



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Integrated municipal management model of household and similar waste with low greenhouse gas emissions – Eucalyptus Municipality		
Country(ies):	Algeria	GEF Project ID: ¹	5675
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	5329
Other Executing Partner(s):	Ministry of Land Planning and Environment	Submission Date:	10 January 2014 22 January 2014
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36
Name of parent program (if applicable):	n/a	Project Agency Fee (\$):	302,829
	<ul style="list-style-type: none"> • For SFM/REDD+ <input type="checkbox"/> • For SGP <input type="checkbox"/> • For PPP <input type="checkbox"/> 		

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK²:

Focal Area Objectives	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCM-3 (select)	GEFTF	1,010,050	4,499,432
CCM-4 (select)	GEFTF	2,177,621	9,700,568
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
(select) (select)	(select)		
Total Project Cost		3,187,671	14,200,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To promote a model of municipal integrated management of household and similar waste for energy generation and low GHG emissions						
Project Component	Grant Type ³	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
1. Integrated management of waste at source – Technical Assistance	TA	Upstream sorting by households, separate collection of fermentable and dry waste, and communal sorting planned and established in Eucalyptus municipality so as to reduce the volume of waste transported to the Engineered Landfill (EL)	1.1 Source sorting by households in all neighbourhoods of Eucalyptus municipality, supported by public incentives, an inter-sectoral communication plan and an awareness-raising campaign involving civil society actors	GEFTF	588,031	2,593,421

¹ Project ID number will be assigned by GEFSEC.

² Refer to the reference attached on the [Focal Area Results Framework and LDCF/SCCF Framework](#) when completing Table A.

³ TA includes capacity building, and research and development.

			<p>1.2 The collection process for Eucalyptus municipality's fermentable waste designed, coordinated and implemented</p> <p>1.3 A network of 15 micro-enterprises for household dry waste collection established and operational, serving all neighbourhoods of Eucalyptus municipality; and rationalisation of the existing collection network for similar waste produced by wholesale markets, commercial and industrial sectors, and green spaces</p> <p>1.4 Land assigned to the municipal sorting plant, and technical study and follow-up phases conducted</p>			
2. Integrated management of waste at source – Investment	Inv	Low-carbon waste collection and sorting process enabled	<p>2.1 6 packer trucks, powered by biogas produced by the methanation-composting plant, acquired and used by Eucalyptus municipality for the collection of the municipality's household fermentable waste</p> <p>2.2 Municipal sorting plant built, equipped and implemented</p>	GEFTF	1,374,000	4,906,774
3. Value creation from collected waste and ultimate waste minimization – Technical Assistance	TA	Management of compost production through methanation of fermentable waste, recycling of sorted dry waste, and the generation of renewable	3.1 Methanation-composting plant (to be installed under investment Component 4) – enabling the production of	GEFTF	263,700	3,292,109

		energy, planned and established	compost as a substitute for fertilizer and the production of transport fuel (biogas), electricity and heat – operating efficiently according to design specifications 3.2 Market outlets for the recycled waste processed by the municipal sorting plant ensured through long-term contracts with recycling firms			
4. Value creation from collected waste and ultimate waste minimization – Investment	Inv	Equipment for methanation, production of compost and renewable energy generation, installed and functional	4.1 Municipal methanation-composting plant built, equipped and implemented	GEFTF	785,000	2,216,474
5. Promotion of the municipal model of integrated waste management at the regional and national levels	TA	Replicability of the municipal waste management model	5.1 Implementation mechanism for project replicability across 48 wilayas (Algerian provinces) designed and implemented, including – if needed – a financial component 5.2 Incorporation of integrated waste management and GHG emission reduction into primary and secondary school programmes, selected university degree courses, and into Ministries' communications with relevant local authorities and stakeholders	GEFTF	25,146	515,032
Subtotal					3,035,877	13,523,810
Project Management Cost (PMC) ⁴				GEFTF	151,794	676,190

⁴ To be calculated as percent of subtotal.

Total Project Cost		3,187,671	14,200,000
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C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
Government	Ministry of Land Planning and Environment (MATE)	Cash	9,727,690
Government	16 ministries, including the Ministry of Interior & Local Authorities, the Ministry of Energy & Mines, and the Ministry of Industrial Development & Investment	In-kind	2,204,370
Municipality	Municipality of Eucalyptus (MICL)	Cash	2,067,940
GEF Agency	UNDP	Cash	200,000
Total Cofinancing			14,200,000

D. INDICATIVE TRUST FUND RESOURCES (\$) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (\$) (a)	Agency Fee (\$) (b) ²	Total (\$) c=a+b
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				0	0	0

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

E. PROJECT PREPARATION GRANT (PPG)⁵

Please check on the appropriate box for PPG as needed for the project according to the GEF Project Grant:

	<u>Amount Requested (\$)</u>	<u>Agency Fee for PPG (\$)⁶</u>
• No PPG required.	---	---
• (upto) \$50k for projects up to & including \$1 million	_____	_____
• (upto)\$100k for projects up to & including \$3 million	_____	_____
• (upto)\$150k for projects up to & including \$6 million	100,000	9,500
• (upto)\$200k for projects up to & including \$10 million	_____	_____
• (upto)\$300k for projects above \$10 million	_____	_____

PPG AMOUNT REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES) FOR MFA AND/OR MTF ROJECT ONLY

Trust Fund	GEF Agency	Focal Area	Country Name/Global	(in \$)		
				PPG (a)	Agency Fee (b)	Total c = a + b
(select)	(select)	(select)				0

⁵ On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁶ PPG fee percentage follows the percentage of the GEF Project Grant amount requested.

(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total PPG Amount			0	0	0	0

MFA: Multi-focal area projects; MTF: Multi-Trust Fund projects.

PART II: PROJECT JUSTIFICATION⁷

PROJECT OVERVIEW

A.1. Project Description. Briefly describe the project, including ; 1) the global environmental problems, root causes and barriers that need to be addressed; 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental/additional cost reasoning and expected contributions from the baseline , the GEFTF, LDCF/SCCF and co-financing; 5) global environmental benefits (GEFTF, NPIF) and/or adaptation benefits (LDCF/SCCF); 6) innovativeness, sustainability and potential for scaling up

Baseline scenario and project

In recent decades Algeria has been characterized by rapid and significant urbanization. It is the largest cities, in particular those on the coastline, that have been the main recipients of rural migrants. Local authorities have struggled to provide satisfactory services, particularly in the context of waste management as per capita waste output has risen to approximately 1kg per urban resident per day.⁸ Acknowledging the difficulties facing Algerian municipalities, in 2001 the Ministry of Land Planning and Environment (Ministère de l'Aménagement du Territoire et de l'Environnement, MATE) strengthened the legal, regulatory and institutional framework for waste management. In addition to defining the major categories of waste, Law 01-19 (2001) on the 'Management, Control and Disposal of Waste' obliged municipalities to develop tools for planning and managing waste, and introduced a number of principles – including the reduction of waste at source, the use of waste sorting and recycling, the treatment of waste, and the importance of citizen awareness-raising on waste matters. In 2002, MATE established the National Programme for the Management of Municipal Waste (PROGDEM), a national approach to “reform the practices of illegal landfills and to organize the collection, transport and disposal of municipal solid waste in conditions guaranteeing the protection of the environment, in particular through the execution, the layout and equipment of Engineered Landfills (ELs) in 40 major cities of the country.”

In order to support the National Programme, MATE created a National Waste Agency (AND) responsible for providing assistance to local authorities, for establishing and updating a national waste database, for promoting demonstration projects, and for supporting awareness-raising activities. In 2004, Law 04-199 laid down detailed rules for the creation, organisation, operation and financing of the 'Eco-Jem' system, to be set up by AND, for the recovery and treatment of packaging wastes by private-sector firms in exchange for the right to affix the Eco-Jem label to their packaging. By 2013, PROGDEM had assisted in the development of municipal waste management plans in 1,541 municipalities (of which 522 have been implemented to date), developing 58 ELs, establishing 34 controlled landfills, 29 sorting centres, 26 transfer stations and rehabilitating 40 illegal landfills,. Furthermore, MATE is currently working to grow and strengthen the recycling industry so as to secure outlets for these waste sorting plants. Through the involvement of the National Agency for Investment Development (ANDI) and the National Agency for the Development of SMEs (ANDPME), the

⁷ Part II should not be longer than 5 pages.

⁸ Djemaci B. (2012), *Municipal Waste Management in Algeria: Prospective Analysis and Elements of Effectiveness*, University of Rouen, France.

role of micro-enterprises and Small and Medium Enterprises (SMEs) is being encouraged in the nascent recycling industry.

As the only Government programme in the field of municipal solid waste management that regulates the actions of all Algerian municipalities, and which has as one of its objectives the reduction of greenhouse gases, PROGDEM represents the baseline project for GEF purposes. However, despite this supportive baseline framework, in practice municipal governments are struggling to implement it. Municipalities confront a number of challenges, including a shortage of financial and human resources (the municipal employee/inhabitant ratio fell from 1 employee/500 inhabitants in 1980 to 1 employee/1,500 inhabitants in 2005), lack of skilled staff, increasing costs of disposal and a very low rate of recycling. Approximately 45% of municipal waste produced in Algeria is estimated to be recyclable, including 1.8 million tonnes of paper, 1.2 million tonnes of plastics, 1.6 million tonnes of textiles and 300,000 tonnes of metals. However, there are only 247 firms nationwide that recover waste, and barely 6% of the recycling potential is actually exploited.⁹ Moreover, there is considerable unexploited potential for using fermentable waste to produce compost, biogas and energy. This state of affairs has caused the saturation of existing landfills and a multiplication of illegal landfills, with attendant public health problems, groundwater pollution and significant GHG emissions. The Second National Communication to the UNFCCC (2010) indicates that the waste sector accounts for 10% of Algeria's greenhouse gas emissions (excluding LUCF)¹⁰, and that landfills account for 66% of waste sector GHG emissions (equivalent to 7.5 million tCO₂e/year).

Specific weaknesses in the baseline project include¹¹:

- A lack of cross-sectoral coordination of waste management, and the need for greater involvement by the Ministry of National Education and the Ministry of Religious Affairs: the active participation of schools and mosques in raising population awareness of waste issues is considered vital to reducing waste supply and promoting sorting/recycling.
- A lack of transfer stations and the resulting long transport distances for collected waste.
- The transport of municipal waste to engineered / controlled landfills – which are often located far from the municipalities – without prior upstream sorting or separation of the fermentable fraction of the waste at the municipal level. The rate of landfill cell saturation is estimated to be three times faster than it otherwise could be due to the low level of waste sorting and recycling.
- Insufficient means for municipal waste collection and recovery, due to the inadequacy of Municipal Waste Management Plans and reduced resources for their implementation.
- The almost-complete absence of composting from the fermentable fraction of household waste, despite the significant (and growing) composting needs of Algeria's agriculture sector, particularly market gardening with plasticulture and fruit trees. Only the Wilaya (province) of Algiers has incorporated composting from green waste into its waste management plan.

⁹ Habib F. (2013), 'The recycling of waste in Algeria: an activity in gestation', *Maghreb Emergent*, April 2013: <http://www.maghrebemergent.com/economie/algerie/item/23404-le-recyclage-des-dechets-en-algerie-une-filiere-en-gestation.html>.

¹⁰ National Greenhouse Gas Emissions Inventory - Algeria (2010), page 6: <http://unfccc.int/resource/docs/natc/algnc2add1.pdf>

¹¹ These weaknesses were identified and validated in a series of workshops held over 7 days in November 2013 for PIF formulation purposes. Attendees at the workshops included 15 Government Ministries, waste sector actors, representatives of the Eucalyptus Communal Popular Assembly (APC), wilayas (Algerian provincial councils), representatives of civil society and private-sector firms.

GEF project scenario

The GEF project is designed to address the weaknesses identified in the baseline. It is targeted at the municipal scale so as to cover all the components of the waste value-chain and to be easily replicated nationwide under PROGDEM. The project is based on three pillars:

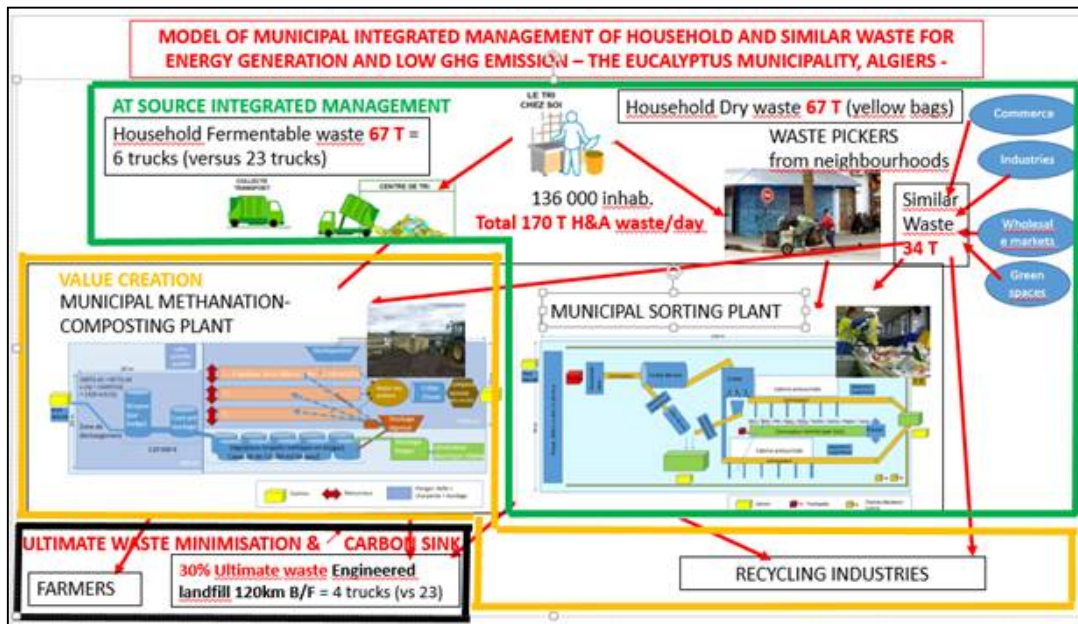
- Reduction of the volume of waste at source and of transport distances to Engineered Landfills through: upstream waste sorting at the household level; municipal institutional strengthening and technical support; upgrading the status of waste sector employees; development of recycling waste collection networks through the creation of micro-enterprises at the communal level; and the installation and operation of municipal sorting plants.
- Integration of bio-mechanical waste treatment into the waste management process so as to separate the fermentable fraction.
- Promotion of economic value creation from waste by strengthening recycling activities, and by enabling the production of compost, biogas and energy from methanation of the fermentable fraction.

The approach lays stress on the 3 Rs – Reduce, Reuse, Recycle – and aims to reduce GHG emissions at each stage of the waste management process. Among the different waste management systems existing in the waste sector, it represents the one with the lowest GHG emissions. The project will also create green jobs at the municipal level for the young and the unemployed through the involvement of the National Agency for the Support of Youth Employment (ANSEJ) and the National Fund for Unemployment Insurance (CNAC), and by harnessing a recent (2012) Presidential Decree (Number 12-23) stipulating that 20% of the value of public procurements must be directed at micro-enterprises.

The project focuses on the municipality of Eucalyptus, located in the Baraki Daïra (district) of Algiers Wilaya (province). The town of Eucalyptus has been selected because it is a typical mid-sized municipality (136,000 inhabitants) with a representative waste profile (134 tonnes per day of household waste and 36 tonnes/day of waste from wholesale markets and industrial and commercial sectors), serviced by an Engineered Landfill located outside its communal territory (Hamissi, 60km away). The Municipality Assembly is testing, at the present time, different waste collection systems (municipal vs. private vs. public industrial and commercial institutions – EPIC – collection and wheeled bins, containers and semi-underground containers) and wants to create green jobs, improve environmental conditions in the municipality and reduce unemployment. The municipality's strong involvement and dedication is a very important ingredient for the success of the project.

Given that there are around 30 mid-size municipalities in Algeria, the waste management model developed in Eucalyptus can rapidly be replicated and can cover a critical source of the national waste stream. It will be straightforward to 'downsize' the Eucalyptus mid-size model to smaller municipalities (of which there are 113 with populations between 20,000-50,000 inhabitants) since the challenges to be faced should not be as complex, in particular for the household selective sorting (which requires considerable multi-sectoral coordination for a mid-size municipality). The model can also straightforwardly be adopted by larger cities, though it will be recommended that they do so incrementally (district by district) so as to ensure correct source sorting by households and to 'iron out' any implementation issues encountered.

The three pillars of the GEF project are shown below and are described by five components which distinguish between areas of technical assistance and investment.



Component 1: Integrated management of waste at source – Technical Assistance.

GEF finance: \$588,031 + co-finance¹²: \$2,593,421

- *Source sorting by households (engagement and communication plan, awareness-raising, etc.): GEF \$552,911 + co-finance \$1,287,197*
- *Collection process for fermentable waste (adaptation of Municipal Waste Management Plan, adapted municipal institutional organization, design and communication of new fermentable and dry waste collection schedules, training of urban cleaning managers and agents): GEF \$8,120 + co-finance \$532,950*
- *Network of 15 micro-enterprises for household dry waste collection: GEF \$27,000 + co-finance \$63,000*
- *Land assignment to municipal sorting plant, technical study and follow-up phases: fully Government-financed.*

Upstream sorting of waste by households, separate collection of fermentable and dry waste, and municipal sorting planned and established through:

- Upstream sorting at the level of households so as to allow:
 - Separation of the collection systems for dry waste (50%) and fermentable waste (50%), leading to optimization of the collection infrastructure by reducing the number of packer trucks required, with such trucks being limited to the collection of fermentable waste and replaced by small vans for the collection of dry waste.
 - Increase in the potential economic value of the waste: collection of waste in bulk (unseparated / ‘dirty’) makes subsequent value extraction (e.g. through recycling and energy generation) complicated and expensive.

Sorting in Eucalyptus municipality is currently very limited. For household waste, municipal agents perform very basic sorting at the packer trucks level (by occasionally picking plastic packaging and bottles and putting them into bags attached to the side of

¹² The co-financing breakdowns are indicative and will be confirmed during the PPG stage.

the packer trucks). For 'similar waste' (from green spaces, wholesale markets, etc.) only a few waste collectors (no more than 10 individuals) are active, mostly in an informal and occasional manner with very limited equipment and waste storage. This informal collection activity will be assessed during the project preparation phase but it can be asserted with a high degree of confidence that it is extremely limited in scale and scope. With GEF support, effective household waste sorting will be achieved through:

- Training, by the CNFE (National College for Environmental Training) of the Ministry of Environment and by the DGRSDT (Directorate General for Scientific Research and Technological Development) of the Ministry of Higher Education (MERS), of project participants with direct links or relationships with households: the environmental trainers in the inter-wilayas network; 1 local radio station; 1 representative of each of the 16 sectors involved; 5 environmental associations working in Eucalyptus. The training will be focused on the various aspects of waste sorting, including source sorting, health and public hygiene, occupations linked to waste management, the economics of sorting and recycling (including the production of renewable energy), and laws and regulations.
 - Training by the CNFE of media stakeholders on the national waste/waste management context, links with international conventions, and production of thematic TV and Web spots on source sorting aimed at households and others.
 - Production of 2 TV and Web spots of 2 minutes each targeted at households and the general public on waste source sorting (how and why).
 - Production of 8 TV and radio reports of 5 minutes each on the 8 key components of the project and on the role of the participants involved.
 - Minimum of 20 public awareness campaigns in the different neighbourhoods of Eucalyptus municipality (held on a monthly basis in the first year and on a quarterly basis thereafter), with brochures, posters, adverts on buses, etc.) to be accompanied by incentives based on prizes. The campaigns will be organized with the participation of the municipality, the Algiers Wilaya, the National Waste Agency (AND), imams and the CNFE.
 - Incentives to households will consist of prizes, in two forms. One set of prizes will be redeemable by households on presentation of tokens to the Municipality. These tokens will be issued on an ongoing basis linked to the quality of the sorting of households' waste (as judged by the waste collectors). Tokens can be accumulated and prizes issued according to the number of tokens presented. The second set of prizes will be gifts, awarded on a regular basis (e.g. monthly) to households meeting certain criteria. This approach is modelled on the Municipality's current practice for rewarding households with the best balconies and household associations with the cleanest neighbourhoods.
 - Door-to-door visits by Eucalyptus associations and the Scouts Movement, with distribution of a brochure explaining selective household sorting (at least 1 visit per week in the 24 sectors of Eucalyptus during the first two years).
 - Open Days to the sorting and methanation-composting plants once they are operational.
- The establishment of 15 micro-enterprises to form a household dry waste collection network serving all neighbourhoods of Eucalyptus municipality, and rationalisation of the current collection network of similar waste from green spaces, wholesale markets, and commercial and industrial sectors. To ensure the sustainability of these micro-enterprises, Eucalyptus municipality will ensure that: (a) the accredited waste

collectors are allocated exclusive waste collection rights in particular geographical zones, and (b) the sorting plant and the methanation-composting plant will provide them with a revenue flow, based on a guaranteed minimum annual fixed price for the materials recovered. Each collection micro-enterprise will be allocated a sector of Eucalyptus – typically a sector from which the company employees come or which they already know – and will have direct contact with the households in their specific sector, exchanging each household’s full bag of dry waste with an empty one and providing the household with tokens it can accumulate and exchange for prizes at the municipality if the dry waste is well sorted. The dry waste collectors will be provided with technical specifications from the sorting plant. It is in the collectors’ interest to ensure that the selective sorting is optimized since they will be paid by the sorting plant on the basis of weight and quality. The bags they will distribute to the households will be transparent so as to detect sorting errors and help the households optimise their sorting. Regular contact will be maintained between the municipality, the dry waste collectors and the sorting plant to analyse waste sorting on an ongoing basis and to optimize/adjust the household communication plan and awareness-raising campaigns if required. Furthermore, the sorting plant will be equipped with trommel screens (as will the methanation-composting plant) which will allow the plant to address any errors made by households in the selective sorting. These errors will decline over time with the involvement of the dry waste collectors and the training/awareness-raising activities.

- The optimization of municipal waste management through the adaptation of the Municipal Waste Management Plan, including: the separate collection processes for dry and fermentable waste fractions; the waste collection network for household dry waste; increased frequency of household waste collection, with the 6 packer trucks restricted to in-situ waste collection; the communal infrastructure for sorting and recycling; and the Hamissi Engineered Landfill for ultimate storage of non-recoverable waste. In parallel, the municipal Waste Management Division will be reorganised and strengthened, the status of the employees will be upgraded, the collection process will be mechanised, and the separate collection processes and schedules for the two types of waste (dry and fermentable) will be designed, implemented and communicated to households.
- The efficient management of a municipal sorting plant will be enabled so as to reduce by 70% the amount of dry waste transported from the municipality to the Engineered Landfill, thereby reducing transport-related GHG emissions. The sorting plant will operate according to technical specifications based on the needs of recycling firms (to ensure straightforward market outlets for sorted products) and its legal form will be that of a Public-Private Partnership (PPP) so as to ensure its efficient technical functioning and profitability.

Component 2: Integrated management of waste at source – Investment.

GEF finance: \$1,374,000 + co-finance: \$4,906,774

- *Sorting plant (building, equipment): GEF \$1,013,900 + co-finance \$3,025,500*
- *Packer trucks (with adaptation to methane fuel): GEF \$360,100 + co-finance \$1,881,274*

The waste collection and sorting process will be enabled and GHG emissions reduced through:

- The construction and operation of the municipal sorting plant with a capacity of 250 tonnes/day, together with associated equipment (bag opener, trommel screens, ballistic separator, magnetic separators, press and conveyors). GEF funds will be used to cover

25% of the cost of the sorting plant in recognition of the novelty of such a facility in Algeria and the range of specialized equipment required.

- The acquisition of 6 gas-fuelled packer trucks of 14m³ capacity each, equipped with container lifting mechanism allowing the mechanized collection of fermentable waste, to be powered by the methane fuel generated from the methanation-composting plant (or LPG in the unlikely event of protracted biogas shortage). GEF funds will be used to cover 20% of the cost of the packer trucks, focused principally on ensuring the vehicles are adapted to the use of the biogas.

Component 3: Value creation from collected waste and ultimate waste minimization – Technical Assistance.

GEF finance: \$263,700 + co-finance: \$3,292,109

- *Municipal methanation-composting plant (land assignment, technical study, follow-up phases, ISO 14000 certification, compost certification based on AFNOR standards, promotion of compost use among farmers): GEF \$175,000 + co-finance \$502,590*
- *Market outlets for the recycled waste from the sorting plant: GEF \$88,700 + co-finance \$2,789,519*

Management of compost production through methanation of fermentable waste, the generation of renewable energy, and recycling of sorted dry waste will be planned and established through:

- Efficient management of a methanation-composting plant to exploit the fermentable fraction of household waste (50%) – that would otherwise be buried in the Engineered Landfill – through the production of:
 - Compost sold as fertilizer. Algerian farmers use mostly chemical fertilizers, primarily NPK 15-15-15 and NPK 10-10-10. The compost will be used as a substitute. One tonne of compost used instead of commercial fertilizers represents emission reductions of approximately 36 kg CO₂e (Bilan Carbone, 2008). With an equivalent of 0.5 tonnes of compost per tonne of fermentable waste/day, the project should produce 30.5 tonnes of compost /day x 365 days = 11,170 tonnes of compost/year. Displacement of chemical fertilizers through use of this compost should allow a reduction of approximately 400 tCO₂e/year. Moreover, chemical fertilizer imports into Algeria increased from \$122 million in 2010 to \$171 million in 2012¹³, so the GEF project's approach to displacing fertilizer usage could have significant macroeconomic benefits as well as positive environmental impacts.
 - After being crushed, the fermentable waste will undergo anaerobic digestion in digesters in which methane and digestate will be produced. The digestate component will be mixed with shredded municipal non-household green waste in windrows. Stable and reliable NPK will be obtained through the wetting of the windrows and through their regular aeration with windrow turners over a period of approximately 21 days. The system will consist of 3 windrows, each 3m wide x 100m long x 1.4m height, and each taking an average of 7 days to form (1,320 m³ in 21 days). Source separation by households will help to produce a higher quality, less contaminated compost, and only a small fraction of non-compostable waste will need to be removed.

¹³ United Nations Commodity Trade Statistics Database, 2014: <http://comtrade.un.org/>

Potentially harmful substances will be extracted from the fermentable waste through screening – using trommel screens (80mm and 40 mm) and the use of magnetic separators – before the waste enters the shredder. Such screening will remove products over 40 mm (plastics, paper, etc.), while the magnetic separators will allow ferrous metal recovery. These extracted potentially harmful substances will be directed to the sorting plant. The shredder will then increase the surface area of the screened fermentable waste for optimal anaerobic digestion in the digesters. After mixing the digestate with the chopped green waste coming from non-household sources in the municipality (green spaces, wholesale markets, etc.), the mulch from the windrows will be screened with a screen of 25 mm to extract any potential harmful components left in the process. The compost will meet relevant international technical standards regarding quantities of metallic and organic trace elements and pathogens (which should be low since the compost production system is based on a combined anaerobic – in the digesters– and aerobic – in the windrows – process). Furthermore, a label will be attached to the compost bag indicating the raw material from which the compost has been produced, as well as the contents in terms of dry matter, organic matter, NPK, Cu, Zn and other elements. Regular testing will be performed on the compost at a frequency defined by IANOR on the basis of the volume produced.

As Eucalyptus municipality occupies a peri-urban area, approximately half of its territory is covered by agricultural land. It is also adjacent to important outlying agricultural areas. The compost produced will first be promoted on the farmlands located in the municipality – based on the assessment that the methanation-composting plant fed with 60 tonnes of fermentable waste/day should produce 30.6 tonnes of compost/day (1 tonne fermentable waste will produce 0.51 tonne of compost) – and that 1 ha might require between 20-40 tonnes of compost per year, depending on crop and soil characteristics. In a second step, if the volume of compost production allows it, the compost will be sold to the important surrounding agricultural areas. These are the citrus-growing areas of La Mitidja (20,000 ha) and Boumerdes (4,000 ha), as well as the 4,000 ha of greenhouses in the Tipasa area, growing vegetable crops. As part of the context analysis undertaken as part of the PIF preparation, these areas have been mapped with agronomists from the National Bureau for the Study of Rural Development – BNEDER). Other important zones of vegetable crops exist in the Eastern and Western coastal areas and in the southern part of the country. This leaves plenty of ‘market space’ for other municipalities to adopt the Eucalyptus model and supply of compost.

- Renewable energy:
 - 10% of the biogas produced from the anaerobic digestion will be used as methane fuel for the packer trucks and the small dry-waste collection vans. One tonne of fermentable waste at 50% humidity should produce 400 m³ of methane (which, once dried, should be approximately 200 m³). With 60 tonnes of fermentable waste/day (out of the total 170 tonnes of waste per day), the methanation-composting plant should produce approximately 12,000 m³ of methane per day, of which 10% (i.e. 1,200 m³/day) will be reserved for transport fuel. Since 1 m³ of methane is the energy equivalent of approximately 1.15 litres of conventional (diesel) fuel, the daily production of methane fuel should be equivalent to 1,400 litres/day of conventional fuel. At an average of 80 litres/day/packer truck across 6 packer trucks, this

should be more than sufficient to cover the transport fuel needs and to incorporate sufficient reserves if, for some reason, the methane supply should be temporarily reduced. To cover the unlikely risk of protracted methane-fuel shortage, the packer trucks will be designed so as to also run on conventional fuel.

- The remaining 90% of the biogas will be used for cogeneration purposes – to supply electricity to the sorting and methanation-composting plants, and to supply heat to plastic-sheeted greenhouses for vegetable production on surrounding agricultural land. The thermal energy will be transported to the greenhouses through pipes. Although there are currently greenhouses – of the traditional tunnel type – within the vicinity (several hundred metres) of the proposed plant site, it is likely that new greenhouses will be constructed adjacent to the plant specifically to benefit from the availability of heat. These greenhouses are likely to be multi-span greenhouses (of approximately 2,000 m² floor area), which are twice as efficient (double the yields) as tunnel greenhouses but also relatively expensive (\$46,000). The costs of gasoil for heating and ventilation currently prevent Eucalyptus agricultural cooperatives and farmers from using multi-span greenhouses; the availability of cheap heat from the methanation plant will facilitate the adoption of this superior greenhouse technology. Another potential application of the heat is for animal production. The poultry sector in Eucalyptus is growing (there are already 6 producers located in the municipality), and the sector has high year-round heat demands. Full details of heating needs – including issues associated with intermittency of demand (e.g. according to diurnal and seasonal cycles) – will be assessed during the project preparation phase.
- Long-term contracts with recycling firms to ensure the sale of products sorted in the municipal sorting plant. It will be important to ensure 2 outlets by category of recycled materials (paper/cardboard, plastics, metals, glass and textiles) so that – together with the re-investment into the plants by the municipality from the financial savings associated with reduced landfill fees – the sorting plant is economically self-sufficient.

Component 4: Value creation from collected waste and ultimate waste minimization – Investment.

GEF finance: \$785,000 + co-finance: \$2,216,474

- *Methanation-composting plant (building, equipment): GEF \$785,000 + co-finance \$2,216,474*

Equipment for methanation, production of compost and renewable energy installed and implemented through:

- The construction of the methanation-composting plant, with a capacity of 60 tonnes of fermentable waste/day, 12,000 m³ of methane/day and 30.5 tonnes of compost/day, together with associated equipment (trommel screens, magnetic separator, chopper, pre-storage tank, digesters, biogas and digestate storage tanks, shredder, cogenerator, compressor, pump). GEF funds will be used to cover 30% of the cost of the methanation-composting plant, focused on elements – such as the leachate testing facility and the cogenerator – that are novel in the Algerian context and maximize the climate mitigation benefits.

Component 5: Promotion of the municipal model of integrated waste management at the regional and national levels

GEF finance: \$25,146 + co-finance: \$515,032

- *Implementation mechanism for project replicability across 48 wilayas (design of the mechanism, information and awareness-raising programme for municipality and wilaya governments, training): GEF \$25,146 + co-finance \$54,158*
- *Incorporation of integrated waste management and GHG emission reduction into school programmes, selected university degree courses and ministry communications: fully Government-financed.*

Replicability of the municipal waste management model achieved through:

- The design and implementation of a replicability mechanism for waste management across the 48 wilayas (Algerian provinces), drawing on the model established and proved in Eucalyptus municipality, and facilitated by administrative, technical and capacity development support. The Government has a considerable interest in replicating the waste management model developed in Eucalyptus since, even with the gradual national introduction of new engineered landfills, the need for landfill sites remains significant and existing waste sites continue to be filled rapidly. Reduction of the waste stream is a national priority, as evidenced by the active involvement of 16 ministries in the project. Following successful implementation of the Eucalyptus model, the Environment Directorate (DEW) of each of the 48 wilayas will be provided with materials and training to implement the model and to demonstrate to municipal governments how the model is intended to be a productive investment (i.e. to have a positive NPV) that will ultimately provide financial – as well as environmental – benefits. Furthermore, the DEW, the environmental trainers of the inter-wilayas network and the national network of 48 local radio stations will assist in disseminating the information and documents dealing with project benefits, administrative, legal technical and training needs for plant installation, as well as support materials for the various components of the integrated waste management model, including the involvement of households in selective sorting and the creation of micro-enterprises of dry waste collectors. This material will be issued with specific support from the National Waste Agency (AND), the Environmental Education, Awareness and Partnership Department of the Ministry of Land Planning and Environment (MATE) and the Directorate General for Scientific Research and Technological Development (DGRSDT) of the Ministry of Higher Education (MERS). There has also been some discussion among the participating ministries and the Mayor of Eucalyptus on establishing a national labelling scheme, whereby municipalities will be able to brand themselves as ‘Low Carbon Cities’ (or similar). This will be further discussed during the project preparation phase. During the project preparation phase, the budgetary potentials and constraints, and the potential role of a financing mechanism, of Algerian wilayas and municipalities to adopt the Eucalyptus model will be thoroughly explored.
- Fully co-financed incorporation of:
 - Integrated waste management and GHG emission reduction into primary and secondary school programmes.
 - Waste processing and climate change modules into selected university degree courses dealing with waste management.

The rationale for GEF-financed investments is to promote installations and equipment that will have a direct contribution towards GHG reduction, that are novel technologies in the Algerian context, and that are not integrated into existing public budgets.

The municipal waste model that will be developed with GEF assistance is explicitly intended to be NPV-positive – i.e. an investment that will generate a financial return for municipalities (and hence provide an incentive for municipal adoption) rather than representing merely a cost. The capital cost of \$6,580,000 required for the construction of the 2 plants can be covered over 12 years from:

- Fuel savings: \$223,853/year, moving from a conventional-fuel 23 packer truck fleet to a methane-fuel 6 packer truck fleet at the municipal level and from a fleet of 23 packer trucks with 9 rotations to transport waste from the municipality to the engineered landfill to 4 packer trucks;
- Electricity savings from the plants of around \$108,000/year, the electricity being provided by the co-generator;
- Savings made on the management of the reduced fleet of packer trucks, representing \$216,140/year.

Environmental and social benefits

The environmental benefits of the GEF project are numerous, in particular with regard to the reduction of GHG emissions and soil amendment. By avoiding the burial of 43,800 tonnes of waste per year, the operational shelf-life of Hamissi Engineered Landfill will be extended by approximately 3 years. Increased frequency of household waste collection and heightened awareness of waste issues among the population will lead to reduced uncontrolled waste dumping and improved public hygiene. The production of approximately 30 tonnes of organic compost/day will directly contribute to soil and water resource conservation through the improvement of agricultural soil properties and to meeting the fertilizer needs of the types of vegetable crops that occupy large coastal and southern areas of the country.

In terms of CO₂ emission reductions, the project will enable reductions through:

- Integrated management of waste at source (approximately 3,745 tCO₂/year): the separate collection of dry waste and fermentable waste made possible by the sorting performed by households will allow the town of Eucalyptus to move from a fleet of 23 non-mechanized packer trucks, each performing a daily journey of 120 km to/from the Hamissi Engineered Landfill, to a fleet of 6 packer trucks performing only trips within the municipality and powered by the biogas generated from anaerobic decomposition of the fermentable waste stream.
- Sorting and recycling (approximately 23,800 tCO₂/year): the substitution of primary materials through the recovery and recycling of approximately 30 tonnes/day of paper/cardboard, 10 tonnes/day of plastics, 8 tonnes/day of metals, 4 tonnes/day of glass and 8 tonnes/day of other incidental materials by the municipal sorting plant.
- Electricity and thermal generation from biogas (approximately 47,830 tCO₂/year): the anaerobic decomposition of 21,900 tonnes of fermentable waste per year, assuming 45% thermal energy conversion and 33% electrical energy conversion.
- Reduced volume of landfill at Hamissi Engineered Landfill (approximately 46,000 tCO₂/year): the current rate of landfilling – 170 tonnes/day – will be reduced to 50 tonnes/day, and the composition of waste will shift to non-fermentable components. As a first-order estimate (to be firmed up during the project preparation phase), this will result in emission reductions of approximately 0.05 tonnes of methane per tonne of reduced waste – i.e. 6 tonnes of methane / day avoided with 120 tonnes of avoided waste/day or 126 tCO₂e/day (using a conservative Global Warming Potential for methane of 21).

Total emission reductions are therefore expected to be approximately 121,400 tCO₂/year, 364,122 tCO₂ over the 3-year duration of the GEF project, and 1,821,000 tCO₂ over the

(conservatively assumed) 15-year operational periods of the investments. This is equivalent to a mitigation cost of GEF\$1.75/tCO₂. This is considered to be a conservative estimate of mitigation cost as it excludes the substitution of chemical fertilizers by compost and the indirect emission reductions associated with awareness-raising and capacity development. Given the diverse sources of emission reductions and, in the case of avoided landfill emissions, their complex temporal dynamics, a detailed and rigorous estimation of GHG emission reductions will be undertaken during project preparation.

In terms of socio-economic benefits, 30 jobs will be created at the waste collection level, 127 at the municipal sorting plant (which will predominantly be held by women) and 34 associated with the municipal methanation-composting plant. These 191 direct green jobs will help to address the high unemployment rate affecting Eucalyptus municipality. The GEF project will also allow the municipal government to contain increasing waste management costs through the reduction and mechanization of its packer truck fleet, the replacement of gasoline by biogas, the savings on landfill fees, etc.

Innovativeness, sustainability and potential for scaling-up

The originality of the GEF project is based on the following components that do not currently exist in Algeria:

- The integrated management of waste at source: enabling a system of selective collection of fermentable and dry waste and optimizing the quality of sorting and recycling, supported by the creation of a network of micro-enterprise household dry waste collectors and the active participation of households.
- The creation of economic value from waste at the municipal level, allowing – in addition to the creation of energy, compost and green jobs – a 70% reduction in the waste volume transported to the Engineered Landfill.
- An integrated vision that addresses all links in the waste process chain and which brings together all relevant actors to achieve ‘joined up’ climate mitigation impacts.

The sustainability of the project arises from the fact that it is economically self-financing. While the payback time at the municipal level is somewhat long, in the order of approximately 10-12 years, the fact remains that the actions necessary to reduce municipal solid waste emissions can nonetheless be regarded as a productive investment rather than purely a cost. The Government’s commitment to improving waste management practices in Algeria stems primarily from public service (health and environmental) considerations, but the positive economic case that can be made for such interventions will serve to strengthen this commitment.

The scale-up potential of the project is large, with around 30 mid-size municipalities (75,000-180,000 inhabitants) in Algeria experiencing identical challenges to those that will be addressed in Eucalyptus municipality. Applying the model to these cities alone would, as a first approximation, represent emission reductions equivalent to approximately 3.6 million tCO₂/year. The Government is committed to implementing the replication mechanism developed by the GEF project during the final year of project implementation.

A.2. Stakeholders. Identify key stakeholders (including civil society organizations, gender groups, and others as relevant) and describe how they will be engaged in project preparation:

Project Stakeholder	Relationship With The Project
Ministry of Land Planning and Environment (MATE)	MATE, which will lead the GEF project, is the entity responsible for the National Municipal Waste Management Programme (PROGDEM), which regulates the implementation of Engineered Landfills, sorting plants, collection centres, etc.

	MATE is the promoter of the legislation developed for the waste sector since the beginning of 2000. Under its subsidiary agency, the National Waste Agency (AND), MATE promotes the activities of waste collection, transportation, sorting, treatment, recovery and disposal of waste, and provides assistance to populations in the area of waste management.
Ministry of Foreign Affairs (MAE)	MAE is the GEF and UNFCCC political focal point. It leads the Algerian delegation to the UNFCCC and has a Directorate dedicated to Environment and Sustainable Development in charge of issues related to climate change. According to its role as inter-sectoral coordinator, MAE will have primary responsibility for coordinating the national and local stakeholders involved in the GEF project.
Ministry of Interior and Local Authorities (MICL)	MICL, whose mission is to assist local populations in the development and implementation of their development plans, enacts the rules relating to urban management; defines, proposes and monitors the implementation of the rules relating to the organization and functioning of local administrative structures; defines municipal budgets and the accounting framework; defines the standards applicable to municipal expenditures and revenues and to their allocation; and studies and proposes measures aimed at increasing local financial resources. As such, MICL will be a key partner in the GEF project. It will ensure the proper implementation of the project, in particular concerning the optimization of municipal waste collection management and providing complementary resources, if required, to cover the working capital fund for the sorting and methanation-composting plants.
Eucalyptus Municipality Communal Popular Assembly (APC)	The APC of Eucalyptus will be a central partner of the GEF project. The project will radically transform the municipality's method of management of household and similar waste, as well as its municipal revenues and the involvement of citizens, businesses, industries and civil society. The APC's full participation is essential to ensure the proper execution, operation, sustainability and replicability of the project. This is ensured by the presence of a dynamic Mayor, supported by the new Wali of Algiers and a motivated municipal team with, at the head of the municipal waste service, a former employee of AND.
Wilaya of Algiers	The Wilaya of Algiers, which includes Eucalyptus Municipality, is a territorial authority with legal personality and financial autonomy. It has a Wilaya Popular Assembly (APW) with competencies on socio-economic development, spatial planning and environmental protection, and which provides assistance to municipalities. The APW defines the urban planning and development master plan, participates in the procedures for the implementation of land development operations and can initiate the creation of facilities which, by virtue of their dimension, importance or use, exceeds the capabilities of individual municipalities. The Wali, Chief Executive of the Wilaya, coordinates and controls the activities of the decentralized state services across different sectors, and issues decrees and orders to implement the APW's decisions. These functions and powers, and their cross-sectoral nature, make the Wilaya of Algiers an essential actor for ensuring the operationalization of the GEF project and its implementation within the time limits provided.
Ministry of Agriculture and Sustainable Development (MADR)	MADR will be part of the compost production component. MADR will analyse the issue of compost labelling (to certify the provenance and quality of the compost) and will ensure that the compost does not suffer from the same onerous regulations as chemical amendments. MADR will also play a key role in raising the awareness of farmers about the benefits of the compost produced.
Ministry of Energy and Mines (MEM)	MEM, in the framework of its new Renewable Energies and Energy Efficiency Programme and its June 2013 Executive Decree, will encourage the production of electricity and heat by cogeneration from the methanation-composting plant, as

	well as the use of methane as biofuel for the packer trucks that will collect household fermentable waste.
Ministry of Communication	The active involvement of the Ministry of Communication is essential to ensure the efficiency of the replication plan and the communication plan of the GEF project, as well as the outreach elements of Component 1 linked to the upstream management of waste. The Ministry will, among other things, facilitate the programming of special broadcast sessions with local radio stations and the free broadcast of TV spots. Following the implementation of the pilot project, the Ministry will work with the media at the national level to promote its replication.
Ministry of Labour, Employment and Social Security	The Ministry of Labour, Employment and Social Security will facilitate the processing of applications for the creation of micro-enterprises for dry waste collection in Eucalyptus municipality through its National Agency for the Support of Youth Employment (ANSEJ) and National Fund for Unemployment Insurance (CNAC). These institutional mechanisms provide unemployed applicants with long-term zero-interest loans covering working capital and tax incentives for the purchase of equipment. The Ministry will also facilitate access to training.
Ministry of Industrial Development and Investment Promotion	The Ministry of Industrial Development and Investment Promotion will provide support to the dry waste collection micro-enterprises and to small and medium enterprises (SMEs) through existing financial benefits relating to land acquisition, VAT exemptions and financial aid.
Ministry of National Education	The Ministry of National Education will work with the GEF project to develop educational waste modules for primary and secondary schoolchildren and selected university degree courses, as well as training materials for teachers.
Ministry of Training and Vocational Education	The involvement of the Ministry of Training and Vocational Education is important given that the GEF project will generate considerable vocational training needs (particularly with regard to waste collection, sorting and recycling). Close collaboration with the Ministry will permit, in addition, updating / enriching of existing professional training courses, so as to ensure the replication and sustainability of the GEF project once it is concluded.
Ministry of Higher Education and Scientific Research (MERS)	MERS will benefit the project through the expertise of its researchers and research centres, such as the Centre for Research in Physical and Chemical Analysis (CRAPSE), the Centre for the Development of Renewable Energies (CDER), and the Centre for Scientific and Technical Research on Arid Regions (CRSTRA). The National Agency for the Valorization of Research Results (ANVREDET), which is involved in the creation of start-ups in the field of waste management, will have a leading role to play. Moreover, the project will also provide an opportunity for researchers to acquire practical experience in waste recycling and management, as well as an opportunity to enhance the existing university courses in management and waste recovery (Universities of Bab Ezzouar, Boumerdes, Tizi-Ouzou, Annaba, Mostaganem, Oran, Saida) through twinning.
Recycling firms	Firms involved in recycling of materials (paper/cardboard, plastics, glass, metals, etc.) from households and assimilated waste at the national level will be closely associated with the GEF project to provide outlets for the products sorted. The facilitation of procedures and incentives from key ministries for the modernization of their equipment, the facilitation of the commercialization of recycled products, the creation of new recycling industries and the development of new waste recycling streams, will be decisive.
Representatives of civil society in Eucalyptus	Because of the innovative nature of the GEF project and the importance given to the upstream management of waste by households, the participation of civil society organisations in Eucalyptus (neighbourhood associations, imams, green clubs,

	sorting ambassadors, etc.) and national environmental NGOs in the education, awareness-raising and coaching of households will be critical.
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A.3 Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

Risk	Risk Category	Mitigation Approach
Climate change	Low	The direct risk to the GEF project is negligible. The climate of Algiers, the location of Eucalyptus municipality, is likely to become warmer and drier between now and 2100. This may have impacts on the rates of methane generation in landfill environments and may therefore affect the baseline GHG considerations for the GEF project, though the effects are likely to be complex (increased methane flux from warmer temperatures counterbalanced by reduced methane flux from less moisture) and are not anyway central to the rationale for the project. The public health implications of a warmer climate may also serve to support heightened Government focus on sound waste management practices.
Operation of the inter-sectoral project coordination group	Moderate	The technical inter-sectoral coordination group planned for the GEF project – consisting of a representative of each of the 16 ministries involved in the project, the Wilaya of Algiers and the APC of Eucalyptus municipality – should meet 2 times per month (minimum) for the duration of the project to ensure joined-up and effective project implementation. It is essential that the stakeholders involved are appointed by Ministerial Decision in order to avoid turn-over of representatives and to ensure the continuity of activities. On the basis of discussions during preparation of the PIF, this Ministerial Decision is indeed expected. Nonetheless, it is a risk that will require close attention during the project preparation phase.
Implementation of the project within the allotted time	Moderate	In order to ensure full implementation of the project, which involves an important phase of feasibility and impact studies prior to the construction of the sorting and methanation-composting plants and the assignment of 3 hectares of land in the municipality of Eucalyptus by the Wilaya's Land Commission, it is strongly recommended that the project be decentralized at the level of the Environment Directorate of Algiers Wilaya (DEW). This will help ensure rapid implementation of these two stages, since the representation of each of the sectors within the Wilaya will facilitate the consultation process.
Constitution of the micro-enterprises for the collection of dry household waste and assimilated wastes	Low	It will be important, at the level of the Labour Ministry, to accelerate the processing of the applications under ANSEJ and CNAC to ensure the rapid constitution of the network of 15 dry waste collection micro-enterprises in Eucalyptus municipality identified by the APC of Eucalyptus. Furthermore, the APC of Eucalyptus must ensure the annual allocation of city sectors to the accredited waste collectors. In addition to this guaranteed 'market share' of dry waste collection, the sorting plant and the methanation-composting plant must, as well, guarantee waste collectors a revenue flow based on a minimum annual fixed price for the materials recovered.
Opposition from local residents relating to the construction of the sorting plant and methanation-composting plant	Low	The risk should be low if the communication/stakeholder engagement plan and the information campaigns are adequately implemented, particularly as: (a) the plants should be installed on agricultural land away from the urban centre and will not, therefore, have many immediate neighbours; (b) the potential odour coming from plants will be controlled; and (c) all relevant planning and environmental impact regulations will, of course, be respected. Furthermore, the creation of 191 direct local jobs in the plants,

		in a municipality where unemployment is high, will ease their acceptance.
Market outlets for the products generated by the municipal sorting plant and methanation-composting plant	Low	Contracts will be engaged with recycling firms in the plastics, paper & cardboard, metals, glass, and other sectors. The involvement of the DEW of Algiers, MATE and the Ministry of Industrial Development and Investment Promotion, will facilitate this process. Regarding the market flow of the generated compost, MADR and the Ministry of Trade will have a key role to play to ensure the certification of the compost (according to relevant international standards) and authorization for placing it on the market, as well as to raise awareness among the farmers of Eucalyptus and from other parts of Algeria as to the benefits of such soil amendment.
Legal form of the sorting plant and the municipal methanation-composting plant	Low	The legal status of the sorting plant and the methanation-composting plant will play an important role in determining the success of their operation. A Public-Private Partnership (PPP) is strongly recommended to guarantee efficient functioning and the profitability of these two structures as the APC of Eucalyptus does not possess the technical and scientific knowledge sufficient to ensure their optimal management. Discussions held during the PIF preparation process strongly indicate that a PPP legal structure will indeed be pursued.

A.4. Coordination. Outline the coordination with other relevant GEF financed and other initiatives:

The GEF project will be conducted in close coordination with the main development cooperation actors that are supporting the management of household and similar waste in Algeria, so as to ensure complementarity between actors in terms of thematic targeting and geographical coverage. Discussions with these actors during the preparation of the PIF have helped identify the following opportunities for coordination and synergy of potential actions. These will be confirmed once their country programmes are signed in January 2014:

- **European Union Cooperation.** Through the PAAA (Programme of Support to the Implementation of the Association Agreement) and the 2014-2020 PAPS (budgetary support programme) with:
 - TAIEX: assistance in support of short-term capacity development courses in Europe (one to a few weeks).
 - Twinning between public institutions (6-24 months with obligation of results, on the basis of a competitive process).
 - Assistance to municipalities to improve management structures and processes.
- **Belgian Cooperation:**
 - Institutional capacity building: scholarship programme
 - Potential partnerships with the Belgian public sector
 - Replicability of the Mascara pilot project in terms of awareness of upstream sorting, where Belgian Cooperation has financed a waste management project involving waste collection and sorting, as well as the construction and equipment of an engineered landfill (project to be concluded end-2014).
- **German Cooperation (GIZ):**
 - Monitoring and tracking system: establishment of performance indicators on waste upstream sorting and collection and surveys of citizen satisfaction.
 - Awareness-raising at national level for replicability.

6. Description of the consistency of the project with:

B.1 National strategies and plans or reports and assessments under relevant conventions, if

applicable, i.e. NAPAs, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:

The **Second National Communication to the UNFCCC** (2009) finds that Algeria's GHG emissions are increasing at a rate of 15%/year. Landfills contribute 66% of the GHG emissions from the waste sector. Methane, the principal GHG from the sector, is emitted by 91% of landfills. The SNC acknowledges the achievements of PROGDEM in addressing some waste-related environmental issues, but notes that solid waste GHG emissions have increased by 45%. The **National Capacity Needs Self-Assessment for Environmental Management** (NCSA, 2005) notes that the Government has undertaken a range of institutional and sectoral measures to address climate change, including the establishment of the National Waste Agency (AND) in 2002. However, the NCSA also concludes that, in order to effectively achieve reductions in GHG emissions, "there is a need for new and additional financial resources, technical assistance and cooperation for the transfer of know-how." The NCSA also specifically recommends greater focus on, and support for, the municipal level of government, which tends to have a closer relationship with citizens and is capable of mobilising local networks of stakeholders. Waste is identified as one of the major sources of Algeria's greenhouse gas emissions, and one of the NCSA's three recommended climate change mitigation follow-up projects involves capacity development for municipalities and wilayas in improved waste management practices. The **National Programme for the Management of Municipal Wastes (PROGDEM)**, and its related actions under the AND, form the basis of Algeria's policy framework for the solid waste sector. They also constitute the baseline project for the GEF project. PROGDEM promotes a national approach to "reform the practices of landfill sites, to organize the collection, transport and disposal of municipal solid waste in conditions guaranteeing the protection of the environment and the preservation of hygiene at workplace, including the execution, the layout and equipment of Engineered Landfills (ELs) in major cities of the country." By 2013, the Programme had assisted in the development of Municipal Waste Management Plans in 1,541 municipalities (of which 522 have been implemented to date), developing 58 ELs, establishing 34 controlled landfills, and rehabilitating 40 illegal landfills. However, as outlined earlier (page 6), the baseline is characterized by a number of gaps and weaknesses that the GEF project is specifically designed to address. The **Renewable Energy and Energy Efficiency Programme** of the Ministry of Energy and Mines (MEM) aims to install nearly 22 GW of renewable energy between 2011 and 2030. Although relying strongly on utility-scale solar power, the Programme will also promote other forms of renewables. Executive Decree No. 13-218 (2013) mandates MEM to promote the production of electricity generated from waste, and the Ministry has been closely involved in the preparation of this PIF and particularly the aspects relating to the use of methane for the packer truck fleet and cogeneration.

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

Algeria is a Non-Annex 1 Party to the UNFCCC. The project addresses the objectives of the GEF-5 Climate Change Mitigation Focal Area Strategy:

- Strategic Objective 3: Promote investment in renewable energy technologies.
Investment in renewable energy technologies increased.
- Strategic Objective 4: Promote energy-efficient, low-carbon transport and urban systems.
GHG emissions avoided.

B.3 The GEF Agency's comparative advantage for implementing this project:

UNDP has been active in Algeria since 1967. The GEF project is closely aligned with the UNDAF (2012-14) and with the Country Programme Action Plan (CPAP, 2012-14). The CPAP states that "the protection


of natural resources, sustainable management of the environment, the fight against pollution and protection against the effects of climate change and natural disasters will be improved'. Result 21 of the CPAP is concerned with Government institutions improving their knowledge of renewable energy; Result 22 is concerned with the strengthening of institutional capacities in the context of climate change and specifically singles out the National Programme for the Management of Municipal Solid Wastes (PROGDEM) as being a potential beneficiary of such support. UNDP assisted the Government in its development of the Second National Communication to the UNFCCC. UNDP also assisted the Government to design, establish and implement PROGDEM through a PROGDEM Capacity Development Programme funded by the Government of Switzerland (2004-2010). This Programme supported the important work of MATE relating to emissions, deterioration of ecosystems and degradation of living conditions caused by failures in the management of municipal waste, partly due to the lack of planning tools at municipal level.

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

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

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Mrs Hedjila Ourrad	GEF OFP	MINISTRY OF LAND PLANNING & ENVIRONMENT	11/27/2013

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Adriana Dinu, UNDP-GEF Executive Coordinator and Director a.i.		January 10, 2014 January 22, 2014	Robert Kelly, UNDP Regional Technical Advisor, EITT	+421 915 725 069	Robert.kelly@undp.org