strategy endorsed.

Indicator: Number of state EPA endorsing draft policy on MAW management.

Target: At least 15 state EPA endorse policy by end of year 3.

Indicator: Legislative branch endorses MAW management policy.

Target: Endorsement of policy by Cabinet by end of year 3.

Indicator: Number of Federal Agencies and State EPA endorsing new MAW strategy.

Target: FMOE endorses strategy by end of year 3. At least two State EPA Endorse Strategy by end of year 3.

Outcome 1.3 Technical by-laws and guidance adopted by pilot state EPA.

Indicator: By-laws for MAW management-related UPOPs drafted and adopted by each pilot city council.

Target: New by-law adopted by at least 2 city councils total in pilot sites by end of year 2.

Indicator: Evidence of use and application of by-laws and guidance notes in waste management practice.

Target: Main elements of guidance notes and by-laws incorporated into work plans and outreach materials in each pilot state.

Outcome 1.4. Federal and state waste policy setting and enforcement capacity increased.

Indicator: Number of judicial and state environmental protection office officials in pilot sites with measurably improved knowledge and skills.

Target: 20 officials in each pilot state completed training and measurably improved knowledge and skills.

Indicator: % of main actors in waste creation, storage, transportation and dumping who are familiar with IWM and UPOPs reduction principles.

Target: 60-75% by end of the project.

Outcome 2.1 UPOPs emissions reduced through support to city level IWM.

Indicator: Volume increase in waste sorted prior to depositing in dumpsite.

Target: At least 50% of waste tonnage collected in each pilot site is sorted for priority non-recyclable materials in each pilot city by end of project.

Outcome 2.2. UPOPs emissions reduced through community level participation and action demonstrations.

Indicator: Number of neighbourhoods with active sorting and composting programmes in the metropolitan local government areas of pilot states.

Target: Sorting and composting programmes in 8 local government areas (LGA) of Kano by end of yr 4.

Target: Sorting and composting programmes in 2 LGA of Onitsha by end of year 4.

Outcome 2.3: Five States participating in federal IWM programme replicate demonstrated best practices for UPOPs reductions.

Indicator: Number of states incorporating UPOPs-specific priorities into their IWM strategies.

Target: At least 5 by end of project.

Indicator: Number of states and cities adopting by-laws and guidance notes on UPOPs reducing IWM practices.

Target: At least 5 by end of project.

Indicator: Number of city and State staff in non-pilot areas trained in UPOPs-reducing practices.

Target: At least 100 by end of project.

Indicator: Number of BAT-BEP for UPOPs reduction developed and circulated for replication.

Target: At least 5 by end of project.

Outcome 3.1. Open burning of stubble on farm fields is reduced through changes in agricultural practices.

Indicator: Number of hectares in which alternative approaches to agricultural waste (AW) burning at 2 pilot-sites in Kano state have been introduced by farmers.

Target: By the end of the project, alternatives have been introduced in two pilot areas of Kano: 20 ha at Danbatta, and 20 ha at Dogwa.

Indicator: Number of hectares of farmland burned in a year.

Target: At least 10 farmers not burning cropland in preparation for farming.

The following uncertainties and risks have been identified:

Risk		Risk Mitigation Measure
Private investment in municipal waste management in the project's pilot sites may be delayed or somehow hampered due to unforeseen complications.	L	Project activities are designed to concentrate on activities that are not so sensitive to the realization of private investment. The project's primary partners are federal, state and local authorities, who are already responsible for municipal waste management activities.
Replication may be hampered due to slow progress implementing IMSWM in the five pilot states under the IMSWM Programme.	L	The project does not put all of its replication "eggs in one basket." For example, the project will work with the FADAMA III project to replication its work with farmers on alternatives to open burning of agricultural residue. The project will also work with the programme on community-based waste management also being funded by FMoE to replicate critical waste sorting work to reduce the amount of open burning and the amount of waste available to be openly burned.
Receptiveness for capacity strengthening and transfer of know-how on UPOPs releases from open burning of MAW is not guaranteed.	L	The capacity transfer and integration of UPOPs-related knowledge in local and national institutions, beyond a small circle of engaged experts, is among the most challenging aspects of the project. However, the length of the project intervention will enable a gradual and systematic training of counterpart institutions. Stakeholders also have been very much involved in the design of the project. Therefore the types of capacity strengthening activities and targets meet the needs as they are expressed. Also, the project will remain receptive to additional input from stakeholders at project inception and during implementation. This is a key element in adaptive management.
Cultural resistance for discontinuing open burning of agricultural land.	M	The project is designed to address the main reasons why farmers burn agricultural residue on their fields in a way that refutes some assumptions and provides alternative practices. Also, awareness raising about the possibilities of income generation and environmental/health benefits will be introduced.
Overall Rating	L	

Incremental reasoning and expected global, national and local benefits

64. The project seeks to reduce the environmental risks in Nigeria and also internationally, caused by the release of UPOPs from the open burning of municipal and agricultural waste. UPOPs pose significant hazards to ecosystem resilience and human health and, once released, find their way quickly into the food chain and into the trophic cascade of the earth's ecological web of life. Reducing the release of such chemicals contributes to the protection of a critical global public good: the environment.

65. The aim of the GEF UPOPs project is to lower the barriers for introducing non-burning waste management for household waste and demonstrate BAT/BEP approaches for wide replication throughout the country. GEF incremental support will strengthen local capacity and catalyze replication through the development training materials and peer-to-peer training programs on UPOPs reduction. Without this catalytic and incremental action, the open burning of MAW will continue to release UPOPs into the global air and water commons, where it will harm human health and degrade ecosystem resilience.

66. Nigeria's NIP report conservatively estimates that scavengers burn approximately 20% of the collected waste at dumpsites, mainly for recuperating valuable waste streams, such as metal. The project's incremental strategy is to organize and bring the informal scavenger sector into the formal waste management sector. By doing so, the project's focused incremental efforts will result in reduced UPOPs

emissions from two sources: open burning of collected waste (in dumpsites) and open burning of uncollected waste.

67. The reduction of open burning of both *collected* and *uncollected* waste can be expected to be very significant by the implementation of IWMS together with UPOPs targeting activities. Overall UPOPs releases from the open burning of collected waste in dumpsites in the two pilot cities (Kano and Onitsha) are estimated to be: 489.1 g I-TEQ/a. The project's incremental efforts with sorting of waste and organizing scavengers and composting efforts will be able to stop the open burning in the pilot site dump sites and thus prevent the burning of 20% of the collected waste, thereby avoiding the release of 97.8 g I-TEQ/a.

68. The project's incremental input will also enable the avoidance of burning of uncollected waste, which is not included in the baseline IWMS activities, resulting in the avoidance of 85.12 g TEQ/a of UPOPs in two pilot sites. Combined, the project's near-term, direct effect on UPOPs releases is anticipated to be 182.9 g I-TEQ/a in both pilot sites.

69. It is estimated that the total UPOPs releases for all of Nigeria from open burning of MAW is approximately 5,300 g I-TEQ/a. The aim of the GEF UPOPs project is to lower the barriers for introducing non-burning waste management for municipal waste and demonstrate BAT/BEP approaches for wide replication throughout the country. Assuming effective replication of the project's incremental input to improve UPOPs reductions under the national IMSWM programme, a realistic assumption holds that future UPOPs activities could reduce nationwide municipal waste burning by 20%, resulting in a 20% overall reduction in UPOPs releases from open burning of MAW, or 1,060 g I-TEQ a year reduction of PCDD/Fs.

Country Ownership: Country Eligibility and Country Drivenness

70. Nigeria ratified the Stockholm Convention on 22 August 2004, and is eligible to receive funding from UNDP and GEF. The GEF Operational Focal Point has endorsed the proposal – see Section IV, Part 1.

71. The regulatory strengthening and development of policy guidance and coordination is one of the central needs and priorities in Nigeria's National Implementation Plan (NIP) for the Stockholm Convention. The NIP ranks UPOPs generated by uncontrolled burning of municipal waste and agricultural land as one of the key environmental challenges facing Nigeria. The draft NIP action plan calls for further action under measure 3.3.7 to "Reduce Releases from Unintentional Production." Among the actions called for are the following:

- Review and develop by-laws, guidelines and procedures for uncontrolled burning activities
- Intensify on-going educational and awareness programmes on effects of uncontrolled burning activities
- Develop alternative methods of preparing farm fields for cultivation instead of burning.

72. The FMoE has initiated a process of developing state-wise Integrated Waste Management Strategies with the aim of finding holistic and efficient waste management approaches, where maximum of recycling and re-use possibilities are exploited. The project outputs and activities are in-line with these Integrated Waste Management Strategies, by providing policy and technical advice at the municipality level for minimizing UPOPs releases and by piloting additional waste recycling approaches at community level, hence complementing the overall IWMS efforts.

73. The project outputs create job opportunities in the form of organized waste collection and separation by engaging informal sector recyclers, scavengers and low-income community members as well as turning waste into marketable products, such as composting. As a result, the project contributes to the Government of Nigeria's Poverty Reduction Strategy that aims to create wealth and employment and contribute to the achievement of at least two of the MDGs (Goal 7: Ensure Environmental Sustainability & Goal 8: Develop a Global Partnership for Development).

Sustainability

74. The design of all three Components takes into account the need for sustainability. The project preparatory process selected the two pilot States (Anambra and Kano) in part because both had demonstrated a commitment to investing in improved integrated waste management as part of each State's participation on the FMoE's national IWM initiative. This is a critical criterion because it is central to the project's incremental approach and to improving the case for sustainability. A second criterion for selecting the agricultural waste pilot area specified that the area must be involved in the large, baseline agricultural development programme called FADAMA III. The project's activities in this area are designed to build upon, complement and integrate into FADAMA III's large-scale investments in improving agricultural economies in Kano and other Nigerian States, thus enhancing the sustainability of the project's work in promoting alternatives to burning of cropland and crop residue.

75. The design of the project seeks to strengthen existing information on UPOPs sources and releases from open burning of MAW in Nigeria and improve its availability. This work under Component 1 will solidify and improve the quality of data on the UPOPs from open burning challenge facing Nigeria. This will in turn support over the long term the development of better policies and programs to address the problem. Component 1 also enhances sustainability because it will strengthen the policy and institutional capacity baseline for addressing UPOPs issues effectively, an impact that will extend well beyond the lifespan of this project. Components 2 and 3 seek to demonstrate "proof of concept" and facilitate the replication of such when it comes to applying specific, incremental actions that reduce UPOPs releases from the current business as usual and projected business as usual baseline for IWM and cropland management in Nigeria.

Replicability

76. The replicability of the project's work is high and the absorptive/replication potential across Nigeria is enormous due to the significant "down payment" on modern integrated waste management practices as reflected in the Integrated Municipal Solid Waste Management Programme. This programme has already selected seven states/cities across Nigeria as the lead actors and provided catalytic funding to enable them to develop IMSWM strategies and to form public-private partnerships to implement them. The project's modest, incremental UPOPs-focused additions to this programme are designed to be replicated easily by cities and states as the IMSWM programme continues and expands in future years. The project is designed to emphasize demonstration and replication, with Outcomes 2.3 and 3.1 focusing on replication.

77. For example, the project's replication work will focus upon using the FMoE's national IMSWM initiative as the "vehicle" for replication of project-inspired UPOPs reduction activities. This replication will focus initially on each of the five states where IMSWM plans and strategies are already under development with funding from the Government of Nigeria (FMoE), State Governments, and the Private Sector. GEF resources under this outcome focus on enabling the replication of UPOPs reduction steps as demonstrated under Outcomes 2.1 and 2.2.

PART III: Management Arrangements

78. The project will be managed by the Government-UNDP National Execution Modality (NEX). The project will be managed by FMOE. The implementation structure will include a Project Steering Committee (PSC) and a Project Management Unit (PMU), as follows.

79. Implementing Partner. As the national Implementing Partner (IP) for the project, FMOE is accountable to the Government and UNDP for ensuring (a) the substantive quality of the project, (b) the effective use of both national and UNDP resources allocated to it, (c) the availability and timeliness of national contributions to support project implementation and (d) the proper coordination among all project stakeholders, particularly national parties.

80. Responsible Party. As the day-to-day implementer(s) of project activities, the FMOE's Department of Pollution Control and Environmental Health (DPCEH) is responsible for mobilizing all national and international inputs to support project implementation, organizing project activities in accordance with the agreed work plan, and reporting to FMOE and UNDP on the progress as well as financial status of the project. DPCEH is the lead entity within the Nigerian government on POPs and UPOPs issues and the lead entity within the Federal Ministry of Environment (FMOE).

81. Project Steering Committee (PSC). The PSC will make all necessary decisions and provide guidance for implementation of project activities, including approval of the overall project work-plan, and budget revisions. The PSC will be comprised of up to nine members representing FMOE, FMOANR, FMOF, NESREA, State EPA from Onitsha and Kano, ADP-Kano, and two LGA/Municipal Council Representatives, one from each pilot. The PSC member representing FMOE will be the chairperson of the PSC. The PSC will meet every six-months, or more often on an ad-hoc basis, if deemed necessary. Representatives from other supporting bodies and agencies will be called upon for support if necessary. A representative of the UNDP-CO will attend the PSC meeting as an observer on behalf of the GEF. A representative from the National Steering Committee for the Stockholm Convention on POPs (NSC) will be invited if appropriate. The POPs NSC is also chaired by FMOE.

82. National Project Director (NPD). The Head of the FMOE's DPCEH is expected to be the National Project Director, with official appointment by the FMOE. The NPD will be responsible to the PSC for overall management and implementation of the project.

83. Project Management Unit (PMU). The PMU will be responsible for the overall coordination, management, implementation, monitoring & evaluation and reporting of all project activities. The PMU will consist of the following positions: Project Manager and Technical Director (PMTD, recruited, 48 months, full-time); Project Secretary (PS, recruited, 48 months, full-time); Project Accountant /Assistant (PAA, recruited, 48 months, full time). The PMU's work in the field will be supported by a Pilot Site Technical Advisor (PSTA) and an Agricultural Expert (AE). The PSTA will also serve as the project's M&E officer. The AE's work will be focused upon the project's work in Kano State. The PMU will also benefit from regular technical advice and guidance from expert working groups organized under this project.

84. UNDP Country Office (UNDP-CO) support. The UNDP-CO will be doing close quality assurance and supervise the project manager. UNDP-CO will assist FMOE in mobilization of international inputs, upon official request from the NPD. The UNDP CO will provide the services for tendering of packages of activities, procurement of sub-contractors, recruitment of individual consultants, and contracting, upon the formal request from the NPD. UNDP's prevailing cost recovery policies will apply to these services.

85. In order to accord proper acknowledgement to GEF and UNDP for providing funding and technical assistance, GEF and UNDP logos should appear on all relevant project publications, including among others, project hardware and vehicles purchased with the project funds. Any citation on publications should also accord proper acknowledgment to GEF and UNDP.

PART IV: Monitoring and Evaluation Plan and Budget

86. Project monitoring and evaluation will be conducted in accordance with established GEF procedures, UNDP regulations in the context of One UN Initiative in Nigeria. The Logical Framework Matrix in Section II provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

87. The following sections outline the principle components of the project monitoring and evaluation plan and indicative cost estimates related to M&E activities. A more detailed project Monitoring and Evaluation Plan will be presented in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Project Inception Phase

88. A Project Inception Workshop will be conducted with the full participation of the PMU, relevant government stakeholders, co-financing partners, the UNDP-CO and representatives from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs), as appropriate.

89. An underlying objective of the Inception Workshop (IW) will be to assist the PMU to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

90. The concrete objectives of the Inception Workshop (IW) will be to: (i) introduce project staff to the UNDP-GEF expanded team which will support the project during its implementation, namely the UNDP-CO and responsible UNDP-GEF staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and UNDP-GEF staff vis-à-vis the PMU; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the PMU on UNDP project related budgetary planning, budget reviews, and mandatory budget revisions.

91. The IW 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 (TORs) for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

92. A detailed schedule of project review meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, relevant advisory and/or coordination mechanisms and (ii) project related Monitoring and Evaluation activities.

93. Day to day monitoring of implementation progress will be the responsibility of the Project Manager based on the project's Annual Work Plan and its indicators. The PMU will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

94. The Project Manager and the UNDP-GEF Technical Advisor (based in UNDP-HQ or Regional Centre) will fine-tune the progress and performance/impact indicators of the project in consultation with the PMU with support from UNDP-CO. Specific targets for the first year implementation progress indicators together with their means of verification will also be developed. 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 would be defined annually as part of the internal evaluation and planning processes undertaken by the PMU.

95. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the Responsible Party, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

96. The UNDP-CO and UNDP-PMU as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report /Annual Work Plan to assess first hand project progress. Any other member of the Project Steering Committee (PSC) can also accompany, as decided by the PSC. A Field Visit Report will be prepared by the CO and circulated within one month after the visit to the PMU, all PSC members, and UNDP-GEF.

97. Annual Monitoring will occur through the Annual Review of the UN Programme Coordination Group (PCG) on Sustainable Development (PCG-8). The PMU will prepare an Annual Project Report (APR) and the NPD submits it to UNDP-CO and the UNDP-GEF at least two weeks prior to the Annual Review of the PCG-8.

98. The APR will highlight policy issues and recommendations for the decision of the Annual Review meeting. The NPD also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

99. The project will be subject to a Terminal Tripartite Review (TTR) in the last year. The TTR is held in the last month of project operations, based on the Terminal Report (see below). The TTR considers 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 vehicle through which lessons learnt can feed into other projects under implementation or formulation.

Project Reporting

100. The Project Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

Inception Report (IR)

101. A Project Inception Report (IR) will be prepared immediately following the Inception Workshop (IW). It will include a detailed First Year Annual Work Plan (AWP) divided in quarterly time frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This AWP would include the dates of specific field visits, support missions from the UNDP-CO or HQ, as well as time frames for meetings of the project's decision making structures. The IR 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 months time-frame.

102. The IR will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation. 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 circulation of the IR, the UNDP-CO and UNDP-GEF will review the document.

Annual Project Report (APR)

103. The Annual Project Report (APR) is a UNDP requirement and part of the UNDP-CO's central oversight, monitoring and project management. It is a self -assessment report by project management and provides input to the UNDP-CO's reporting process, as well as forming a key input to the Annual Review under the framework of UN PCG-8 Annual Review. An APR will reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

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

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
- The constraints experienced in the progress towards results and the reasons for these
- The three (at most) major constraints to achievement of results
- AWP, CDR, and other expenditure reports
- Lessons learned
- Clear recommendations for future orientation in addressing key problems in lack of progress

Project Implementation Review (PIR)

105. The Project Implementation Report (PIR) is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a PIR must be completed during the year (July-June).

106. The individual PIRs are collected, reviewed and analysed by the UNDP-GEF Advisor/Staff prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs (in UNDP HQ or Regional Centre) play a key role in this consolidating analysis.

107. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

108. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

109. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, the CO must work together with the project team to complete the PIR. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR could then be linked to the AWP (avoiding overlap, contradictions; ensuring complementarity) and should be discussed in the TPR so that the PIR is agreed upon by the project, the executing agency, UNDP CO and the UNDP-GEF.

Quarterly Progress Reports

110. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF by the PMU.

Periodic Thematic Reports

111. During its lifetime, the project will produce technical reports, education materials/publications, organize workshops and document experience/lessons learnt. The UNDP-CO will provide necessary support, upon official request from the NPD.

112. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the PMU will prepare Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the PMU in written form by the UNDP-CO and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. The UNDP-CO will allow reasonable timeframes for their preparation.

Project Terminal Report

113. During the last months of the project, and at least two months in advance of the TTR, the PMU will prepare the project Terminal Report and submit it to relevant involved parties, including UNDP-CO and UNDP-GEF. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. It will also generate recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities. It shall be prepared in draft in order to allow review, and will serve as the basis for discussions in the TTR (see above).

Independent Evaluation

The project will be subjected to at least two independent external evaluations as follows:

Mid-term Evaluation

114. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP-CO based on guidance from UNDP-GEF.

Final Evaluation

115. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP-CO based on guidance from UNDP-GEF.

Audit Clause

116. The Government will provide the UNDP Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the UNDP.

Learning and Knowledge Sharing

117. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- ◆ The project will participate, as relevant and appropriate, in UNDP-GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics.
- ◆ The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

118. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identifying and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP-GEF shall provide a format and assist the PMU in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

Summary table of Monitoring and Evaluation Work plan and corresponding Budget

Type of M&E activity	Responsible Parties	Total M&E Budget (US\$) <i>Excluding PMU staff time</i>	Time frame
Inception Workshop	▪ PMU ▪ UNDP CO ▪ UNDP GEF ▪ External Consultants		Within first two months of project start up
Inception Report	▪ PMU ▪ UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by Project GEF Technical Advisor and Project Manager ▪ Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plans. Indicative cost \$30,000	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	▪ PMU ▪ UNDP-CO ▪ UNDP-GEF	None	Annually

Annual Review Meeting: Joint review of all projects under UN PCG-8 (sustainable development)	- PMU; other Government Counterparts - UNDP CO - UNDP-GEF Regional Coordinating Unit (RCU) or HQ	None	Annually
Steering Committee Meetings	- Project Manager - UNDP CO	None	Following Project IW and subsequently at least once a year
Mid-term External Evaluation	- PMU - UNDP- CO - UNDP-GEF RCU or HQ - External Consultants (i.e. evaluation team)	\$25,000	At the mid-point of project implementation.
Final External Evaluation	- PMU, - UNDP-CO - UNDP-GEF RCU or HQ - External Consultants (i.e. evaluation team)	\$35,000	At the end of project implementation
Terminal Report	- PMU - UNDP-CO - External Consultant	None	At least one month before the end of the project
Lessons learned	- PMU - UNDP-GEF RCU or HQ (suggested formats for documenting best practices)	\$9,000 (average 3,000 per year, only 3 years)	Annually
Audit	- UNDP-CO - PMU	\$8,000 (average \$2,000 per year)	Annually
Visits to field sites/ including Joint Review between UNDP and the Government (UNDP staff travel costs to be charged to IA fees)	- UNDP-CO - UNDP-GEF RCU or HQ (as appropriate) - Other Government representatives - External Consultants	\$15,000 (average one visit per year)	Annually
TOTAL INDICATIVE COST <i>Excluding PMU staff time and UNDP staff and travel expenses</i>		US\$ 122,000	Subsumed under Project Management in Sections II & III

PART V: Legal Context

119. This project document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Nigeria and the United Nations Development Programme signed by the parties on 12 April 1988. The host country executing agency shall, for the purpose of this Agreement, refer to the Government Cooperating Agency described in that Agreement.

120. The UNDP Resident Representative in Nigeria is authorized to effect in writing the following types of revision to this project document, provided that s/he has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories of the project document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions that do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document

121. *National Professional Project Personnel:* The Government agrees to the recruitment of nationally recruited project professional personnel (NPPP) required for the implementation of this project, in accordance with UNDP policies and procedures established within the United Nations system for this purpose. These services constitute an addition to the regular personnel resources to be provided by the Government and will be available for the duration of UNDP participation in the project. The remuneration of NPPP will be determined on a case-by-case basis in accordance with the policies and procedures of UNDP; it should exceed neither the prevailing compensation for comparable functions in the host country nor remuneration levels applicable within the United Nations system.

SECTION II: STRATEGIC RESULTS FRAMEWORK (SRF) AND GEF INCREMENT

PART I: Incremental Reasoning

A. Introduction

122. The project is designed to apply GEF eligible incremental measures that build on and go beyond an emerging, nascent baseline of improving waste management practices in Nigeria. Nigeria is investing in IWM, both at the federal and the state levels. The Federal Government has inaugurated an Integrated Municipal Solid Waste Management (IMSWM) Programme in seven cities. The feasibility studies under this programme recommended an IMSWM approach with the following components: materials recovery facility; composting plant; incinerator; landfill cell, methane recovery system and leachate treatment facility; plastic recycling plant.

123. This infrastructure-based approach has been adopted by the two of the seven cities (Kano and Onitsha) as the core of a locally approved IMSWM Programme. Under this programme, the Federal Government has provided a project concept fund that has been used to conduct EIA studies, prepare sufficient land for IWM, and obtaining processing and collection of government permits. The private investor on the ground is responsible for funding the purchase of equipment and construction of the necessary infrastructure to deal with the five components of the adopted approach as agreed among the local government entity, the FMoE and the private partner.

124. Out of the five-component approach of the Federal Government, three of the components (materials recovery facility centre, the composting plant and the plastic recycling plant) all require that there is proper sorting and segregation of waste at source or at dumpsite.

125. However, this is not in place at the moment and to put this into practice will require sustained public education, awareness raising and mobilization of the community/citizenry regarding the benefits and value added. Current waste management practice can still be characterized as “collect and dump.” Municipal waste is still collected from neighborhoods and households and dumped at designated dumpsite in both pilot states with no sorting before and no management after dumping. This approach will continue until the investors have secured enough funds to build the infrastructure for all the itemized five components.

126. But even in the project's pilot sites, this investment is in its early stages and the Nigerian States with IWM plans have minimal capacity to design and implement basic IMSWM programs. Without an incremental "push" to overcome experiential and capacity barriers, the implementation of improved waste management practices is likely to fall short when it comes to reducing UPOPs emissions.

127. In an overall baseline scenario, work to strengthen policies and guidelines and reduce UPOPs releases will continue to be hampered by inadequate data on the nature and extent of the problem. The pace of adoption of specific practices that reduce UPOPs releases will likely remain extremely slow, hampered by an emphasis on "things" rather than "processes" and people. For example, a low level of stakeholder participation in municipal waste source reduction, composting, and other related community-level activities will likely continue to be the norm and will hamper the implementation of IWM overall, much less UPOPs-specific aspects of it. Large scale open burning will likely continue as the norm in most dumpsites as will the non-sorting of waste, the recycling of only a small number of preferred materials and taking no measures to sort and isolate relatively toxic waste typically found in municipal waste streams. Such baseline practices have the effect of increasing (rather than decreasing) UPOPs releases from open burning of MAW. Therefore, GEF funds will be utilized to conduct targeted demonstrations in each pilot site of the most pressing IMSWM-related activities to reduce UPOPs.

128. In the absence of a GEF project, high levels of UPOPs will be generated by open burning of MAW will continue to affect the environment and communities living in close proximity and indeed worldwide. GEF support will therefore focus on introducing new practices and approaches and building capacity to apply international standards and to ensuring that the institutional abilities and policy framework are adequate to support action to better understand UPOPs and reduce their releases in Nigeria.

B. Business as usual scenario vis-à-vis the project's main components:

The following is a description of the likely future scenario in the absence of this project.

Component 1. Legislative strengthening and policy development.

In the absence of this project, waste management laws and policies will continue to be developed in a fragmented manner that focuses on separate waste streams and fails to consider the strategic perspective on how to reduce overall UPOPs releases from open burning of MAW.

The development of effective laws and policies both at the federal and the state/local level will be hampered by inadequate data on the UPOPs challenge facing Nigeria. Data on UPOPs from open burning of MAW would continue to be inadequate. No inventory of municipal and agricultural waste sources and no assessment and evaluation of current and projected releases of UPOPs from open burning will be conducted. Accurate waste composition data will continue to be largely unavailable and stakeholders largely unable to derive or utilize such data locally. No refined calculations of UPOPs releases using the most up-to-date emission factors will be made. In short, in the absence of this project, policy makers and waste management directors will not have access to robust data on the nature and extent of the UPOPs issue in Nigeria, hampering the development of better policies and the mobilization of public support and political will for change.

There will be a policy on medical waste and a policy on electronic waste, and so on, but there will not be a policy on how to reduce and eliminate one of the largest sources of POPs emissions in Nigeria – UPOPs from open burning of MAW. There will continue to be inadequate or total lack of by-laws and guidance notes to help local government and state government officials understand the important,

critical basic elements of UPOPs and how to begin addressing them urgently on a step-by-step, practical basis.

Component 2. Reduction of UPOPs emissions through new practices/approaches in municipal waste handling.

In the absence of this project, few if any new practices and approaches to integrated municipal waste management that focus on reducing UPOPs will be demonstrated in Nigeria, much less replicated in other states. Integrated waste management will continue to be gradually adopted in a piece-by-piece approach as funding becomes available, as contracts between local governments and private contractors are negotiated and clarified, and as capacity to implement increases. For example, funding for plastics recycling centers will be released for more and more cities in the absence of an overall IMSWM plan. To date, over US\$2.5 million in funding has been approved for such centers nation-wide. In the baseline scenario, a US\$14 million programme to support community based waste management will continue to be operated in 5 cities across Nigeria, with minimal links to the IMSWM programme and lessons being learned in this respect. In all scenarios, the focus will continue to be mostly on infrastructure and equipment and less on process and people, such as forming innovative partnerships and strengthening capacity.

This is the entry point of the GEF UPOPs investment. In the baseline scenario, the informal waste sorting sector, comprised of scavengers, will continue to operate outside of the formal waste management sector working at cross-purposes to the UPOPs-related goal of no open burning of municipal waste. Under the baseline scenario, scavengers benefit from open burning of waste because the practices helps them to find recyclables more easily amidst the un-sorted stream of both collected and uncollected waste. Under this scenario, scavengers will remain largely passive recipients of unsorted waste rather than active participants in proactive waste reduction practices that reduce UPOPs. In this scenario, waste will remain largely unsorted, particularly the more toxic kind or the kind that is not immediately cash convertible (such as copper). Organic waste will continue to go largely to the dumpsite, with little sorted to make compost. And finally, in the absence of this project, there will continue to be a lack of practical best practice notes and videos to facilitate the adoption of UPOPs release reducing practices across Nigeria.

Component 3. Reduction of UPOPs emissions from agricultural land clearing.

In the absence of this project, farmers will be largely unaware of the impacts that open burning of crop residue and croplands has on the health of their families and surrounding environment, on the water retention abilities of their soil, and on the global environment. Agricultural development programs will continue to be implemented in Nigeria, with the Fadama III programme being the largest. This programme will continue its efforts to strengthen rural economies and the incomes of farm families. It will do little to nothing in terms of addressing critical UPOPs issues associated with burning of croplands and the well-being of farming families. Indeed, the Fadama III programme offers an excellent baseline for incremental GEF funding to “top-up” with UPOPs-focussed technical support and guidance. In the baseline scenario, little to no guidance will be offered to farmers on alternatives to burning crop residue and/or how to minimize UPOPs emissions even if they continue to burn crop residues (by minimizing or eliminating chemicals). In the absence of this project, farmers will have no help in understanding the feasibility of alternatives or in experiencing first hand demonstration projects of alternatives to burning.

Global Environmental Benefits

129. The project's catalytic reduction of uncontrolled municipal waste burning (and attendant global benefits) can be expected to be very significant by the implementation of IWMS together with UPOPs targeting activities. The project's work on reducing burning of croplands and related UPOPs releases is designed to play a more catalytic role. The actual level of UPOPs reductions anticipated (Table 5) do not reflect the total anticipated global benefit because the scale of the potential replication of these activities across Nigeria's large agricultural sector.

130. Nigeria's NIP report conservatively estimates that scavengers burn approximately 20% of the collected waste at dumpsites, mainly for recuperating valuable waste streams, such as metal. The project's incremental strategy is to organize and bring the informal scavenger sector into the formal waste management sector. By doing so, the project's focused incremental efforts will result in reduced UPOPs emissions from two sources: open burning of collected waste and open burning of uncollected waste. The GEF UPOPs intervention is expected to achieve a global benefit of a 20% reduction in the 489.1 g I-TEQ/a of UPOPs released from open burning of collected waste in the two pilot cities (Kano and Onitsha).

131. The project's incremental input will enable the avoidance of burning uncollected waste that would not be included in the baseline IWMS activities, resulting in the avoidance of 85.12 g I-TEQ/a of UPOPs in two pilot sites. The project's incremental efforts with sorting of waste and organizing scavengers and composting efforts will be able to stop the open burning of collected waste, thus avoiding, and avoiding the release of 97.8 g I-TEQ/a of UPOPs in two pilot sites, for a total avoidance of 182.9 g I-TEQ/a. The project's conservative estimate of the total anticipated reductions of UPOPs releases to air and land from cropland burning by end of the project is 5.55 g I-TEQ/a. This will result in a total anticipated reduction and measurable global benefit during the project's lifespan of 188.47 g I-TEQ/a. See Tables 3, 4 and 5 for details.

Table 3: Anticipated reductions in UPOPs releases from the open burning of municipal waste.

Waste volumes avoided & Type of burning	Waste volumes avoided	UPOPs releases from open burning of collected waste (in dumpsites).	UPOPs releases from open burning of uncollected waste.
Pilot State			
Kano	394,200 collected. 262,800 t/a uncollected	394.2 g I-TEQ/annum	78 g I-TEQ/annum
Onitsha	94,900 collected 23,725 t/a uncollected	94.9 g I-TEQ/a	7.117500 g I-TEQ/a
Total:	489,100 t/a collected 286,525 t/a uncollected	489.1 g I-TEQ/a	85.12 g I-TEQ/a
Total anticipated reductions:	775,625 t/a	20% or 97.8 g I-TEQ/a	100% or 85.12 g I-TEQ/a
Total reductions from municipal waste:			182.9 g I-TEQ/annum

Table 4: Incremental reductions in UPOPs releases in Kano State from open burning of existing coarse grain croplands.

Kano State	UPOPs Air Emissions	UPOPs land emissions
Sub-total: Baseline level of UPOPs releases from open burning of croplands in Kano State.	27.733 g I-TEQ/annum	9.245 g I-TEQ/annum
Total anticipated reductions of UPOPs releases from cropland burning by end of the project:	15% or 4.16 g I-TEQ/a	15% or 1.39 g I-TEQ/a
Total	5.55 g I-TEQ/a	

Table 5: Total incremental reductions in UPOPs releases from open burning of MAW in Nigeria by project end.

Type of open burning	UPOPs releases from open burning of collected waste (in dumpsites).	UPOPs releases from open burning of uncollected waste.	UPOPs released from open burning of coarse grain croplands in Kano State.
Pilote State			
Kano	394.2 g I-TEQ/annum	78 g I-TEQ/annum	36.978 g I-TEQ/a
Onitsha	94.9 g I-TEQ/a	7.117500 g I-TEQ/a	
Total:	489.1 g I-TEQ/a	85.12 g I-TEQ/a	36.978 g I-TEQ/a
Total anticipated reductions:	20% or 97.8 g I-TEQ/a	100% or 85.12 g I-TEQ/a	15% or 5.55 g I-TEQ/a
Total reductions			188.47 g I-TEQ/a

132. Long-term reductions due to replication. It is estimated that the total UPOPs releases for all of Nigeria from open burning of MAW is approximately 5,300 g I-TEQ/a. The aim of the GEF UPOPs project is to lower the barriers for introducing non-burning waste management for municipal waste and demonstrate BAT/BEP approaches for wide replication throughout the country. Assuming effective replication of the project's incremental input to improve UPOPs reductions under the national IMSWM program, a realistic assumption holds that future UPOPs activities could reduce nationwide municipal waste burning by 20%, resulting in a 20% overall reduction in UPOPs releases from open burning of MAW, or 1,060 g I-TEQ a year reduction of PCDD/Fs.

Co-financing

Co-financing will come from the Government of Nigeria, local authorities and UNDP.

Co-funding for UPOPs project	Naira	US\$
A. FMoE Co-funding		
1. Integrated Municipal Waste Management Programme		\$9,850,000
2. Project personnel in kind contribution.		120,000
Total FMoE Co-funding		9,970,000
B. State of Anambra		
Planned equipment purchases	350,000,000 N	\$2,348,993
C. State of Kano		
Planned equipment purchases	650,000,000 N	4,362,416
Annual budgetary expenditures	108 million or US\$724,832/year	2,899,328
Total State of Kano Co-funding		7,261,744
D. UNDP		100,000
Total Co-funding		19,680,737

Total Related Financing (but not project co-financing)	19,290,519
---	-------------------

PART II: Strategic Results Framework, SRF Analysis

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
Goal: Reducing releases and exposure to unintentional POPs originating from unsustainable waste operations.					
Objective: Enhance human health and environmental quality by reducing releases and exposure to unintentional POPs originating from unsustainable waste operations.	# of g TEQ/annum released due to open burning of collected and uncollected municipal waste.	Onitsha: 94.9 g TEQ/a from open burning of collected waste at dumpsites. 7.12 g TEQ/a from open burning of uncollected waste.	20% reduction in open burning of collected waste at dumpsites and 100% reduction in open burning of uncollected waste: - 19 g TEQ/a reduction by yr 4 from collected waste burning. - 7.12 g TEQ/a reduction by yr 4 from open burning of uncollected waste.	Project reports; on-site monitoring Field surveys/interviews. Emission data reporting.	• Selection and application of new approaches is optimal. • Less UPOPs will be emitted as a result of this project.
		Kano: 394.2 g TEQ/a open burning of collected waste at dumpsites. 78 g TEQ/a from open burning of uncollected waste.	20% reduction in open burning of collected waste at dumpsites and 100% reduction in open burning of uncollected waste: - 78.8 g reduction by yr 4 from collected waste burning. - 78 g TEQ/a reduction by yr 4 from open burning of uncollected waste.		•
	Number of g I-TEQ/a UPOPs reduction calculated for coarse grain croplands where burning is reduced.	36.978 g I-TEQ/a at project inception.	Reduced by 15% or 5.55 g I-TEQ by end of project.	PIR reports; calculation records; Field visits.	
Component 1. Legislative Strengthening and Policy Development.					
Outcome 1.1 Stakeholders	- Updated MAW source	Preliminary data based	More comprehensive UPOPs	National report to	Commitment of MOE

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
assess and quantify baseline data on UPOPs generation from open burning of MAW.	inventory and UPOPs release figures from open burning of MAW. - Updated emission data on UPOPs in pilot states and by projection for the country.	upon minimal fieldwork and ground checking.	estimate elaborated and adopted by FMoE, incorporated into Stockholm convention report.	Stockholm convention. Published emission data reports at Federal level for states.	remains firm and cooperation between State and Local Government institutions is secured
Output 1: Demonstration of Inventory of UPOPs sources and releases in two pilot sites.	# of people trained with demonstrable ability to conduct inventory.	No State-level staff in Nigeria are currently trained to do this	At least 10 staff person each in Anambra and Kano States and test scores above 80%.	Training records; Comparison of exam results from before/after training. Inventory reports.	Personnel turn over does not negate benefits of training. Capacity development activities address actual capacity needs.
Output 2. Monitoring and reporting mechanisms in place and operational.	Online reporting format available for each state to fill in online. Interactive website tracking UPOPs reporting from different Nigerian states.	No website or reporting format.	Website with reporting formats for each participating state shows “at a glance” status of UPOPs for each state.	Visit actual website.	Internet access will be sufficient for each participating state to utilize such mechanism.
	# of States submitting annual reports on UPOPs from open burning.	No reporting mechanism; not states reporting.	2 states by end of year 1. 10 states by end of year 2. 20 by end of year 3.	Actual reports of UPOPs from open burning. Database review.	States may not dedicate sufficient resources to reporting work.
Outcome 1.2 Federal waste management policy adopted and UPOPs reduction strategy endorsed.	# of state EPA endorsing draft policy on MAW management.	No MAW management policy in place.	At least 15 state EPA endorse policy by end of year 3.	Project reports Published Policy, regs.	Cooperation between Federal and local authorities is positive
	Legislative branch endorses MAW management policy.	No legislative branch endorsement.	Endorsement of policy by Cabinet by end of year 3.	Legislative gazette.	
	# of Federal Agencies and State EPA adopting new MAW strategy.	No federal or state-level MAW strategies in place.	FMoE endorses strategy by end of year 3. At least – State EPA? Endorse Strategy by end of year 3.	Endorsement letters. Government gazette or other reports.	Federal and State level organizations will be able to agree on a common strategy.
Output 1. National municipal and agricultural waste management policy developed.	Draft and final versions of policy developed and reviewed in timely manner.	No policy developed or in place.	Policy draft completed by end of year 1. Stakeholder review completed by end of year 2. Submitted to legislative branch by beginning of year 3 of project.	Draft policy and final policy documents.	Government will maintain interest in drafting and passing a policy despite normal changes in representation.

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
Output 2. Federal UPOPs reduction implementation strategy.	# of people on national committee for waste management trained in MAW UPOPs issues & frequency of committee meetings/year.	No people trained on MAW UPOPs source and release issues. Committee does not meet regularly.	Every member of committee trained by end of year 2. Meeting 2x year by end of year 2.	Strategy document itself.	The completion of the strategy will successfully compete with other pressing priorities within FMOE.
Outcome 1.3 Technical by-laws and guidance adopted by pilot state EPA.	By-laws for MAW management-related UPOPs drafted and adopted by each pilot site city council.	No by-laws or guidance available at state EPA level for UPOPs.	New by-law adopted by at least 2 city councils total in pilotsites by end of year 2.	Surveys/interviews	By-laws, unless carefully crafted, may run aground on local politics.
	Evidence of the use and application of by-laws and guidance notes in waste management practice.	No guidance notes/no use.	Main elements of guidance notes and by-laws incorporated into work plans, educational materials in each pilot state.	Surveys/interviews. Workplans and outreach materials.	By-laws, unless carefully crafted, may run aground on local politics.
Output 1. Technical by-laws, state and municipal guidance covering UPOPs reductions in waste management developed.	City council by-laws drafted, reviewed and gazetted in timely manner.	No existing by-laws or regulations	By-laws drafted by end of year 1. By-laws adopted by end of year 2.	Published by-laws	City and state governments will be proactive on this issue.
	Guidance notes drafted and adopted in timely manner.	No guidance notes.	Guidance drafted by end of year 1. Guidance adopted by end of year 2.	Published guidance notes.	City and state governments will be proactive on this issue.
Outcome 1.4. Federal and state municipal waste policy setting and enforcement capacity increased.	# of judicial and state environmental protection officials in pilot sites with measurably improved knowledge and skills.	No training in UPOPs minimizing management practice or enforcement of existing environmental pollution laws.	20 officials in each pilot state have completed training and have measurably improved knowledge and skills.	Comparison of before and after training quiz results.	Macro-economic trends do not undermine local economic development initiatives.
	% of main actors in waste creation, storage, transportation and dumping who are familiar with IWM and UPOPs reduction principles.	Approximately 5-10%. Baseline in two pilot sites to be measured at project inception.	60-75% by end of the project.	Survey results.	Incentives for learning the rules and following them and disincentives for not doing so are sufficient.
Output 1. Strengthened capacity in UPOPs minimizing MAW management practice.	Training needs assessment. Training workshops on enforcement, UPOPs reducing waste management practice.	No training needs assessment, workshops or materials made available to officials at state level.	Training needs assessment completed by EoY 1. Training programme 50% completed by EoY 2 and 100% completed by EoY 3.	Project reports/PIR.	Resources and political will sufficient to sustain and build upon capacity.
Component 2. Reduction of UPOPs emissions through					

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
new practices/approaches in municipal waste handling.					
Outcome 2.1. UPOPs emissions reduced through improved sorting of municipal waste.	Volume increase in waste sorted prior to depositing in dumpsite.	0 tonnes/year. Waste is largely not sorted and is dumped in site where burning is the norm.	At least 50% of waste tonnage collected in each pilot site is sorted for priority non-recyclable materials in each pilot city by end of project.	Field visit to sorting center and dump site; reports.	Partnership with Federal, State and City programme officials will be able to coordinate needed joint actions on a timely basis.
	Specific incremental steps taken to strengthen baseline IWM strategies with UPOPs-specific priorities and practices (BAT/BEP)	No UPOPs-specific elements included in baseline IWM strategies.	Onitsha and Kano strategies revised/strengthened w/respect to UPOPs release reductions and formalized sorting goals and milestones.	Revised strategy documents.	Local authorities will be open to and support of modifications to IWM strategy documents.
	# of dumpsites upgraded to reduce/prevent burning; # of hectares of upgraded dumpsite land where burning is impossible.	Zero Zero	- At least 10 by end of project. Upgrading of designated dumpsite in the 8 LGA of Kano and the 2 LGA of Onitsha by year 2 of project. - At least 70 hectares by end of project.	Field visits; PIR; other project reports.	Partnership with Federal, State and City programme officials will be able to coordinate needed joint actions on a timely basis.
Output 1. Introduction of waste separation at selected communities.	Number of residential estate and commercial plazas and institutions that sign on the separation programme in pilot states	No formal waste separation programme	10% of residential estates, commercial and government institutions in pilot states with separation programme in place by year 1 of project	Survey on site monitoring, project report	The project will successfully learn from other experiences on how to get people to modify their daily routine.
	Level of increase in community awareness.	Baseline TBD at project inception through local surveys.	Community level awareness of UPOPs in Kano and Onitsha cities increased 30% by year 2.	Survey results – baseline and target.	Awareness will translate into improved participation in and support of adopting new practices.
	Number of State EPA, Waste management authority and community “block leaders” trained in waste sorting.	No EPA, WMA or block leaders identified or trained.	At least 10 EPA and WMA staff trained in each pilot; At least 20 community leaders in each pilot LGA.		
	# of key stakeholders trained in “train the trainer programme on UPOPs reduction sorting”.	Stakeholders not assessed or formally recognized or trained.	Citywide train the trainer activities cover 25% of key stakeholders in IWM (state/local government, civil societies, media, private	Train the trainer records	

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
			investors).		
	Citywide targets for sorting. % of city offices participating in programme to sort materials not a priority for recycling.	No targets, not milestones to measure success. None of the city offices or departments within pilot cities participating.	Targets in place as part of approved citywide IWM Strategy by end of project's first 18 months. At least 5 participating by EoY 2; 10 by EoY 3; and 20 by EoY 4.	Project reports, field visits/interviews.	There will be continued synergy development among regulatory agencies and key stakeholders.
Outcome 2.2. UPOPs emissions reduced through improved composting.	# of neighbourhoods with active sorting and composting programmes in the metropolitan local government areas of pilot states.	0 neighborhoods participating in sorting or composting.	Sorting and composting programmes in 8 local government areas (LGA) of Kano & 2 LGA of Onitshaby end of year 4.	Surveys, interviews, project reports and onsite monitoring.	The tripartite cooperative arrangement on IWM will facilitate funding mechanism and adequate release of funds.
Output 1. Establishment of composting programme and collection of compostable waste at communities in 2 pilot cities.	Presence/absence of basic infrastructure for composting (collection, composting, bagging).	None present	Collection and composting infrastructure in place by end of year 1. Bagging of compost underway end of year 3.		
	# of restaurants participating in composting programme.	Zero.	At least 10 by EoY 2; 20 by EoY 3, and 40 by EoY 4.	Programme reports; field visits.	
Output 2. Develop market for composted matter in pilot areas.	Volume of compost sold to commercial buyers.	Zero.	At least 2 tonnes per quarter sold by end of project.		Composting programme will be able to produce the right type of compost to meet the market's needs.
Outcome 2.3: Five States participating in federal IMSWM programme replicate best practices.	# of states incorporating UPOPs-specific priorities into their IWM strategies.	Zero	At least 5 by end of project.		
	# of states and cities adopting by-laws and guidance notes on UPOPs reducing IWM practices.	Zero	At least 5 by end of project.		The penalties for violating the by-laws will be so low as to diminish the usefulness of these.
	# of city and State staff in non-pilot areas trained in UPOPs-reducing practices.	Zero	At least 100 by end of project.	Before and after training quiz results.	
	# of BAT-BEP for UPOPs reduction developed and circulated for replication.	No BAT-BEP developed in Nigeria for UPOPs.	At least 5 by end of project.	Published BAT and BEP.	Strengthened Laboratories and trained manpower
Component 3. Reduction of					

Result	Indicator	Baseline value	Target	Means of verification	Risks/Assumptions
UPOPs emissions from agricultural land clearing.					
Outcome 3.1. Open burning of stubble on farm fields is reduced through changes in agricultural practices.	# of hectares in which alternative approaches to agricultural waste (AW) burning at 2 pilot-sites in Kano state have been introduced by farmers.	Zero hectares.	By the end of the project, alternatives have been introduced in each pilot area of Kano: 20 ha at Danbatta, and 20 ha at Dogwa.	Field visits; PIR; maps.	Farmers will embrace the benefits to not burning.
	Number of hectares of farmland burned in a year.	-- Hectares of cropland stubble burned/year. Baseline TBD at project inception.	At least 10 farmers not burning cropland in preparation for farming. Hectares/year burned	Project reports; on-site monitoring. Field interviews.	Farmers will be receptive to the “case” and incentives to stop stubble burning.
Output 1. Clarification and elaboration of UPOPs challenges in the agricultural sector with a focus on Kano state.	UPOPs agricultural (ag) burning data refined for Kano State; Respective area of lands per crop determined.	No refined data.	Supportive data refined by end of year 1; UPOPs from ag burning clarified and specified by end of year 2.	Reports; Records; data sets.	Needed data will exist and be made available to the project.
Output 2. Increased level of farmer and agriculture officials awareness of the impact of burning farm fields, both from an agronomic and UPOPs perspective.	% of awareness among clearly defined target groups of farmers and agriculture officials.	Awareness level TBD at project inception. Few farmers are aware of UPOPs releases through burning of agricultural land.	Increase of at least 50% by end of project.	Before and after surveys.	Awareness will translate at least partially into changed practices.
	# of training workshops organized for extension officers and farmers. #extension toolkit and # training manuals developed for extension officers and farmers	Innovative approaches to burning not known.	At least 8 workshops held by project end for extension officers/farmers. 1 Toolkit, 2 training modules by end year 1 and in full use by middle year 2.	Training materials Workshop reports Project reports	Sustained policy support to sustainable management of agricultural land
Output 3. Alternative approaches to stubble burning at pilot sites in Kano introduced and replicated.	# of additional farms replicating alternative approaches to burning.	Zero	Alternatives replicated for at least 20 additional farms across Kano.	Field visits, PIR, project reports.	

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID:	PIMS 4221--- Atlas NGA10 ----Award 00059851 ----- Project 00075041
Award Title:	Nigeria
Business Unit:	---
Project Title:	Less Burnt for a Clean Earth: Minimization of Dioxin emission from open burning sources in Nigeria.
Project ID: PIMS no.	---
Implementing Partner (Executing Agency)	Nigeria

GEF Outcome / Atlas Activity	Responsible Party / Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2	Amount Year 3	Amount Year 4	Total (USD)	#
Component 1: Legislative Strengthening/Policy Development	FMoE	62000	GEF	71200	Int'l Consultants	30,000	18,000	0	0	48,000	1
				71300	Local Consultants	9,000	27,000	18,000	23,100	77,100	2
				71600	Travel	24,000	9,500	21,500	21,000	76,000	3
				72100	Contractual Services	41,000	111,000	50,000	50,000	252,000	4
				72200	Equipment	16,000				16,000	5
				74200	Publications		13,000	32,000		45,000	6
				74500	Misc-Training	40,940		40,940		81,880	7
				74500	Misc - Services	1,000	1,000	1,000	1,020	4,020	8
				Total Component 1:		161,940	179,500	163,440	95,120	600,000	9
Component 2: Reduction of UOPs Emissions Through Introduction of New Practices and Approaches in Municipal Waste Handling	FMoE	62000	GEF	71200	Int'l Consultants	30,000	48,000	30,000	45,000	153,000	10
				71300	Local Consultants	80,995	80,575	80,575	80,575	322,720	11
				71600	Travel	11,500	9,000	20,000	40,000	80,500	12
				72100	Contractual Services	71,300	171,300	321,300	396,300	960,200	13
				72200	Equipment	50,000	50,000			100,000	14
				74100	Professional Services	5,000	40,000	5,000	45,000	95,000	15
				74200	Publications			25,000	40,000	65,000	16
				74500	Misc- Training	168,000	168,000	268,940	157,060	762,000	17
				74500	Misc - Services	3,000	3,000	3,000	2,580	11,580	18

				Total Component 2:		419,795	569,875	753,815	806,515	2,550,000	19
Component 3: Reduction of UOPs Emissions from Burning of Farm Fields in Preparation for Planting.	FMoE	62000	GEF	71200	Int'l Consultants	24,000	6,000			30,000	20
				71300	Local Consultants	21,825	7,725	7,725	7,305	44,580	21
				71600	Travel	11,000	2,000			13,000	22
				72100	Contractual Services	50,000	50,000	90,000	60,000	250,000	23
				72200	Equipment	60,000	20,000			80,000	24
				74100	Publications			15,000	15,420	30,420	25
				74500	Misc- Training	40,000	60,000	70,000	70,000	240,000	26
				74200	Misc - Services	3,000	3,000	3,000	3,000	12,000	27
				Total Component 3		209,825	148,725	185,725	155,725	700,000	28
Project Management Costs	FMoE	62000	GEF	71400	Project Personnel	48,500	48,500	48,500	48,500	194,000	29
				71600	Travel	14,000	12,000	12,000	11,500	49,500	30
				72200	Equipment	16,500	0	0	0	16,500	31
				72400	Communication	3,500	3,500	3,500	3,500	14,000	32
				72500	Supplies	2,500	2,000	2,000	2,000	8,500	33
				74500	Misc - Services	4,500	4,500	4,500	4,000	17,500	34
				Total Management		89,500	70,500	70,500	69,500	300,000	
GRAND TOTALS		62000	GEF	71200	Int'l Consultants	84,000	72,000	30,000	45,000	231,000	
				71300	Local Consultants	111,820	115,300	106,300	110,980	444,400	
				71400	Project Personnel (Management)	48,500	48,500	48,500	48,500	194,000	
				71600	Travel	60,500	32,500	53,500	72,500	219,000	
				72100	Contractual Services	162,300	332,300	461,300	506,300	1,462,200	
				72200	Equipment	142,500	70,000	0	0	212,500	
				72400	Communications	3,500	3,500	3,500	3,500	14,000	
				72500	Supplies	2,500	2,000	2,000	2,000	8,500	
				74100	Professional Services	5,000	40,000	5,000	45,000	95,000	
				74200	Publications	0	13,000	72,000	55,420	140,420	
				75700	Conf & Training	248,940	228,000	379,880	227,060	1,083,880	

				74500	Misc - Services	11,500	11,500	11,500	10,600	45,100
				Total Project		881,060	968,600	1,173,480	1,126,860	4,150,000

Budget Annotations:

	Budget Note
1	Int'l UPOPs inventory/monitoring/UNEP-Toolkit expert 36k (+3 trips to Nigeria at 4,500/each = 13,500k in travel BL); Training needs assessment for UPOPs policy implementation and enforcement (4 weeks at 12k), one visit to Nigeria \$4,500 in Travel BL.
2	PM Technical input (35 weeks/660/wk = 23100) National UPOPs inventory/monitoring/UNEP-Toolkit expert (1000/week @ 18 weeks or 18K); National UPOPs reduction strategy development expert and update and strengthen by-laws and guidance notes (1000/week @ 36 weeks or 36K);
3	Inception workshop, SC, field visits, Closing workshop. Travel costs for two int'l experts (18k).
4	Two working groups for UPOPs inventory and monitoring in each pilot site. Two groups of 5 experts each at 20 weeks each = (40 wks @1.5k/week). Costs for travel to training workshops (500 each x 10 experts = \$5,000); Stakeholder Mobilization effort (Outcome 1.2) sub-contract to NGO for \$30,000. Expert working group (3 people) convened on UPOPs policy to formulate policy recommendations on UPOPs issues -- 10 weeks each = 30 weeks or 45K. Sub-contract: Strengthening capacity to involve citizens and implement UPOPs work in a results-oriented way (Mileukontakt International from the Netherlands) - conduct training in two pilot states hosting at least 30 people in each training session -- training will be designed following the training needs assessment's findings (total value of contract: 112K).
5	Air quality measuring instruments for UPOPs inventory.
6	Publication of new laws and policies (5k); Guidelines for key stakeholder organizations at national level (8k); UPOPs problem awareness raising brochure for Nigeria (20k). UPOPs reduction guidance notes -- How to reduce UPOPs releases from open burning of MAW (12 k).
7	UNEP Toolkit training -- 40 people (DSA costs: 15,000 Naira/day DSA x 5 x 40 = 3 mil Naira or \$20,200) 40,000 N for air ticket x 40 = 1.6 million N for air travel or \$10,740); Training venue \$10,000;
8	Funds budgeted to cover contingencies. If not used at the end of each year, funds will be re-assigned to support training and capacity building activities.
9	--
10	International waste sorting/material recovery expert (20 weeks (60k), plus three trips). Dump site/landfill management expert on no burn dump site management 6 weeks (18k) and one trip. Food for waste expert, 10 weeks. (30k); Discretionary assistance weeks (15 x 3,000/wk = 45k)
11	PM technical input 100 weeks (66000); PSTD 208 weeks = 116,480); Agriculture Expert -- (104 weeks = 68,640); Interactive UPOPs project website design completed (18k). National waste sorting/material recovery expert (20 weeks @ 660/week plus three domestic trips). Community working group for developing participatory sorting program (7k/pilot site or 14k); UPOPs release reduction expert to advise five states where replication of project's work will be the focus - 20 weeks @ 660/wk; Food for Waste national expert 20 weeks @660.
12	Travel (IC) 13,500; Study tours to pilot sites by other SEPA staff (60K); Domestic travel for national consultants 2,500;
13	Contract to one NGO in each pilot site to carry out public awareness/outreach campaigns for waste sorting and composting (50,000 each = 100K); Implement Food for Waste demonstrations in two places in each pilot city (300K) as part of sorting program; Dumpsite retrofitting work subcontract 100K for each pilot site = 200K. Recplication training sub-contract. Build upon training programs in pilot sites to provide training in five states where replication will be the focus. 40,000 in each of five states = 200k. Development of training modules and video programmes 75k; Discretionary contracting budget to supplement one or more contracts (85.2k)
14	Sorting receptacles; composting receptacles (procured locally).
15	Audit (20k); Mid-Term and Terminal Evaluations (70k)
16	Revised IMSWM strategies in participating states(10k); How to minimize UPOPs releases guidebook (25k); Training module printing and making available on-line (30,000).
17	Training in sorting process and establishing effective sorting programme, stakeholder participation -- 2 sessions in each pilot site. -- 100 people (DSA

	costs: 10,000 Naira/day DSA x 5 x 80 = 3 mil Naira or \$34,000); Training venue \$10,000 -- Total training costs 44k x 4 = 176k: Same process for composting, 176k; ; Knowledge development for sorting network - regular meetings to improve sorting collaboration within each pilot site 20k; Summer stipends for Nigerian university students to do field work supervised jointly by professors and SEPA staff in project pilot sites (40k). Study tours to pilot sites by SEPA staff from around the country in waste sorting, composing and fire suppression, as well as private sector implementing new law (50k). Training for scavengers/informal waste harvesters -- up to 2,000 people in each pilot site, \$150,000 each pilot site).
18	Funds budgeted to cover contingencies. If not used at the end of each year, funds will be re-assigned to support training and capacity building activities.
19	---
20	Expert on estimating UPOPs releases from open burning of agricultural land (10 weeks, two trips).
21	PM Tech input (20 wks 660/wk = 13,200); National expert on estimating UPOPs releases from open burning of agricultural land (8 weeks, two domestic trips); Working group of 3 agricultural experts in Kano 6 weeks for team leader and 4 weeks for other two experts, total of 14 weeks or 10,500. Discretionary 23 days at 560/day.
22	Two trips for UPOPs IC; Two domestic trips NC
23	Contract to one NGO to carry out public awareness/outreach campaigns on the detrimental effects of open burning of agricultural residue (40K); Demonstrations of Alternatives to Burning -- Demonstrate improved fallow systems, 50,000; Demonstrate cut and mulch on 3 different farms 90K; demonstrate use of cover crops to reduce weeds (60k).
24	2 crop shredders for pilot demonstrations; Other agricultural equipment for demonstrations
25	Development of training modules.
26	Training on crop rotation at farms already practicing this with no burning (40k); training on mixed farming with integratio of tree crops, food and livestock 40k; Demonstration of use of shredders and choppers 60k. Peer to peer training by participating farmers for other farmers from around Kano and other states (70,000); Other discretionary training (20k)
27	Funds budgeted to cover contingencies such as increased costs due to inflation, currency fluctuations, and so on.
28	---
29	Cost of management-related input of PMCU staff time (PM, PSMs, FA). Please see Annex C of the CEO Endorsement Request for details.
30	Management-related travel to project sites across three states (Abuja, Anambra, Kano) plus 3 more states for replication. Mileage costs for official travel by taxi or other ground transport mode.
31	No vehicles. Laptops for mobile management among three states (Abuja, Anambra, Kano); Adequate printer and photocopying capacity to support project operations.
32	Costs of ensuring adequate internet connectivity for project operations; Telephone communication on project business within Nigeria and overseas to regional and global offices for best practice guidance, M&E planning and support.
33	Standard expendable office supplies to support project operations.
34	Funds budgeted to cover contingencies such as increased costs of other management requirements due to inflation, currency fluctuations.

Total Project Budget/ Summary of Funds⁵ (including co-finances from all sources) (in USD)

Sources	Prep Period	Year 1	Year 2	Year 3	Year 4	Total 4 years
GEF PPG (GEF-IV)	\$130,000					\$0
GEF-FSP (GEF-IV)		868,590	971,050	1,175,930	1,134,430	4150000
SECURED CO-FINANCING						
Government of Nigeria (FMoW, in kind) ⁶	130000	2492500	2492500	2492500	2492500	9970000
Government of Nigeria (NESREA, in kind)		30000	30000	30000	30000	120000
Anambra State		587248	587248	587248	587248	2348992
Kano State		1815436	1815436	1815436	1815436	7261744
Private Sector (in-kind?)						
UNDP		25000	25000	25000	25000	100000
SUBTOTAL SECURED CO-FINANCING	\$130,000	\$4,950,184	\$4,950,184	\$4,950,184	\$4,950,184	\$19,800,736
TOTAL (GEF & CO-FINANCING & Prep Period)	\$260,000	\$5,818,774	\$5,921,234	\$6,126,114	\$6,084,614	\$24,210,736

⁵ Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc.

⁶ Note: Management co-funding apportioned among FMOE, Anambra, and Kano states -- 100,000/each.

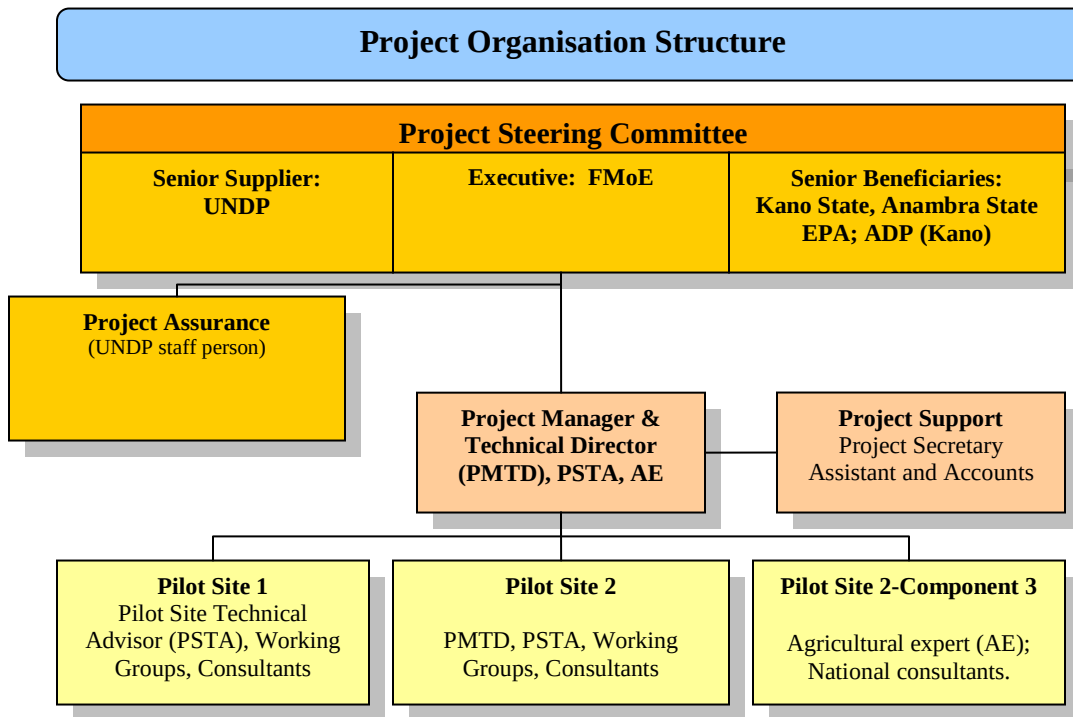
SECTION IV: ADDITIONAL INFORMATION

PART I: Other agreements

See endorsement and co financing letters in a separate file:

1. Letter of Endorsement Government of Nigeria (GEF Operational Focal Point; Day, month year)
2. Co-financing letter Federal Ministry of Environment
3. Co-financing letter State of Anambra
4. Co-financing letter State of Kano
5. Co-financing letter UNDP-Nigeria

PART II: Organigram of Project



Project Steering Committee (PSC) is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The PSC plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual WorkPlan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, PSC decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

Potential members of the PSC are reviewed and recommended for approval during the PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. The PSC contains three distinct roles, including:

- 1) **An Executive:** individual representing the project ownership to chair the group.
 - e.g. Representative of the Government Cooperating Agency or UNDP
- 2) **Senior Supplier:** individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.
 - e.g. Representative of the Implementing Partner and/or UNDP

- 3) **Senior Beneficiary(ies)**: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiaries' primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.
 - *e.g. Representative of the Government or Civil Society.*
- 4) The **Project Assurance** role supports the PSC Executive by carrying out objective and independent project oversight and monitoring functions. The Project Manager and Project Assurance roles should never be held by the same individual for the same project.
 - *e.g. A UNDP Staff member typically holds the Project Assurance role.*

Project Manager: The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

Project Support: The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager.

PART III: Job Descriptions and Terms of Reference for project staff and sub-contracts

1. Terms of Reference for National Project Director (NPD) (part-time, 30%)

Function title:	National Project Director (NPD)
Project title & ID:	PIMS ---: ----
Duty station:	Abuja
Duration:	TBD months (appointed by the Government; --% part-time)
Supervision:	Government

Duties and responsibilities

Overall, the NPD will be accountable to both the Government and the UNDP. The main duties and responsibilities are:

- Ensures that the expected results of the project are of satisfactory substantive quality and that they contribute to the achievement of the intended outcome identified in the UNDP Country Programme Document (CPD). This will be discharged through the (i) approval of project work plans, TORs, reports, (ii) follow-up on the implementation of recommendations made by regular project reviews and/or external evaluations, and (iii) conduct of internal reviews and evaluations as/if needed.
- Ensures that project resources, national as well as international, are effectively utilized for their intended purposes through the (i) verification of project budgets and payments, (ii) approval of budget revisions within the agency flexibility limit, (iii) follow-up on the implementation of recommendations made by external audits and (iv) conduct of internal audits as/if needed.
- Ensures that counterpart funds are made available by the Implementing Partner in sufficient quantities and in a timely manner to support project implementation.
- Ensures that project parties, particularly national parties (including the Implementing Partner) fully participate in project implementation, effectively collaborate in project activities and duly benefit from project results.
- Ensures that the results achieved and lessons learned by the project are properly documented, proactively disseminated to and duly shared with all project parties, particularly national parties.
- Selects, arranges for the appointment of and supervises the Project Manager, in consultation with UNDP, to make sure that the PM and other national project staff are empowered to effectively perform their day-to-day project duties.
- Selects, arranges for the appointment of International Consultants, in consultation with UNDP, to make sure that international project personnel contribute expert inputs of the highest quality to the expected outputs of the project.
- Represents the Implementing Partner at major project reviews, evaluations, audits and other important events.
- Provide regular updates to the PSC.

2. Terms of Reference for Project Manager:

Function title:	Project Manager and Technical Director (PMTD)
Project title & ID:	PIMS 4221: Less burnt for a clean earth: minimization of dioxin emission from open burning sources in Nigeria
Duty station:	TBD.
Duration:	48 months (recruited, full time)

Supervision: National Project Director, UNDP

Duties and responsibilities

Overall, the PMTD will be responsible for the day-to-day running the project, including overall coordination, planning, management, implementation, monitoring & evaluation and reporting of all project activities as well as for the overall technical quality and guidance of the project's work. More specifically, the PMTD will:

1. Prepare and update project work plans, and submits these to the NPD and UNDP for clearance.
2. Participate in quarterly work planning and progress reporting meetings with the NPD, PMU, and UNDP;
3. Ensure that all agreements with implementing agencies are prepared, negotiated and agreed upon.
4. Prepare TORs for key inputs (i.e. personnel, sub-contracts, training, procurement) and submits these to the NPD and UNDP for clearance, and administers the mobilization of such inputs.
5. With respect to external project implementing agencies/ sub-contractors:
 - a. ensuring that these agencies mobilize and deliver the inputs in accordance with their letters of agreement or contracts, and
 - b. providing overall supervision and/or coordination of their work to ensure the production of the expected outputs.
6. Assume direct responsibility for managing the project budget by ensuring that:
 - a. project funds are made available when needed, and are disbursed properly,
 - b. expenditures are in accordance with the project document and/or existing project work plan,
 - c. accounting records and supporting documents are properly kept,
 - d. required financial reports are prepared,
 - e. financial operations are transparent and financial procedures/regulations for NEX projects are properly applied; and
 - f. s/he is ready to stand up to audits at any time.
7. Assume direct responsibility for managing the physical resources (e.g. vehicles, office equipment, and furniture) provided to the project by UNDP.
8. Supervise the project staff and local or international short-term experts/consultants working for the project.
9. Prepare project progress reports of various types and the Final Project Report as scheduled, and organizes review meetings and evaluation missions in coordination with UNDP.
10. Report regularly to and keeps the NPD and UNDP PO up-to-date on project progress and problems.

Qualifications

- University degree (preferably post-graduate degree) in environment management, chemicals or related fields;
- Knowledge of Result-based management and at least 5 years of experience in project management and implementation;
- Strong analytical skills, good inter-personal and team building skills – Leading skills;
- Full time availability for project management duties;
- Working level of English language is an absolute necessity;
- Familiarity with technical assistance projects and UNDP programme in Nigeria is an asset.

4. Terms of Reference for Project Secretary (PS):

Function title:	Project Secretary (PS)
Project title & ID:	PIMS 4221: Less burnt for a clean earth: minimization of dioxin emission from open burning sources in Nigeria
Duty station:	TBD
Duration:	48 months (recruited, full time)
Supervision:	Project Manager

Duties and responsibilities

Under overall supervision of National Project Director, the PSI will work under the direct supervision of and provide support to the Project Manager in the discharge of his/her responsibilities in the overall management of the day-to-day activities of the project. The PSI will work closely with the NPD, the PM, staff from the PMU and other international and national consultants. The main duties of the PSI are relating to secretarial and Interpretation/translation.

a. Responsibilities of the Project Secretary:

1. Provide necessary assistance in the operational management of the project according to the project document and the NEX procedures.
2. Draft correspondence on administrative and programme matters pertaining to the Project Office responsibilities;
3. Provide support in preparing project events, including workshops, meetings (monthly, quarterly and annual), study tours, trainings, etc., as required. This also includes preparation of background materials for use in discussions and briefing sessions on project matter;
4. Logistical arrangements. This includes visa, transportation, hotel bookings for project staff, consultants and invited guests coming for project activities;
5. Be responsible for project filing system. This includes setting up the filing, numbering and filing all incoming and outgoing correspondence.
6. Prepare regular list of events for sharing of information within project staff and outside;
7. Assist with project communication activities, including publications;

Qualifications

- University degree in English language, administration or related fields;
- Good command of both written and spoken English and at least four (03) years of working experience in the positions of secretary or interpreter/ translator.
- Good secretarial skills and good organizational capacity;
- Knowledge in administrative procedures of the Government
- Good computer skills in common word processing (MS Word), spreadsheet (MS Excel);
- Knowledge and experience in working with UN agencies and international organizations is an advantage.

5. Terms of Reference for Project Accountant/ Assistant (PAA):

Function title:	Project Accountant/ Assistant (PAA)
Project title & ID:	PIMS 4221: Less burnt for a clean earth: minimization of dioxin emission from open burning sources in Nigeria

Duty station: TBD
Duration: 48 months (full time)
Supervision: Project Manager& Technical Director

Main functions and responsibilities

This Project Accountant/Assistant Position has two roles: as an Administrative Assistant and as an Accountant with the following duties

a. As a Project Administrator

1. Provide assistance in the operational management of the project according to the project document and the NEX procedures.
2. Undertake all preparation work for procurement of office equipment, stationeries and support facilities as required;
3. Provide support in preparing project events, including workshops, meetings (monthly, quarterly and annual), study tours, trainings, etc., as required.
4. Take care of project telephone, fax, and email system;
5. Assist with preparation of TORs and contracts for consultants for project activities.

b. As a Project Accountant

1. Prepare quarterly advance requests to get advance funds from UNDP in the format applicable.
2. Assist the PM and NPD in project budget monitoring and project budget revision.
3. Set up accounting system, including reporting forms and filling system for the project, in accordance with the project document and the NEX procedures;
4. Maintain petty cash transactions. This includes writing of receipts, preparation of payment request form, receipt and disbursement of cash and clearance of advances;
5. Prepare cheques and withdraw money from the bank;
6. Prepare project financial reports and submit to PM and NPD for clearance and furnish to UNDP as required;
7. Enter financial transactions into the computerised accounting system;
8. Reconcile all balance sheet accounts and keep a file of all completed reconciliation;
9. Check and ensure that all expenditures of projects are in accordance with NEX procedures. This includes ensuring receipts to be obtained for all payments;
10. Check budget lines to ensure that all transactions are booked to the correct budget lines;
11. Ensure documentation relating to payments are duly approved by the NPD;
12. Bring any actual or potential problems to the attention of the NPD;
13. Follow up bank transfers. This includes preparing the bank transfer requests, submitting them to the bank and keeping track of the transfers;
14. Ensure Petty Cash to be reviewed and updated ensuring that there is up-to-date records;
15. To continuously improve system & procedures to enhance internal controls to satisfy audit requirements.
16. Ensure that bank statements be collected from the banks on the 2nd working day of each month;
17. Ensure that bank accounts should be reconciled and reported on or before 3rd of each month;
18. Prepare monthly bank reconciliation statement, including computation of interests gained to be included into reports.
19. Maintain the inventory file to support purchases of all equipment/assets.
20. Undertake other relevant matters assigned by the NPD.

Qualifications and requirements

- University degree in accounting, finance or related fields;

- Solid experience of budgeting, planning and reporting on foreign funded projects; and experience with international auditing requirements.
- Good secretarial skills and good organizational capacity;
- Knowledge in administrative and accounting procedures of the Government
- Good computer skills in common word processing (MS Word), spreadsheet (MS Excel), and accounting software.
- Appropriate English language skills, both spoken and written.

8. Main packages for outsourcing/sub-contracting

The FMoE, State level authorities, and other partners including contractors and nation expert working groups, and international experts are called other implementing agencies or (other) Responsible Parties (RPs), which are all essential to the success of this project. There will be a number of expert working groups and contractors that will be mobilized in accordance with the UNDP standard procurement process or Government bidding law/ standard process, as agreed upon by UNDP and the NPD.

9. Project Office Equipment:

The Project shall purchase necessary equipment, software and materials as mentioned in the table below. Specifications for this equipment will be defined in accordance with UNDP prevailing rules/procedures at the time of the procurement. All equipment will be purchased in Nigeria:

Local	Description	Quality	Unit price (US\$)	Costs (US\$)
Project Office equipment	Notebook:	2	1,200	2,400
	Desktop:	4	600	2,400
	External Hard Disk + USBs	lump sum	200	200
	UPS	4	70	280
	Laser Printer (B&W)	2	1,000	2,000
	Scanner - HP scanjet	1	200	200
	External modem	1	50	50
	Multi-function Projector	1	1,500	1,500
	Photocopy machine	1	2,500	2,500
	Fax machine	1	200	200
	Telephone	4	100	400
	Desks	4	100	400
	Chairs	4	100	400
	Cabinet/cupboard	3	100	300
	Air-conditioner	1	800	800
Other items	To be defined in the inception phase	4		25,970
	EQUIPMENT TOTAL			40,000

PART IV: Technical Annexes

Annex 1: Summary Overview of Food for Waste Programme In South Africa

Introduction

The Food for waste programme is a deliberate South African Government initiative that forms part of government's Expanded Public Works Programme (EPWP) and is designed to supply waste management services, while actively engaging the residents of these areas in the process. Community members collect waste in their areas and take it to communal collection points from where the municipality removes the waste to the landfill. Participating community members receive food and vegetable parcels in return for their effort.

Objectives

The objectives of this project are:

- To extend waste removal services to communities not currently receiving such services and poorly serviced areas;
- To harness communities into caring for their own environment.
- To employ local people in the collection of waste in order to clean up the living environment and enhance the livelihood of the community
- To create the mostly needed jobs through labour intensive waste management activities thereby contributing towards the alleviation of poverty in municipalities and achieving the United Nation's Millennium Development Goals (MDGs).

How does it work?

In a Municipality, after obtaining a resolution from council; a project steering committee is established composed of Councilors and civic structures. These are work-shopped on the concept of the Food for Waste mode. This process enhances buy-in from all stakeholders.

Then the implementation plan is adopted as outlined in the Municipality's Integrated Development Plan (IDP) and the /Budget process

The success of this process lies in the fact that ward councilors and community structures are briefed on the type of qualifying beneficiaries in terms of EPWP guidelines and the use of EPWP model in recruitment. And a reference is made to the municipal Indigent Register to come up with households that have no income. New recruits are shown in branded in their uniform as shown in Figure1.

Depending on the areas, usually each pilot area has fifty beneficiaries including two supervisors. Beneficiaries work in pairs on demarcated routes and are provided with uniforms and working tools. Each beneficiary was then allocated around 54 households. They are employed for a fixed period of twelve months and sign a contract. There is an option to renew contracts annually. The beneficiaries work for a minimum of two days a week. On a bi-weekly basis, the beneficiaries receive food parcels and once a month they receive a prescriptive voucher as a form of remuneration.

Employment on the Food for Waste project is subject to the beneficiary agreeing to attend compulsory training courses as may be offered by the municipality and is governed by the "Conditions of Employment for Special Public Works Project". Courses include several entrepreneurial areas such backyard food gardening, financial management, establishment of Small Scale businesses, etc. These beneficiaries are usually composed of 80% women and 20% men. Of all these, 50% are youth.

The beneficiaries of the project in turn have to:

- perform door to door collection of waste from households on a Monday and Friday;
- perform litter picking in their area of work;

- perform street sweeping and maintain cleanliness within their designated areas of work;
- deliver all waste from your designated working area to the collection point on collection day;
- empty and deliver all waste and refuse bags from storage drums to the exchange point.

What is in it for the beneficiary?

Vegetable and food parcels (12kg each) are valued at South African Rand 40.00 each and the food vouchers in the order of R250.00 each. The food parcels contain essential foods like rice, flour, maize, samp, beans, sugar, salt, tea, green soap and vegetables.

The training programme include life-skills, waste-handling and supervisory training for the beneficiaries.

The factor that underscores the success of this project is the way in which incentives were decided. In this process, the incentives, which come in the form of food parcels, were developed and agreed upon by all beneficiaries. There was a participatory process involved, and not just unilateral decisions. List 1 below outlines the list of the form of food parcels the beneficiaries had agreed upon. While Figure 2 shows beneficiaries collecting food parcels.