



De-risking Sustainable Off-grid Lighting Solutions in Nigeria

Part I: Project Information

GEF ID

9743

Project Type

FSP

Type of Trust Fund

GET

Project Title

De-risking Sustainable Off-grid Lighting Solutions in Nigeria

Countries

Nigeria

Agency(ies)

UNDP

Other Executing Partner(s)

Energy Commission of Nigeria, Rural Electrification Agency, Standards Organisation of Nigeria, Federal Ministry of Environment, Ministry of Energy

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Climate Change, United Nations Framework Convention on Climate Change, Enabling Activities, Paris Agreement, Nationally Determined Contribution, Climate Change Mitigation, Technology Transfer, Financing, Renewable Energy, Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Deploy innovative financial instruments, Transform policy and

regulatory environments, Stakeholders, Type of Engagement, Information Dissemination, Consultation, Participation, Partnership, Private Sector, Individuals/Entrepreneurs, SMEs, Capital providers, Financial intermediaries and market facilitators, Civil Society, Academia, Non-Governmental Organization, Community Based Organization, Communications, Education, Awareness Raising, Public Campaigns, Beneficiaries, Local Communities, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Gender results areas, Capacity Development, Access to benefits and services, Knowledge Generation and Exchange, Participation and leadership, Capacity, Knowledge and Research, Knowledge Generation, Learning, Adaptive management, Theory of change

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 0

Duration

60In Months

Agency Fee(\$)

250,774.00

A. Focal Area Strategy Framework and Program

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCM-1_P1	Promote timely development, demonstration and financing of low-carbon technologies and mitigation options	GET	2,639,726.00	83,116,666.00
Total Project Cost(\$)			2,639,726.00	83,116,666.00

B. Project description summary

Project Objective

To promote private sector investment in sustainable off-grid lighting technologies by establishing a sound policy environment that facilitates the creation of a self-functioning and sustainable market in Nigeria.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
1. Policy de-risking of sustainable off-grid lighting solutions in Nigeria	Technical Assistance	Appropriate policies, programmes and regulations are in place that address policy, awareness and financial barriers to facilitate investment in sustainable off-grid lighting solutions and corresponding business models.	<p>1.1 Business case developed for off-grid decentralised solar technology delivery model</p> <p>1.2 Quality standards for sustainable off-grid lighting products in place and enforced</p> <p>1.3 Customs procedures and import requirements streamlined</p> <p>1.4 Linkages between the telecoms and energy service sectors, policies and regulations established</p> <p>1.5 Customer awareness of sustainable off-grid lighting increased</p> <p>1.6 End-customers? ability to pay for</p>	GET	581,475.00	11,565,319.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Financial de-risking of sustainable off-grid lighting solutions in Nigeria	Investment	Sustainable off-grid lighting (service) providers in Nigeria are operating and have access to working capital and equipment.	2.1 Working Capital Finance Facility for sustainable off-grid lighting companies established and capitalised with co-financing from the Government and development partners	GET	1,392,111.00	55,907,458.00
			2.2 Appropriate financing schemes for sustainable off-grid lighting product lending in place through the Rural Electrification Fund			
			2.3 Equipment and services provided to MSMEs through a competitive procurement process conducted by the Rural Electrification Fund			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Financial de-risking of sustainable off-grid lighting solutions in Nigeria	Technical Assistance	Sustainable off-grid lighting (service) providers in Nigeria are operating and have access to working capital and equipment.	2.1 Working Capital Finance Facility for sustainable off-grid lighting companies established and capitalised with co-financing from the Government and development partners	GET	176,350.00	
			2.2 Appropriate financing schemes for sustainable off-grid lighting product lending in place through the Rural Electrification Fund			
			2.3 Equipment and services provided to MSMEs through a competitive procurement process conducted by the Rural Electrification Fund			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
3. Knowledge management and scale-up strategy	Technical Assistance	Good practices, lessons learned, market assessments, demand-supply surveys, delivery models and business models are documented and scale-up guidelines are produced	<p>3.1 Lessons learned report produced based on project experience</p> <p>3.2 Creation of knowledge network for promoting off-grid solar technologies</p> <p>3.3 Development of a replication and scaling up plan based on the derisking approach</p>	GET	364,089.00	11,488,056.00
Sub Total (\$)					2,514,025.00	78,960,833.00
Project Management Cost (PMC)						
GET			125,701.00	4,155,833.00		
Sub Total(\$)			125,701.00	4,155,833.00		
Total Project Cost(\$)			2,639,726.00	83,116,666.00		

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount(\$)
Recipient Country Government	Rural Electrification Fund	Grant	2,916,666.00
Donor Agency	World Bank	Loan	75,000,000.00
Recipient Country Government	Rural Electrification Fund	In-kind	1,500,000.00
Recipient Country Government	Energy Commission of Nigeria	In-kind	200,000.00
Recipient Country Government	Federal Ministry of Environment	In-kind	300,000.00
Private Sector	FCMB	Loan	1,400,000.00
Private Sector	Solar Sisters	Equity Investment	1,500,000.00
GEF Agency	UNDP	Grant	300,000.00
Total Co-Financing(\$)			83,116,666.00

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Nigeria	Climat e Change		No	2,639,726	250,774
Total Grant Resources(\$)						2,639,726.00	250,774.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required

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PPG Amount (\$)

100,000

PPG Agency Fee (\$)

9,500

Agency	Trust Fund	Country	Focal Area	Programmin g of Funds	NGI	Amount(\$)	Fee(\$)
UNDP	GET	Nigeria	Climat e Change		No	100,000	9,500
Total Project Costs(\$)						100,000.00	9,500.00

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	0	108250	0	0
Expected metric tons of CO ₂ e (indirect)	0	5644400	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)				
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)		108250		
Expected metric tons of CO ₂ e (indirect)		5,644,400		
Anticipated start year of accounting		2019		
Duration of accounting		10		

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic		0.34		
select				

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		41,515		
Male		39,885		
Total	0	81400	0	0

PART II: Project JUSTIFICATION

1. Project Description

1. An adaptive approach has been used to develop the project document. Changes have been brought to the project design based on more informed baseline assessments (Table 1). Baseline assessments have shown that there were no longer subsidies on fuels, implying that the three outputs related to overcoming subsidies on kerosene proposed in the PIF were no longer applicable. Also, these outputs did not reflect the expectations of Outcome 3 on knowledge management and scale-up strategy. Table 1 summarises the changes brought to Outcome 3. Changes have been brought at the output level only, without changing the project components and corresponding outcomes. With these changes brought to the project design, the budget has been rebalanced accordingly.

Table 1. Changes brought to the project design due to changes in baseline activities.

Changes made	Reasons for change
The three outputs proposed in PIF under Outcome 3 (shown below) have been removed. <i>3.1: National kerosene lighting displacement plan developed</i> <i>3.2: Support to establishing a Lighting Transition Fund provided</i> <i>3.3: Support to a kerosene subsidy transition strategy provided</i>	There are three reasons justifying this change: 1. Subsidies on fuel, and, in the present case, kerosene were phased out by the end of 2016 due to a combination of factors, including fuel scarcity, high-priced black market sales and a record crash in the price of oil on the international market; ^[1] Given the checked political economy of subsidy reforms in Nigeria since 1999, it is probably still early to pronounce categorically on the success of latest reforms. Nevertheless, at the time of formulating the Project Document (also ProDoc), the price of kerosene was reflective of unsubsidised prices, and the three drivers of subsidy reforms mentioned earlier were still at play; 2. Baseline assessments (Annex SA1 accompanying the ProDoc) have shown that rural households used little and increasingly less kerosene for lighting purposes. It was observed that households were turning to dry-battery powered hand held torches and standalone generators; and 3. The outputs proposed in the PIF did not tally with the objective of the outcome to effect knowledge management and scaling-up; For the above reasons, it was decided to leave out the three outputs that were proposed in the PIF

Output 1.1 (<i>Support to the Government to continue recent efforts of phasing-out kerosene subsidies</i>) proposed in the PIF has been removed.	<p>This output has been removed for the reasons given above. It was also a duplication of outputs proposed under Outcome 3 in the PIF, and, therefore, redundant in the first place. In line with stakeholders' requests, the following new output has been proposed instead:</p> <p>Output 1.1: Business case developed for off-grid decentralised solar technology delivery model</p>
New outputs introduced under Outcome 3 based on the results of stakeholder engagements and the Inception Workshop (Annex SA1)	<p>The following three outputs have been included:</p> <p>Output 3.1: Lessons learned report produced based on project experience.</p> <p>Output 3.2: Creation of knowledge network between universities and research institutions.</p> <p>Output 3.3: Development of a replication and scaling up plan based on the derisking approach.</p>
Output 2.2: The institution responsible for proposing financing schemes for off-grid solar products has been changed from ?Lighting Africa Initiative? to ?Rural Electrification Fund?	<p>There are two reasons justifying this change, namely: (1) the Lighting Africa Initiative has been extended until June 2020, without any visibility regarding its possible continuation. Consequently, while the UNDP-GEF project will build on the achievements of the Lighting Africa Initiative, it cannot rely on its possible renewal beyond June 2020 for implementing project activities, and, more importantly, (2) while the REF, operating under the aegis of the REA, had the mandate to develop appropriate financing mechanisms, it now also has the operational capacity to package and implement these schemes.</p>

Output 2.3: The institution responsible to support the purchase of SHS equipment using a combination of capital grants, debt and equity financing has been changed from ?Energy Research Council? to the ?Rural Electrification Fund?	The rationale for this change is that the REF has the mandate and operational capacity to carrying out activities related to this output. Also, being predominantly a research-based organisation, the ERC did not have the expertise and operational capacity to implement this output (Annex SA1 accompanying the ProDoc).
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[1] O. Osunmuyiwa and A. Kalfagianni (2017) The Oil Climax: Can Nigeria?s fuel subsidy reforms propel energy transitions? Energy Research & Social Science 27, 96-105.

With a population of 193.4 million, Nigeria is the most populous country in Africa and the 7th most populous country in the world. The rural population accounts for 53% of the total population[1]; 43% of the population is considered multi-dimensionally poor while an additional 17% are vulnerable to sliding into multi-dimensional poverty. Nigeria?s Human Development Index (HDI) value for 2015 is 0.514, which is in the ?Low Human Development? category and positions the country at 152 out of 187 countries and territories.[2]²

3. The ongoing COVID-19 pandemic has had substantial socio-economic impacts on Nigerian citizens. At the time of writing, Nigeria had recorded more than 150,000 COVID-19 cases, with more than 1,800 deaths[3]³. What started as a health crisis has become an economic and fiscal crisis. There is a concern that hard earned development gains could be reversed. According to the World Bank, an additional 7 million Nigerians could fall below the poverty line in 2021 due to the economic shock brought about by the pandemic. Furthermore, unemployment and underemployment are expected to increase, disproportionately affecting women, youth and poor households. These impacts are likely to increase the level of energy poverty in Nigeria. The IEA estimates that across Africa, COVID-19 has pushed 30 million people back into energy poverty.

4. At the project level, if the vaccine program in Nigeria is delayed or if variants emerge that can escape the existing vaccines, this could lead to knock-on effects in advancing key activities. Specifically, carrying out market intelligence for demand of certain off-grid products could prove difficult if communities or entire regions are subject to renewed COVID-19 related restrictions such as lockdowns or travel restrictions. In the same vein, carrying out in-person training activities or outreach to rural communities where physical presence is preferable could also prove difficult if some sanitary risks materialize. This project document considers that at this stage, COVID-19 risks to the project are moderate and contains

mitigation measures to minimize any potential disruption. Furthermore, the next section highlights potential opportunities to generate co-benefits in the fight against COVID-19.

5. It is estimated that 70% of Nigerians that live in rural areas currently do not have access to the power grid.[4]⁴ The Council for Renewable Energy of Nigeria estimates that power outages cause an annual loss to the economy of \$984 million.[5]⁵ The intermittent electricity supply forces a large portion of industry, businesses and households to rely on diesel and petrol generators as a primary or back-up source of electricity. It is estimated that 2.6 GW of decentralised diesel generator capacity is currently installed in Nigeria with approximately 60 million decentralized power generators in operation. The majority of companies (85%) operate their own diesel generator.[6]⁶ According to the IEA, Nigeria accounts for 75% of diesel back-up power generation in Africa.[7]⁷ Annual fuel costs are estimated to be around \$5 billion, of which 20% are attributed to the residential sector.[8]⁸ Furthermore, a large part of the generated energy is wasted due to inefficient and outdated technologies. Apart from a huge income loss, the extensive use of these back-up generators has also resulted in health hazards due to the exposure to black carbon and other local pollutants, in addition to GHG emissions.

6. Nigerians, therefore, make use of a combination of standalone generators and kerosene lamps, to an increasingly less degree, for lighting purposes. When generators are used, households are able to also power inefficient electrical appliances such as TV set, fridge, radio and mobile phone chargers (Annex SA1 accompanying the ProDoc).[9]⁹ According to a recent UNDP assessment[10]¹⁰, an estimated 35 million households in Nigeria likely rely on kerosene for lighting purposes. The study assessed kerosene consumption in 18 high-impact countries, with Nigeria consuming 2,471,000 tonnes of kerosene in 2013, which made up 5.2% of the global kerosene consumption. According to Power for All,[11]¹¹ around 17% of the total population used kerosene for household lighting in 2018.[12]¹² One of the drivers that may have caused a shift away from kerosene lamps for lighting in rural households is the significant rise of kerosene prices over the past few years following fuel subsidy reforms.[13]¹³

7. A promising substitute for kerosene-based lighting products and standalone generators is the use of sustainable off-grid lighting solutions such as solar-powered portable lights and solar home kits as they offer a better and safer service at lower cost. A 2016 report by Bloomberg New Energy Finance and Lighting Global on the market trends of off-grid lighting estimates that the annual lighting-related expenses in a Nigerian household are, on average, about \$144 per year.[14]¹⁴ Compared with the costs of purchasing and running a simple wick kerosene lantern, the study estimates that the purchase of a \$13 solar lantern has

a payback period of only 4 months. Assuming a product lifetime of 2-3 years for a typical light from a reputable manufacturer, customers can enjoy lighting at no cost for approximately 1.5 ? 2.5 years before replacement. The report further states that solar is also competitive compared with candles and battery-powered torches. The use of decentralised solar technologies is also squarely aligned with national policies, strategies and action plans for promoting rural electrification (Table 2).

Table 2. Selected goals for off-grid renewables in national policies, strategies and action plans.

Strategic Goal	Specific Goals
1. <u>Rural Electrification Strategy and Implementation Plan (RESIP)</u> [1]	? Establishing the Rural Electrification Fund (REF) under the aegis of the Rural Electrification Agency (REA)
	? 75% of total population electrified by 2020; 90% access by 2030; universal coverage by 2040
	? 75% electrification will require between NGN317.8 billion and NGN 525.8billion for administration and project costs combined
	? Using decentralised solar technologies (e.g. solar home systems and mini-grids) to supply off-grid communities with clean electricity more affordably
2. <u>National Renewable Energy and Energy Efficiency Policy (NREEP) 2015</u> [3]	? Financial incentives[2] offered by the Rural Electrification Fund (REF) as capital grants to reduce economic barriers to the entry of decentralised PV technologies in full accountability and transparency
	? To extend electricity to rural and remote/off-grid areas, through the use of solar home systems and ultimately promote solar photovoltaic and solar thermal applications to ensure that solar energy can be used for production of electricity
	? Establishing micro-credit facilities for entrepreneurs, especially for women groups, for the establishment and operation of commercial solar energy facilities in remote and off-grid areas
	? Organizing systematic public enlightenment campaigns on the benefits of using solar home systems
	? Create appropriate motivation for increasing the local content of value added in the activities of energy sector industries
	? Establish a Special Task Force within the Nigerian Customs Service to stream-line the cumbersome process inherent in importing renewable energy (RE) and energy efficiency (EE) goods into the country

[1] Federal Ministry of Power, Works and Housing. 2016. Rural Electrification Strategy and Implementation Plan.

[2] FGN intends to use subsidies for rural electrification as a tool for social justice and for alleviating poverty in rural areas.

[3] Federal Ministry of Power. 2015. National renewable Energy and Energy Efficiency Policy.

[1] <http://data.worldbank.org/country/nigeria>

[2] http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/NGA.pdf

[3] WHO Regional Office for Africa, as of 22 February 2021

[4] Ministry of Power (2015) The Renewable Energy and Energy Efficiency Policy.

[5] Council for Renewable Energy, Nigeria (CREN) (2009) Nigeria Electricity Crunch. Available at www.renewablenigeria.org

[6] <https://www.giz.de/de/downloads/giz2014-en-nigerian-energy-sector.pdf>

[7] IEA, Africa Energy Outlook 2014: A Focus on Energy Prospects in Sub-Saharan Africa

[8] https://www.ica.org/publications/freepublications/publication/WEO2014_AfricaEnergyOutlook.pdf

[9] http://unep.org/pdf/OGL_NGA.pdf

[10] UNDP, 2016: Kerosene Consumption: An Assessment of Selected High-Impact Countries

[11] <http://www.offgridnigeria.com/power-for-all-campaign-end-use-kerosene-nigeria-gains-steam/> - accessed 15 April 2019.

[12] Private investors and social entrepreneurs participating in the validation workshop held on 14 February 2019 mentioned that, on average, on around 20% of rural households used kerosene lamps. It was also mentioned that there has been a shift towards the use of hand-held dry battery-powered torches.

[13] Field surveys (Annex SA1) have shown that kerosene (NGN 230/L) was much more expensive than gasoline (NGN 145/L), and equally expensive as diesel oil (NGN 250/L). Also, the Government of Nigeria removed subsidies on petrol and gasoline following subsidy reforms proposed by the IMF - <https://allafrica.com/view/group/main/main/id/00040638.html> - accessed 24 April 2019.

[14] https://www.lightingglobal.org/wp-content/uploads/2016/03/20160301_OffGridSolarTrendsReport.pdf

While decentralised renewable energy (RE) can play an important role in rural energy access and in providing basic services, several barriers have been identified. The quantitative risks analysis (and underpinned by barriers) faced by private sector investors in the off-grid renewable energy technology (RET) market is detailed in **Annex SA3**. A summary of these barriers are:

Barrier #1: Energy market: Uncertainty regarding the credibility of electrification and renewable energy targets slows the progress of market mechanisms for efficient off-grid lighting products and systems despite offering safer, more reliable and cheaper long-term solutions.

Barrier #2: Social acceptance: Among the Nigerian population, there is a low level of awareness of solar power and, where it exists, the reputation of solar technology is often low, also due to high system failure rates of 'give-away' programmes in the past.

Barrier #3: Technology and hardware: Insufficient standard-setting has led to an uptake of low-cost generic products such as no-names, copycats or counterfeits, representing a major risk to the market as lower-quality products undermine customer satisfaction and trust. Current import clearing processes for importing sustainable off-grid lighting hardware and components lead to delays in delivery and increased costs for solar technology providers.

Barrier #4: Digital platform and Telecoms sector: Although Nigeria has a competitive mobile network operator (MNO) market, a national 2G coverage of 87.2 % and 86 million people who own a mobile phone there are only 13 million mobile money accounts in the country. MNOs are not allowed to provide financial services and need to partner with banks, which results in under-investment in mobile money by MNOs. A high rate of financial illiteracy with respect to mobile money exacerbates this problem.

Barrier #5: Developer and energy service providers: Due to the limited activities in the solar off-grid market in Nigeria, there is little experience with private companies' capabilities to effectively plan, design, install, maintain, operate and monitor their sustainable off-grid lighting products and services.

Barrier #6: Payment: A lack of information on customer creditworthiness, such as customer credit data, makes it particularly difficult for PAYG service providers to attract longer-term consumer financing capital as lenders require historical track records which are not yet available.

Barrier #7: Financing: A combination of high capital costs and credit lines with tight payment terms from suppliers represents a major barrier to obtain shorter-term working capital to finance operations along the supply and distribution chains

9. The project will implement a strategy founded on a solid Theory of Change (please see Section III of the ProDoc) that will lead to changes that will overcome the above barriers and will 'promote private sector investment in sustainable off-grid lighting technologies by establishing a sound policy environment that facilitates the creation of a self-functioning and sustainable market in Nigeria'. This strategy will lead to 3 outcomes: i) Outcome 1: appropriate policies, programmes and regulations are in place that address policy, awareness and financial barriers to facilitate investment in sustainable off-grid lighting solutions and corresponding business models; ii) Outcome 2: sustainable off-grid lighting (service) providers in Nigeria are operating and have access to working capital and equipment; iii) Outcome 3: good practices, lessons learned, market assessments, demand-supply surveys, delivery models and business models are documented and scale-up guidelines are produced. The outputs and activities underlying each outcome are detailed in Section IV of the ProDoc.

10. Over the medium to long term, access to affordable, clean energy will be crucial to support economic recovery. In its stimulus plan to respond to the COVID-19 crisis, Nigeria has emphasized the role of decentralized solar PV systems. In July 2020, the government approved the \$5.9 billion (N23 trillion) Nigerian Economic Sustainability Plan.[1] Notably, under the plan, a total of \$619 million has been allocated to the Solar Homes Systems Project, which will help install solar home systems for up to 5 million households, serving approximately 25 million Nigerians who are not currently connected to the national grid. It also provides monetary incentives for private solar installers and aims to create more domestic jobs in the solar industry. The NESP represents one of the largest renewable energy COVID-19 stimulus interventions from a middle- or low-income country to date and is intended to increase energy access and equity. The GEF-funded project is very much aligned with the government's priorities and will support Nigeria's longer term green recovery.

11. At the project level, it is foreseen that targeted communities and households may be more responsive and willing to consider off-grid lighting solutions, provided their livelihoods have not been too severely

impacted by the pandemic. To that end, the market assessment to be conducted could seek to document how off-grid lighting and electrification could alleviate some of the disadvantages and challenges experienced by households and communities without access to domestic electricity during the first wave(s) of COVID-19 infections, in the same way that they will seek to document the risks posed by the impacts of climate change (see Activity 1.1.1 below). This stocktaking could then be leveraged to encourage more robust participation by key stakeholders. Furthermore, the project could also seek to integrate into the planned GIS-based modelling of least-cost technology options for rural energy access some metrics highlighting the relative 'situational' vulnerability of a given location. Such indicators could help prioritize locations where further infection waves could create barriers that would result in additional direct (access to health, essential commodities, etc.) or indirect (access to markets, income-generating activities, etc.) impacts on these communities.

12. The project will deliver greenhouse gas (GHG) emission reductions through the deployment of 17,542 units of solar home systems (SHS). The detailed calculations of emissions reductions are given in Annex SA4 accompanying the ProDoc. Total cumulative emission reductions during project lifetime are estimated at 108,250 tCO_{2e}. Consequential GHG benefits during the 10-year influence period following project implementation has been estimated at 5,644,400 tCO_{2e}. The unit abatement cost is estimated at about \$0.46/tCO_{2e}.

13. The factors that will contribute to the sustainability of the initiative include the following: using a private-sector led value chain, the decentralised renewable energy systems will be sold to end-users on a commercial basis without any subsidy; there will be a strong emphasis on quality equipment and installation; the suppliers will provide after-sales service for a specified period in case of any technical issues. This will be supported by the domestication of international standards on pico-solar and SHS products and an institutional structure and operational guidelines for enforcing quality standards of imported products; the financial literacy of rural households will be enhanced and women-led solidarity groups operationalised to improve the creditworthiness of households; and communities will be trained on how to use the systems. Further, the project will support the development of a comprehensive geospatial map of least-cost technologies for promoting rural energy access. Together with the derisking approach underpinning the project design (Annex SA3 accompanying the ProDoc), this geospatial map will be used to further catalyse the market for off-grid renewable energy technologies. Cost recovery by upstream private actors in the value chain is primordial for the sustainability of off-grid solar product market expansion. The project will investigate and provide proof-of-concept of alternative financing schemes and cost recovery mechanisms with a view to scalability. In particular, the financing schemes will be tailored to different market tiers in terms of energy needs and capacity to pay, and for catalysing private investments in off-grid decentralised solar technologies without requiring the need for financial incentives. This is an integral part of the post-project financial sustainability. Also, the Working Capital Finance Facility (WCFF) will be capitalised from different sources including grants, equity and debt financing so that all market tiers can be served. If the project can successfully lower the barriers and reduce or eliminate or transfer private sector risks to market development as intended, and demonstrate the energy service delivery model for rural communities, the market for small-scale renewables is expected to become self-sustaining.

14. In general, sustainable off-grid energy markets, and in particular PAYG-based markets, have seen a significant increase and more than \$240 million has been invested in the PAYG market over the past three years. Despite the advantages of PAYG models, it is argued that countries with a relatively rich population but low electricity access levels and a highly unreliable grid (such as Nigeria) can see greater potential for direct cash sales instead of innovative energy service business models. However, 80 million people in

Nigeria lack access to the electricity grid and have a daily income of less than \$2 per day. This, in combination with poor end-customer financing channels, makes upfront capital financing for off-grid lighting/energy technologies from reputable manufacturers difficult. In addition, an estimated 70 million people have access to GSM coverage but do not have access to electricity. However, the number of mobile money accounts in Nigeria has seen rapid growth within a year, from 5.7 million in December 2013 to 8.9 million in December 2014. These figures show that the market potential is beginning to grow and machine-to-machine connections (M2M), connecting machines, devices and appliances wirelessly via a variety of [mobile] communications channels, are expected to grow at CAGR 23% from 2016 to 2019 reaching over 4 million connections. Thus, the market for PAYG business models in Nigeria is potentially huge and some companies in the sector recently raised financing, such as Nova Lumos (\$15 million) or Solynta Energy which recently obtained long-term financing from the Bank of Industry for the installation of off-grid solar home systems in over 1,000 homes. This means at least some investors see potential in this market. In addition, and this also applies to cash sale business models, under the baseline, the market for solar PV systems and other sustainable off-grid lighting solutions is likely to grow at CAGR 25% in the near future as discussed in Annex SA4 accompanying the ProDoc. Recent regulatory changes will further enhance use of mobile money as telecommunications companies are in line to benefit from a change in banking regulations that will allow them to collect deposits, carry out payments and remittances, issue debit and pre-paid cards, provide financial advisory services and invest in government and central bank securities.[2] Based on the derisking studies and lessons learned from the project, a replication plan will be developed for scaling up the overarching objective of the project to support rural clean energy access.

15. This project will apply an innovative methodology, Derisking Renewable Energy Investment (DREI) accompanying the ProDoc), analyzing and identifying barriers and risks related to off-grid lighting companies in a tailored and standardized way and which subsequently comes up with cost effective derisking instruments that reduce or transfer these risks. A preliminary DREI analysis has been carried out for SHS and the results are shown in Annex SA3 accompanying the ProDoc. Another innovative feature of the project is the Working Capital Finance Facility (WCFF), which has been implemented by the World Bank in other countries, but not yet in Nigeria. The WCFF will tailor its financial scheme particularly for base-of-pyramid rural communities that would otherwise remain unserved by market players. Further, the project will employ a combination of market intelligence, community awareness raising, and alternative cost-recovery systems including mobile payment to trigger private investments in BOP rural markets.

[1] The Nigerian Economic Sustainability Plan can be accessed at <https://media.premiumtimesng.com/wp-content/files/2020/06/ESC-Plan-compressed-1.pdf>

[2] <https://www.euromoney.com/article/b1cmtgtzyrglb9/regulators-give-mobile-money-in-nigeria-a-boost> - accessed 20 May 2019.

A.2. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

N/A

A.3. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Details of the Stakeholder Engagement Plan (SEP) are given in Annex F in the ProDoc. Participation plans were developed to ensure that the needs and priorities of stakeholders at all levels, including women, were expressed and taken into account in the formulation and implementation of the project. During the design of the project stakeholder engagement and dialogue was carried out through coordinated by the Federal Ministry of Environment that appointed a dedicated staff ? namely the GEF Desk Officer - to accompany the PPG Team during field visits. All stakeholder engagements in communities were carried out through prior coordination with officials of the Federal Government and traditional Chiefs in villages and communes. A matrix of stakeholder importance in terms of interest and influence on the project was designed based on detailed stakeholder engagements (Annexes SA1 and SA3 accompanying the ProDoc). Using this matrix, a detailed communication strategy (including outreach tools such as market fairs and exhibitions; project website and social networks; brochures, bulletins and press releases; policy briefs; project monitoring reports) and the engagement methodology shown in Table 3 to target each category of project stakeholders has been developed. A SEP timeline of activities and budget totalling US\$297,343 are also provided in Annex F. The SEP has been fully integrated in the project activities discussed in Section IV in the ProDoc in order to ensure stakeholder participation in project implementation. Annex F in the ProDoc also gives the details of the two-tiered grievance redress mechanism (GRM) that the project will use to address the grievances and complaints of project stakeholders.

Documents

Title	Submitted
In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.	

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain)

Details of the Stakeholder Engagement Plan (SEP) are given in Annex F in the ProDoc. Participation plans were developed to ensure that the needs and priorities of stakeholders at all levels, including women, were expressed and taken into account in the formulation and implementation of the project. During the design of the project stakeholder engagement and dialogue was carried out through coordinated by the Federal Ministry of Environment that appointed a dedicated staff ? namely the GEF Desk Officer - to accompany the PPG Team during field visits. All stakeholder engagements in communities were carried out through prior coordination with officials of the Federal Government and traditional Chiefs in villages and communes. A matrix of stakeholder importance in terms of interest and influence on the project was designed based on detailed stakeholder engagements (Annexes SA1 and SA3 accompanying the ProDoc). Using this matrix, a detailed communication strategy (including outreach tools such as market fairs and exhibitions; project website and social networks; brochures, bulletins and press releases; policy briefs; project monitoring reports) and the engagement methodology shown in Table 3 to target each category of project stakeholders has been developed. A SEP timeline of activities and budget totalling US\$297,343 are also provided in Annex F. The SEP has been fully integrated in the project activities discussed in Section IV in the ProDoc in order to ensure stakeholder participation in project implementation. Annex F in the ProDoc also gives the details of the two-tiered

grievance redress mechanism (GRM) that the project will use to address the grievances and complaints of project stakeholders.

Table 3. Stakeholder engagement methods.

Stakeholders / Information formats	Project website and Social networks	Brochures, bulletins, press releases	Policy briefs	Local radio / TV / newspapers	Exhibitions/demonstrations (national/regional/local)	Project monitoring reports / Steering Committees / Technical Working Groups	Town Hall Meetings/Video clips etc
Government Stakeholders (Ministry of Power, Ministry of Environment, Ministry of Finance, Rural Electrification Agency, Standards Organization of Nigeria)	X	x	x	x	X	X	
Ministry of Finance	X	x	X	x		X	
World Bank Group	X	x	X	x		X	
International organisations and global initiatives	X	x				X	
National and international sustainable off-grid lighting (service) providers	X	x	X		X	X	
Financing Institutions	X	x	X	x	X	X	
Training/Academic Institutions			X			X	
Civil Sector and NGOs	X	X	X	X	X	X	x
Kerosene dealers ? Wholesalers				X	X	X	X

Low level of awareness among the Nigerian public especially women in rural communities on the availability, use and benefits of off-grid decentralised solar power.	Conduct massive advocacy with women's groups and campaigns to raise awareness about the benefits and value of sustainable off-grid lighting (including showcasing returns on investment). Activity 1.5.2, 1.5.3 and 1.5.4 (GEF Table Annex SA6)	Enhanced knowledge and acceptance of solar power and its effectiveness as a lighting solution among rural communities.	<p><u>Baseline:</u> 0</p> <p><u>Indicator:</u> (1) Number of women targeted in community outreach activities; (2) Number of trainers trained for outreach activities</p> <p><u>Target:</u> (1) 90,800 women^[1] capacitated on the availability, use and benefits of off-grid RETs; (2) at least 60 trainers are women</p>	PMU, UNDP	Year 2-5	72,420
	Investigate and find out what is the best communication strategy to apply to women on project sites. Activity 1.5.1 (GEF + UNDP Tables Annex SA6)	<p>Undertake consultations for this activity in a gender-responsive manner.</p> <p>Consult with women to learn what their needs are around the best way to raise awareness and knowledge towards the project's proposed clean energy technologies.</p>	<p><u>Baseline:</u> 0</p> <p><u>Indicator:</u> % participants in the consultations who are women.</p> <p><u>Target:</u> At least 50% of participants of consultations are women and express their communication needs to best understand the usage benefits of clean energy technologies.</p>	PMU, UNDP.	Year 1-4	27,120

<p>A combination of high capital costs and credit lines with tight payment terms represents a major barrier for cash sales and specialised PAYG off-grid lighting companies to obtain short-term financing for their supply and distribution chains and working capital. Women's minimal access to capital/credit is a huge barrier.</p>	<p>Establish a Working Capital Finance Facility for sustainable off-grid lighting companies. Advocacy for affirmative action to facilitate women's access to finance/ Mainstream gender in all financing products supported by the project. Involve Solar Sisters and other women-led enterprises to showcase best practices in delivering off-grid lighting solutions for women in "last-mile communities" in Nigeria and elsewhere. The Solar Sister's model offers women the opportunity, training, and resources necessary to set up a clean energy business. These entrepreneurs spread clean power in communities that many others do not reach because they do not present lucrative profits due to remoteness</p>	<p>Increase in the number of women who have access to capital/credit to set up a clean energy business.</p>	<p><u>Baseline:</u> 0 <u>Indicator:</u> (1) Percentage of capital grants are allocated to women-led private entrepreneurs in off-grid RETs; (2) Percentage of business development support provided to women-led enterprises.</p> <p><u>Target:</u> (1) at least 30% of capital grants (Year 2, 3 and 4 budgets for Activity 2.1.1) are allocated to women-led private entrepreneurs in off-grid RETs; (2) at least 30% of technical assistance is allocated to women-led bidders</p>	<p>REF, and all institutions providing debt and equity financing to the Working Capital Finance Facility; Project team</p>	<p>Year 2-4</p>	<p>1. 417,633 2. 10,689</p>
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Component 3: Knowledge Management Scale-up Strategy						
Low level of awareness of policy-makers, Government and community stakeholders on sustainable off-grid lighting alternatives, and best practices and tools to achieve a transition while protecting the poor and marginalised population especially poor rural illiterate women.	Produce lessons learned report based on project experience Activity 3.1.2, 3.1.3 and 3.2.1 (GEF Table Annex SA6) + Project Manager's contributions to review of indicators and GAP (\$25,000 as per Table 10) + MTR & TE (\$59,050 as per Table 10)	Report prepared to discuss key findings and recommendations related to subsequent deployment of renewable energy technologies. Incorporate gender-sensitive indicators and collection of sex-disaggregated data for monitoring and evaluating project results. Monitor and evaluate gender equality and women's participation and their empowerment through project interventions	<u>Baseline:</u> 0 <u>Indicator:</u> % of personnel from ministries and provincial authorities that participate in the lessons learned and knowledge management activities who are women. <u>Target:</u> At least 50% of stakeholders are women. Sex disaggregated and gender responsive results and targets included in Results Framework and other monitoring and evaluation formats at various levels.	UNDP	Year 1, Q4 ? Year 5, Q5	176,959

At present available electricity and renewable energy policies do not adequately mainstream gender. They are either gender blind or mention gender in passing ? a welfarist/tokenist approach rather than a gender transformative approach.	Conduct a participatory gender audit of the electricity sector especially regarding rural clean energy access. Provide support to mainstream gender into electricity and related policies and regulatory framework in the off-grid lighting space, including specific gender targets as integral part of the State of Energy Access Report: Nigeria and Replication Plan Activity 3.3.2 and 3.3.3 (GEF Table Annex SA6)	Electricity and renewable energy related policies and regulatory frameworks have explicit gender transformative provisions/objectives; approaches and targets.	<u>Baseline:</u> 0 <u>Indicator:</u> State of Energy Access Report and Replication Plan with recommendations on gender-sensitive policies and strategies for off-grid RETs. <u>Target:</u> 2 reports that propose policies and regulatory frameworks having explicit gender transformative provisions/objective; approaches and targets.	PMU, REA, Ministry of Power and Energy Commission of Nigeria	Year 5, Q3 and Q4	106,680
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In general, women have not been adequately involved in consultations and policy formulation. Though the National Gender Policy mentions access to energy as an intervention to engender economic empowerment, there is no evidence that policy makers in the electricity sector know about or consult this document as a reference point for policy formulation, project design and budgeting	Ensure that all work groups or committees adopt the 35% affirmative action clause recommended by the National Gender Policy or the 40% project commitment.	Increased visibility and participation of women in policy review; project implementation; monitoring and evaluation.	<u>Baseline:</u> 0 <u>Indicator:</u> Percentage of women on project committees and work groups. <u>Target:</u> At least 40% of stakeholders are women on all project committees and work groups. -	UNDP, PSC, PMU	Year 1 - 5	No cost
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[1] The project expected to target 31,200 rural households; rural household size = 5.9 persons; percentage of women in population = 49.3% (World Development Indicators, 2019).

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

This GEF project can be classified as gender transformative with a strong gender-sensitive approach, whereby gender equality in participation will be incorporated in the project design as per the Gender Action Plan (GAP) given in Table 4. The GAP was designed based on the Gender Analysis given in Annex G in the ProDoc, and it will guide the project implementation to build project partner capacity to mainstream gender and bring along strategies that empower women as agents rather than as victims of not having access to resources and climate change. This plan will be facilitated by the Stakeholder Engagement Plan (Annex F in the ProDoc), which outlines the multiple ways in which women will be engaged in the project implementation as well as having recourse to the grievance resolution mechanism.

A.5. Risks

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.

The risks faced by the project and the countermeasures that have been proposed to reduce or eliminate them are detailed in Annex H of the ProDoc. The risks include those emanating from the application of UNDP's Social and Environmental Screening Procedure (SESP) that is shown in Annex E of the ProDoc. The project has been rated as being a 'high' risk project, and Table 5 summarises only the moderate and high risks. As per standard UNDP requirements, these risks will be monitored quarterly by the Project Manager. The Project Manager will report on the status of the risks to the UNDP Country Office, which will record progress in the UNDP ATLAS risk log. Management responses to critical risks will also be reported to the GEF in the annual PIR.

Table 5. Summary of project risks rated as moderate.

<i>Risk Description</i>	<i>Risk Rating</i>	<i>Mitigation Measures</i>
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<p>Political</p> <p>Despite political will and commitment to tackle the lack of electricity access in Nigeria, political instability or a change of Government could lead to potential policy reversals that may impact energy policy and discourage private investment.</p>	<p>Moderate</p>	<p>The project is designed and based on the national commitments and targets on electrification and renewable energy that have been adopted at the highest possible level, as well as in consultation with communities and local governance institutions ensuring that it is bottom-up and demand-driven. Any proposed revisions in the policies, as well as support on new policies and regulations by the project, will also have to secure the highest level of approval based on actual needs and realities at the ground level (communities and households).</p>
<p>Economic</p> <p>International oil prices have fallen significantly over the past year and are expected to continue fluctuating with a tendency to increase again in the medium and long term. The sustainable off-grid lighting solutions proposed in this project may not be economically competitive compared to baseline energy sources.</p>	<p>Moderate</p>	<p>This has been an important problem in the past when energy prices in Nigeria have been very low but since January 2016 energy prices in Nigeria have increased as a result of Government policy to eliminate subsidies on liquid fuels, and it is unlikely that this policy would be reverted.</p> <p>Although this risk falls outside the control of the project, Components 1 and 2 of the project aim precisely at achieving these goals and levelling the playing field for sustainable energy alternatives.</p>

<p>Technical</p> <p>The domestic supply and value chains and capacities of sustainable off-grid lighting service providers in Nigeria are very limited. The global threat of generic products to the sector exacerbates this problem nationally. As a result, this may cause an inadequate implementation of sustainable off-grid lighting projects, leading to sub-optimal performance, malfunctioning, etc.</p>	<p>Moderate</p>	<p>Components 1 and 2 of the proposed project are designed to address this risk and will identify and implement a range of measures that are required for mitigating this risk, such as through the support to adopting and enforcing domestic quality certification standards or by providing procurement support for equipment and services to off-grid lighting businesses to avoid distribution and sales shortages that could, otherwise, lead to a switch to alternative off-grid products, including low-quality generics.</p>
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<p>Climate Change</p> <p>Climate change is expected to change Nigeria's biomass production, accelerate land degradation, and modify hydrological systems. There is also a risk of an intensified frequency and scale of natural disasters threatening infrastructure, including sustainable off-grid lighting products and distribution channels. In addition, the projected rise in temperatures will increase the power demand for air conditioning.</p>	<p>Moderate</p>	<p>The project will put most emphasis on promoting sustainable off-grid lighting solutions through solar PV powered system kits, which are less likely to be affected by climate change and therefore represents a viable climate adaptation alternative to the Nigerian power sector (which currently depends for 30% of its capacity on hydropower generation). Other potential impacts will be assessed in detail during the preparatory stage, and appropriate measures will be identified for incorporation of adaptation measures in the investment programme.</p>
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<p>Security</p> <p>Political tensions in the Niger Delta between foreign oil corporations and a number of ethnic minorities seeking a share of oil profits have led to numerous violent attacks on oil infrastructure and staff in the last 20 years. The risk exists that a similar situation could happen to sustainable off-grid lighting solution providers and users from groups with vested interests or stakeholders along the kerosene supply chain.</p>	<p>Moderate</p>	<p>While it is not possible to fully mitigate security risk within the framework of the proposed project, the participation of local communities has been sought in selected project sites. An advocacy campaign under Component 1 (Output 1.5) will raise awareness and secure buy-in for the proposed sustainable off-grid solutions. Additionally, market intelligence to be carried out under Output 1.1 will provide geographic information regarding security risks. Finally, Nigeria has such a large number of underserved rural communities that the project can be impactful without having to invest in communities that pose significant security risks that are beyond its control.</p>
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<p>COVID-19</p> <p>The COVID-19 pandemic is, at the time of writing, at a point of inflection. Variants and second/third waves of infections are emerging worldwide with concomitant reactions from authorities, ranging from mild restrictions on movement and curfews, to strict lockdowns and strict domestic travel restrictions. The most robust forms of restrictions could negatively impact activities requiring the physical presence of team members and stakeholders.</p>	<p>Moderate</p>	<p>Scheduling of activities such as trainings, market assessments/market intelligence gathering or other activities that may require physical presence in certain localities will be front-loaded, to allow for a buffer in case the sanitary situation deteriorates to the point of preventing the swift realization of these activities. Wherever possible, alternatives will be explored, such as rapidly training interviewers within targeted communities or regions, so that they may be able to conduct basic information gathering (i.e. market intelligence data) in cases where specialist teams and consultants can no longer access the sites of interest for a prolonged period of time. In addition, teleconferencing solutions will be proactively assessed and prepared by the project team and implementing partner in case they become essential later on.</p>
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<p>Environmental</p> <p>SESP has revealed that electronic and electrical waste related to batteries, control electronics and electrical appliances of off-grid RETs at the end of product lifetime will become an increasingly more severe issue as investments in these technologies for enhancing clean rural energy access is catalyzed. This is especially so given the poor institutional arrangements and infrastructure for waste collection, storage and disposal in rural areas.</p>	<p>High</p>	<p>This risk is under the full control of the project and it will be dealt with in two ways, namely: (1) one eligibility criterion for private companies / entrepreneurs to participate in the REF Call for Submission that will allow them to access working capital grant under the Working Capital Finance Facility to be established under REF will be a product take back clause at the end of product lives; and (2) developing an Environmental and Social Management Plan (ESMP) in collaboration with the Federal Ministry of Environment (and the Federal Environmental Protection Agency) on the environmentally-sound collection, storage and disposal of all electronic and electrical waste, including rechargeable batteries, associated with off-grid RETs. The Plan will also provide the measures required for supporting State and Local Governments in discharging their roles and responsibilities in the sound management of these wastes. All institutional and regulatory frameworks will also be reviewed in the process for formulating the Strategy and Action Plan. An essential element of the ESMP will be to propose technologically and socio-economically viable means for developing a circular economy around off-grid RETs that will generate jobs and economic development in addition to being environmentally sound.</p>
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A.6. Institutional Arrangement and Coordination

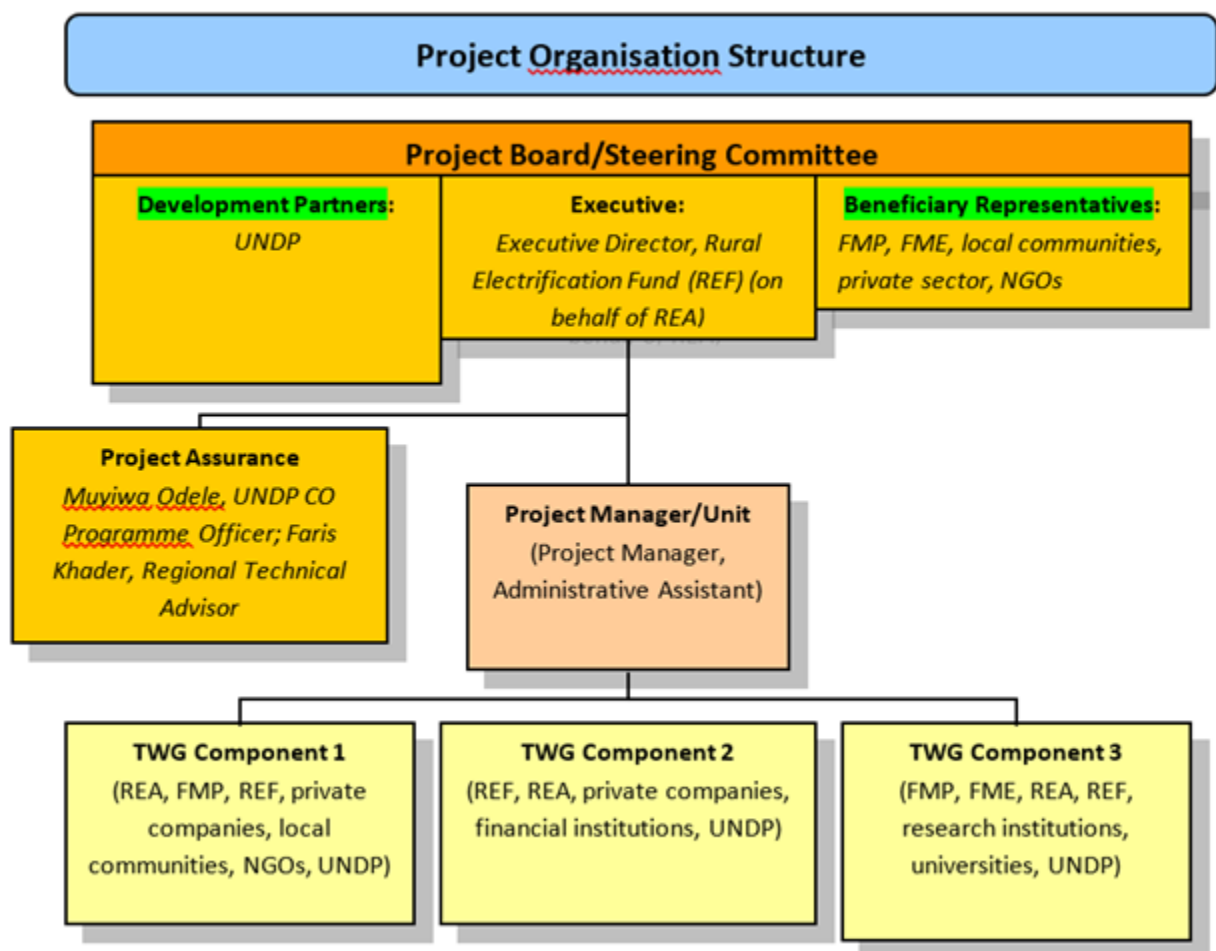
Describe the Institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

The project will be implemented following UNDP's national implementation modality, according to the Standard Basic Assistance Agreement between UNDP and the Federal Government of Nigeria, and the Country Programme. The Implementing Partner for this project is the Rural Electrification Agency (REA). The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

The Project Board, PB (also called Project Steering Committee) is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including recommendations for UNDP/Implementing Partner approval of project plans and revisions, and addressing any project level grievances. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in

accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed. The roles and responsibilities of the PB are given in Annex D of the ProDoc. The PSC will also be composed of senior beneficiaries and a representative of UNDP as indicated in Figure 1.

The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Project Board within the constraints laid down by the Board. The Project Manager is responsible for day-to-day management and decision-making for the project. 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. The Terms of Reference (ToR) of the PM is given in Annex D of the Prodoc.



18. This project oversight and quality assurance role is covered by the GEF Agency (i.e. UNDP).

19. The composition of the PSC has been determined so that all target groups are represented in the highest governance structure of the project. While recognising that not all interested target audience can be

represented on the PSC, the project makes space for a larger number of individuals from target groups to participate in the project implementation through three technical working groups (TWGs) that will be established for each component of the project. The TWGs, with ToR given in Annex D of the ProDoc, will be set up to review the operational policies and progress on project outputs, provide project assurance, and provide regular reports to the PSC. In this capacity, the TWGs will support the PSC in monitoring functions and delivery of project outputs, ensuring that the project is on-track towards achieving the overall outcomes. As shown in Figure 1, different target groups are represented in TWGs depending on their involvement in the project. Also, the TWGs (and PSC) will be constituted from the cohort of stakeholders listed in Table 5 in the ProDoc (Section IV). Additional specific responsibilities of the TWGs will include, but are not limited to, ensuring: beneficiary needs and expectations are being met or managed; risks are being controlled; the project remains viable; internal and external communications are working; quality management procedures are properly followed; and that the PSC decisions are followed and revisions are managed to satisfaction.

Additional Information not well elaborated at PIF Stage:

A.7. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels.

How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The project is designed to remove all identified obstacles and barriers towards achieving GHG emission reductions and strong sustainable co-benefits through the deployment of off-grid solar technologies in rural communities. Financial analyses have been carried out for a hand-held SL (3 W) and SHS (15 W and 50 W). Details of the calculations are given in Annex SA5 accompanying the ProDoc. It is assumed that a SL will replace hurricane kerosene lamps (glass-covered), while SHS will substitute standalone diesel-powered generators. The calculations have been done on the basis that the payment for SL and SHS should not exceed the monthly avoided household expenditure on the baseline energy technologies. Table 6 summarises the payback period, duration of 'free' energy compared to baseline technologies, and net savings on energy bill accruing to households during the lifetime of off-grid solar products. The analyses show that: (1) the payback periods for all product types are well within the warranty period of products; (2) off-grid technologies deliver positive net savings on household energy bill, implying that these technologies can increase household disposable income that can alternatively be invested in education, health or income generating activities; and (3) with a down payment of 15% to 25% and a monthly repayment equal to avoided energy cost, products can be repaid between 7 to 8 months. These results demonstrate the cost-efficiency of off-grid products to a rural household, and demonstrate the cost-effectiveness of using GEF funding for delivering technologies at an affordable price to rural households.

Table 6. Results of financial benefits of off-grid solar products.

Technology	Cost	Payback	Period for	Net	Household payment modality
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type	(NGN)	time (month)	?free? energy[1] (month)	savings on energy bill during product lifetime (NGN)	Upfront payment (% of cost)	Monthly repayment (NGN)	Repayment period (month)
3 W SL	9,210 (US\$ 30)[2]	3.5	20.5	24,783 (~US\$ 81)	25%	1,328 (~US\$ 4.3)	5.2
15 W SHS	46,050 (US\$ 150)	2.1	57.9	447,283 (~US\$ 1,457)	15%	7,455 (~US\$ 24)	5.3
50 W SHS	153,500 (US\$ 500)	6.0	42.0	766,389 (~US\$ 2,496)	15%	15,966 (US\$ 52)	8.2

[1] This is given by the difference between product lifetime and payback period.

[2] 1US\$ = 307 NGN.

A.8. Knowledge Management

Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user- friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

Knowledge management has not been retained as a stand-alone component in the project design. Rather, knowledge management, as a means to an end, is a transversal issue that cuts across the project design and conceptualisation. Nevertheless, Outcome seeks to capture and disseminate lessons learned and best practices within Nigeria. This Outcome will also develop a replication strategy and action plan for scaling up the private-sector led business model in other regions of Nigeria. The project will also capitalise on and promote South-South cooperation through knowledge management. The development and application of the MRV mechanism for GHG emission reductions will be institutionalised by integrating the project MRV system within the broader framework for carrying out national GHG inventories under the aegis of the Ministry of Environment. The UNDP-GEF project will also establish a mechanism for measuring and reporting the SDG Impacts of investments in off-grid RETs. The Standards Organisation of Nigeria (SON) and the Nigeria Customs Service will be supported in carrying out market surveillance of off-grid renewable energy technologies (RETs) through the application of international quality standards of solar lanterns and SHS developed by the Lighting Africa initiative and carrying out conformity tests.[1] Further, the results of the project will be integrated into the curriculum of vocational institutions that will have the

responsibility to train technicians for the installation and maintenance of SHS. The most effective communication and outreach strategy for rural households will be developed based on detailed gender-differentiated assessments of the information needs of target communities.

As discussed above, the design of the UNDP-GEF project has been informed using UNDP's derisking approach, the quantitative details of which are given in Annex SA3 accompanying the Project Document. The derisking approach is also a central part of the TOC underlying the proposed project. While the project will generate knowledge products based on lessons learned during implementation, its design has drawn from lessons learned and best practices on the development and application of UNDP's derisking approach. The first is the application in 2016 of the derisking approach for designing the UNDP-GEF project in Nigeria entitled 'Derisking Renewable Energy NAMA for the Nigerian Power Sector'.^[2] Further, the present project has benefitted from the use of knowledge tools and resources developed for derisking investments in off-grid electrification using decentralised solar technologies (Annex SA3).^[3]

The project will develop several knowledge products under Component 3. The target audience for each knowledge product will be as follows:

? Lessons learned report: This report that will capture lessons learned across all project outcomes will be applicable to a broad range of audiences, namely public, private organisations and off-grid communities that are interested in using a private sector led model for enabling off-grid electrification using decentralised solar technologies. In particular, this knowledge product will be useful for replication and scaling up investments decentralised solar technologies in Nigeria and off-grid communities elsewhere in the world;

? State of the Energy Access Report for Nigeria: This knowledge product will be used mainly by public institutions like the Federal Ministry of Power and the Rural Electrification Agency for reporting on progress made regarding rural electrification. In addition, this document can be used for mobilising additional financial and technical resources for scaling up renewable energy investments in the off-grid sector. This report will also account for the SDG impacts of investments in rural electrification; and

? Replication Plan: The replication plan will make use of the lessons learned to develop a road map for scaling up private investments in off-grid electrification using decentralised solar technologies. Hence, it will be useful for guiding public electrification policy and strategy; providing guidance to private investors in terms of market potential; and rural communities in terms of future off-grid electrification perspectives.

[1] Discussions with Lighting Africa programme in Nigeria (Annex SA1) and <https://www.lightingafrica.org/products/> - accessed 24 October 2018. As discussed in Section IV, DfID's ACE programme will support SON to set up conformity testing laboratories.

[2] <https://www.thegef.org/project/de-risking-renewable-energy-nama-nigerian-power-sector> - accessed 1 August 2019.

[3]https://www.undp.org/content/undp/en/home/librarypage/environment-energy/low_emission_climateresilientdevelopment/derisking-renewable-energy-investment.html - accessed 1 August 2019.

B. Description of the consistency of the project with:

B.1. Consistency with National Priorities

Describe the consistency of the project with nation strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

As shown in Table 1, the project is squarely aligned with Nigeria's Rural Electrification Strategy and Implementation Plan (RESIP) and the National Renewable Energy and Energy Efficiency Policy 2015. In particular, there is an overall strategy to extend electricity to rural and remote areas through the use of solar home systems. The REF would be the main funding mechanism for achieving rural clean energy access.

The project reflects Government priorities as outlined in the Vision 20:2020 and the Transformation Agenda (2013-2018) to promote low-carbon, climate-resilient, high-growth, gender-sensitive, inclusive and sustainable development, and is aligned with the country's commitment to mitigate GHG emissions under the UNFCCC. In November 2015, the Government submitted its [Intended Nationally Determined Contribution](#) (INDC), committing to 20% unconditional and 45% conditional GHG emissions reduction by 2030. Among others, proposed measures to reach the proposed target in the INDC are (particularly decentralised) renewable energy solutions for rural electrification and enforced energy efficiency measures, making the electricity sector by far the largest contributor to the proposed GHG emission reductions.

In Nigeria's Second National Communication to the UNFCCC, the energy sector is identified as a critical sector where technology transfer is required, both in terms of harnessing clean and renewable energy sources and energy efficiency. Popularising the use of energy saving devices such as CFLs and LED bulbs is specifically mentioned as a possible project intervention. This is considered a high priority option for the energy sector, which can substantially reduce demand for electricity.

C. Describe The Budgeted M & E Plan:

The monitoring and evaluation plan of the project is presented below in Table 7.

Table 7. Project M&E Plan.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[1] (US\$)		Time frame
		GEF grant	Co-financing	

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[1] (US\$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 5,000	<i>None</i>	Within two months of project document signature
Inception Report	Project Manager	None	None	Within two weeks of the inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Risk management	Project Manager Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework (REA)	Project Manager	Per year: USD 3,000	<i>None</i>	Annually before PIR
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
Lessons learned and knowledge generation	Project Manager	USD 125,253	<i>None</i>	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP Country Office	<i>To be carried out as part of the Annual Work Plan's preparation.</i>	<i>None</i>	On-going
Monitoring activities related to the Stakeholder Engagement Plan	Project Manager UNDP Country Office	<i>To be carried out as part of the Annual Work Plan's preparation.</i>	<i>None</i>	On-going

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[1] (US\$)		Time frame
		GEF grant	Co-financing	
Monitoring activities related to the Gender Action Plan	Project Manager UNDP Country Office UNDP GEF team	USD 10,000	<i>None</i>	On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office	USD 5,000	<i>None</i>	On-going
Project Board meetings	Project Board UNDP Country Office Project Manager	<i>add</i>	<i>None</i>	At minimum annually
Supervision missions	UNDP Country Office	None[2]	<i>None</i>	Annually
Oversight missions	UNDP-GEF team	None63	<i>None</i>	Troubleshooting as needed
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None	<i>None</i>	To be determined.
Mid-term GEF Tracking Tool to be updated by External Consultants	Project Manager and External Consultants	To be completed as part of the MTR	<i>None</i>	<i>Before mid-term review mission takes place.</i>
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 25,350	<i>None</i>	<i>Between 2nd and 3rd PIR.</i>

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[1] (US\$)		Time frame
		GEF grant	Co-financing	
Terminal GEF Tracking Tool to be updated by External Consultants	Project Manager and External Consultants	To be completed as part of the TE	<i>None</i>	Before the terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 33,700	<i>None</i>	At least three months before operational closure
<i>Translation of MTR and TE reports into English</i>	<i>Not applicable</i>	<i>None</i>	<i>None</i>	<i>As required. GEF will only accept reports in English.</i>
TOTAL indicative COST		USD 219,303		
Excluding project team staff time, and UNDP staff and travel expenses				

[1] Excluding project team staff time and UNDP staff time and travel expenses.

[2] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

PART III: Certification by GEF partner agency(ies)

A. GEF Agency(ies) certification

GEF Agency Coordinator	Date	Project Contact Person	Telephon e	Email
Mr. Pradeep Kurukulasuriya	5/28/2019	Mr. Faris Khader	2519125033	faris.khader@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

This project will contribute to the following Sustainable Development Goal (s): SDG 7-Ensure access to affordable, reliable, sustainable and modern energy for all; SDG 13 ? Take urgent action to combat climate change and its impacts					
This project will contribute to the following country outcome included in the UNPAF/Country Programme Document: <i>By 2022, Nigeria achieves environmental sustainability, climate resilience and food security through efficient management of its cultural and natural resources.</i> <i>Indicator 9.1: CO2 emission per unit of value added; baseline: No baseline; target: No target</i>					
This project will be linked to the following output of the UNDP Strategic Plan: <i>Output 1.5.1: Solutions adopted to achieve universal access to clean, affordable and sustainable energy</i>					
	Objective and Outcome Indicators	Baseline [1]	Mid-term Target[2]	End of Project Target	Data Collection Methods and Risks/Assumptions [3]
Project Objective: <i>To promote private sector investment in sustainable off-grid lighting technologies by establishing a sound policy environment that facilitates</i>	<u>Mandatory Indicator 1:</u> Number of households benefitting from clean, affordable and sustainable energy access (project will target rural households only)	0	4,727 rural households; 2,330 women-headed	16,335 rural households; 8,053 women-headed	The number of beneficiary households was estimated based on total uptake of SHS units (assumed to be one unit per household) plus 90% of total units of solar lantern ? i.e. 10 % of households buy both a SHS and SL.

<p><i>the creation of a self-functioning and sustainable market in Nigeria.</i></p>				<p>Risks: Targets for technology uptake not achieved because of lower than expected social and cultural acceptance; households purchase lower quality, and cheaper products because of lack of national quality standards or enforcement thereof;</p> <p>Assumptions: The targets have not taken into account population dynamics, and used demographic statistics of number of rural households for 2017 derived from the World Development Indicators 2019 for the entire project duration; percentage households can be updated during MTR and TE using latest available population statistics; the technology adoption pattern of households remain valid during project implementation (assumptions to be reviewed at MTR and TE)</p>
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	<u>Mandatory Indicator 2</u> (Lifetime direct project GHG emissions mitigated): <i>Direct project CO₂ emission reductions, metric tCO₂e.</i>	0	10,700	108,250	Data regarding technologies used for lighting, as well as sources and quantities of fuels used by households were collected during field visits. Number of units of technologies deployed was estimated depending on a combination of population in target communities. Emission reduction from SHS was calculated from avoided diesel in baseline multiplied by emission factor of gasoline (IPCC default value); emission reduction from SL was calculated from avoided kerosene in baseline multiplied by emission factor of kerosene (IPCC default value).
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					<p>Risks: Targets for technology uptake not achieved because of lower than expected social and cultural acceptance; households purchase lower quality, and cheaper products because of lack of national quality standards or enforcement thereof.</p> <p>Assumptions: Market demand for technologies is as expected, and technology supply chain has been established with adequate level of private sector participation in the form of high response to REF calls for submission; all project partners are committed to support the development of the technology supply chain; methodologies for calculating GHG emission reductions are appropriate</p>
	<p><u>Mandatory indicator 3</u>: # of direct beneficiaries disaggregated by gender.</p>	0	<p>27,890 persons of which 13,760 women and 14,130 men</p>	<p>96,380 persons of which 47,540 women and 48,840 men</p>	<p>The number of persons per household and percentage of women in rural Nigeria. Statistics derived from World Development Indicators 2019.</p>

					<p>Risks: Targets for technology uptake not achieved because of lower than expected social and cultural acceptance; households purchase lower quality, and cheaper products because of lack of national quality standards or enforcement thereof;</p> <p>Assumptions: Household energy demand is as expected based on adequate on-the-ground capacity building coupled with after sales services provided to households; technologies are used appropriately by end-users; high response from private companies to REF call for submissions; the estimated cross ownership of different technologies by households is valid</p>
Outcome[4] 1 <i>Appropriate policies, programmes and regulations are in place</i>	<i>Indicator 4: Number of rural households capacitated in appropriate use of off-grid technologies and having access to technologies and</i>	0	7,200	31,200	<i>Project records of the contact details of every person participating in trainings, as well as surveys carried out under Outcome 3 for capturing lessons learned</i>

<p><i>that address policy, awareness and financial barriers to facilitate investment in sustainable off-grid lighting solutions and corresponding business models</i></p>	<p><i>after-sales services</i></p>				<p>Risks: Lower than expected interest in off-grid renewable energy technologies from rural households; delays in capacity building of trainers and technicians to support outreach activities to rural households</p> <p>Assumptions: 120 trainers will be trained by the project, and each is expected to train 10 agents giving a total of 1,200 agents for community outreach activities. At mid-term, each agent would have reached 6 households; thereafter each agent will reach out to 10 households.</p>
	<p><i>Indicator 5: Percentage of households making use of mobile money payment when purchasing 50 W SHS</i></p>	<p><i>0</i></p>	<p><i>15%</i></p>	<p><i>50%</i></p>	<p><i>Discussions with private investors have shown that the use of mobile payment is virtually non-existent among BOP rural communities. Solar Sisters has started piloting mobile payment in some communities and the project will build on this case to enhance the uptake of mobile payment in this market segment.</i></p>

					<p>Risks: Low commitment of service providers to participate in the project and to extend their mobile money platforms to rural areas; the bank-led pay-as-you-go model prevails thereby constraining the usefulness and reach of mobile money</p> <p>Assumptions: Capacity building leads to better understanding of the benefits, and hence uptake of mobile money; providers of mobile money make their platforms available in rural areas</p>
	<p>Indicator 6: Financial and economic analyses to demonstrate the business case for off-grid technologies</p>	0	<p>1 business case report covering at least 3 technologies (e.g. those proposed in the ProDoc)</p>	<p>1 business case report covering at least 6 technologies (based on market development)</p>	<p>The inventory of the types and quantity of technologies sold will be logged and audited by the project.</p> <p>Risks: Suppliers are not willing or show low commitment to participate in the project; the quality of products supplied do not meet the minimum standards established by the project</p> <p>Assumptions: There is adequate demand for off-grid renewable energy products, and a reliable supply of technologies meeting minimum quality standards</p>

Outcome 2 <i>Sustainable off-grid lighting (service) providers in Nigeria are operating and have access to working capital and equipment.</i>	<i>Indicator 7: Number of Working Capital Finance Facility established and operational</i>	0	1	1	<i>The setting up of the Working Capital Finance Facility for supporting investments in SL / SHS will be accounted for in the project reports, and will be subject to project audit.</i>
					Risks: Lower levels of debt and equity financing than expected hinders the operationalisation of the Working Capital Finance Facility under REF Assumptions: Once set up, the Working Capital Finance Facility will be able to use GEF seed grant financing to attract debt and equity financing
	<i>Indicator 8: Number of financing schemes developed and</i>	0	1	3	<i>Project records, lessons learned investigations and project audits</i>

	<i>operationalised</i>				<p>Risks: Lower than expected BOP consumer capacity and willingness to pay, coupled with inability of project to increase the financial literacy of rural households, result in locking of proposed initial financial scheme at 40% capital grant to 40% debt to 20% equity, or that a 40% working capital grant is insufficient to catalyse the BOP market segment.</p> <p>Assumptions: The linking of off-grid RET purchase with income generating agricultural activities will be sufficient for BOP households to invest in off-grid RETs when a 40% or lower capital grant financing structure is made available to the private investor.</p>
	<p><i>Indicator 9: Number of debt and equity partners capitalising the Working Capital Finance Facility</i></p>	<i>0</i>	<i>At least 3</i>	<i>At least 6</i>	<p><i>The capitalisation of the Working Capital Finance Facility by type of financing (grant, equity and debt) will be accounted for in the project reports, and will be subject to project audit.</i></p>

					<p>Risks: Lower than expected interest of financing partners to invest debt and equity in the Working Capital Finance Facility as the BOP market for off-grid decentralised RETs is perceived as being too risky; sustainability of grant financing is not assured for ongoing mobilisation of debt and equity financing</p> <p>Assumptions: Business case for debt and equity investments in BOP market segment is demonstrated, and GEF grant seed funding proves to be a useful attractor for such types of funding.</p>
Outcome 3 <i>Good practices, lessons learned, market assessments, demand-supply surveys, delivery models and business models are documented and scale-up guidelines are produced</i>	<i>Indicator 10: Number of knowledge networks created</i>	0	1	3	<i>The project will establish partnerships with research, technical and training institutions that will receive technical assistance to support research on the market development of off-grid RETs in Nigeria. The setting up of a local Chapter of AMDA will be supported at the beginning of the project implementation.</i>

					<p>Risks: Low interest shown by member of AMDA to set up sub-committee on SHS; cumbersome administrative hurdles in public sector delays partnerships with publicly institutions; lower than expected market development for off-grid renewable energy products has detrimental impact on demand for collaborative partnerships.</p> <p>Assumptions: Private companies and public institutions such as ECN are already active in off-grid rural energy access using decentralised solar technologies, and hence a high interest is latent for setting up partnerships.</p>
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	Indicator 11: Lessons learned report to capture project experience	0	2	5	The project records and M&E framework will be used to keep track of all project deliverables, including the lessons learned reports. It is proposed that a stocktaking study be carried out at the MTR in order to inform any adjustments of the technology supply chain model. This will also be the opportunity to review in detail all the assumptions made during project design.
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					<p>Risks: Lack of sufficient time and financial resources available to investigate lessons learned in detail;</p> <p>Assumptions: Lessons learned studies will cover issues such as effectiveness of business model proposed to promote off-grid renewable energy products using a private sector-led approach; effectiveness of derisking instruments to catalyse private sector investments in off-grid renewable energy technologies; technology adoption dynamics by rural households, including the gender transformative role of project</p>
	Indicator 12: Number of replication plan, including detailed budget, for scaling up the deployment of off-grid technologies in	0	0	1	The project records and M&E framework will be used to keep track of all project deliverables, including the replication plan.

	<i>Nigeria (based on lessons learned)</i>				<p>Risks: The lower than expected quality of lessons learned reports jeopardizes the quality and meaningfulness of replication plan; lack of enforcement of minimum quality and performance standards of off-grid renewable energy technologies undermines replication efforts because of market flooding with cheap and unreliable products erodes social acceptance of these technologies; rural access and adoption of mobile money remains lower than expected thereby limiting the scaling up rate of off-grid renewable energy systems</p> <p>Assumptions: Government policy, strategy and action plan on rural electrification remains coherent and transparent so that the geographical relevance of off-grid renewable energies is visible to private investors; project partners, especially government and NGOs, do not undermine the private-sector led model for deploying off-grid RETs by making same technologies available free of charge</p>
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[1] Baseline, mid-term and end of project target levels must be expressed in the same neutral unit of analysis as the corresponding indicator. Baseline is the current/original status or condition and need to be quantified. The baseline must be established before the project document is submitted to the GEF for final approval. The baseline values will be used to measure the success of the project through implementation monitoring and evaluation.

[2] Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.

[3] Data collection methods should outline specific tools used to collect data and additional information as necessary to support monitoring. The PIR cannot be used as a source of verification.

[4] Outcomes are short to medium term results that the project makes a contribution towards, and that are designed to help achieve the longer term objective. Achievement of outcomes will be influenced both by project outputs and additional factors that may be outside the direct control of the project.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

GEFSec carried out its review of the PIF between 9 and 23 March 2017 when the PIF was given technical clearance. GEFSec did not require any specific issues to be addressed at CEO ER stage. Nevertheless, it is iterated here that all the issues raised and cleared at PIF stage have been integrated into the ProDoc design.

STAP Scientific and Technical screening was carried out on 8 November 2017, and it concurred with the scientific and technical quality of the proposed project design. Nevertheless, several propositions were made for enhancing the quality of the project design at PPG stage. Further, project design enhancements were also suggested by the GEF Council Member for Germany and the USA.

The tables below provide the responses to these outstanding issues starting with the STAP Review comments.

STAP Review Comments at PIF Stage	Response
1. This project seeks to promote private sector investment in sustainable off-grid lighting technologies by establishing a sound policy environment that facilitates the creation of a self-functioning and sustainable market in Nigeria. The project is linked with the UNEP/UNDP/CCAC project "Reducing Black Carbon Emissions by Transitioning to Clean and Sustainable Lighting."	No action needed.

<p>2. Identified barriers to achieving this objective include uncertainty in the power market, low level of awareness and acceptance of solar power, inadequate technology and hardware, poor payment service and lack of financial investment. This project aims to use the UNDP's Derisking Renewable Energy Investment (DREI) methodology to overcome these barriers through components targeting policy improvement, attracting investments, and creating capacity and awareness.</p>	<p>No action needed.</p> <p>Results of preliminary DREI analyses undertaken at PPG Stage are given in Annex SA3 accompanying the ProDoc.</p>
<p>3. Electricity access and unreliability of the grid are challenges for Nigeria with 60 M diesel generators installed to provide direct power or back-up. Kerosene lighting is also typical, consuming 11 M liters a day and emitting CO2 and black carbon. Solar lanterns and solar pico-PV home systems, therefore, have good potential for greater deployment, especially if linked with pay-as-you-go finance.</p>	<p>No action needed.</p>

<p>4. Kerosene lighting comes with significant health and safety concerns. More so, it contributes to climate change since kerosene is a fossil fuel and kerosene lamps are a substantial source of potent black carbon (http://pubs.acs.org/doi/abs/10.1021/es302697h; http://news.illinois.edu/NEWS/12/1210kerosene_TamiBond.html; Jacobson et al., 2013: https://www.brookings.edu/wp-content/uploads/2016/06/04_climate_change_clean_energy_development_hultman.pdf and Tedsen et al., 2013: https://www.ecologic.eu/sites/files/publication/2014/black-carbon-and-kerosene-lamps-study.pdf)</p>	<p>STAP is acknowledged for pointing out the issue related to black carbon emissions from kerosene lamps. This suggestion has been fully integrated in calculations of GHG emission reductions.</p> <p>The displacement of kerosene lamps using solar lanterns (SL) will lead to GHG emission reductions in two ways, namely (1) avoiding combustion of kerosene, and (2) avoiding the emission of black carbon (BC). The references provided by STAP have been used in estimating the GHG emission reductions (both direct and consequential) accruing from avoided emissions of BC. The details of GHG emission reduction calculations, including BC emission factor with appropriate references, are given in Annex SA4 accompanying the ProDoc.</p>
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<p>5. The project will support the planned phase-out of kerosene subsidies in Nigeria and help develop policies to improve import regulation, enforce quality standards, support investment and improve awareness. Access to capital and equipment will involve USD 6 M of co-financing, mainly from World Bank loans through the IFC Lighting Africa initiative and equity from the private sector.</p>	<p>It is pointed out that Outcome 3 of the project has been redesigned as described in Table 1 in the CEO ER. The issue of kerosene subsidies was also raised by the GEF Council Member for Germany and is further discussed below.</p> <p>The level of co-financing (debt and equity) from the World Bank and private operators has been substantially increased to USD 77,900,000 due to positive changes in the project baseline. Please see letter of co-financing given in Annex J in the ProDoc.</p> <p>It is pointed out that no letter of co-financing was sought from the Lighting Africa Nigeria programme because of the closure of the project by June 2020. Any period of overlap with implementation of the UNDP-GEF project will be related to final evaluations and project closure.</p>
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<p>6. Focusing on sustainable off-grid lighting also provides an opportunity to implement energy efficient lighting. This project could benefit from the vast amount of knowledge already available through the UN Environment-led initiative Environment United for Efficiency including energy efficiency and sustainable lighting, (http://united4efficiency.org/). It is recommended that this knowledge should be explored.</p>	<p>This recommendation is fully integrated in the project design. The project will support only products that are certified to the Lighting Africa Quality Standards for pico-solar and SHS. By default, the SL and SHS plug-and-play systems integrate efficient lighting and electrical appliances.</p>
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<p>7. Around 93 kt CO₂-eq are projected to be avoided during the 5 year project period by displacing 17,700 kerosene lamps with solar lamps and reducing diesel generation in rural communities by developing 10,000 solar homes. Projecting additional uptake above the baseline as a result of this GEF project is not possible with any degree of accuracy, but the estimate of around 4.5 Mt of consequential emission reductions seems plausible. Black carbon emissions reduction is also expected with the associated climate, environmental and health benefits. Hence, the climate benefit from this project will be increased when this is included. See the 2015 STAP guidance document on black carbon at http://www.stapgef.org/taxonomy/term/394.</p>	<p>The GHG emission reductions have been worked out in detail again using a bottom up approach in terms of type of off-grid technology diffusion. The number of off-grid solar products considered for BOP rural households are solar lanterns (3 W) and solar home systems (15 W / 50W). A total of 17,542 units will be deployed and the breakdown across the 3 different technology types is given in Section IV of the ProDoc and Annex SA4 accompanying the ProDoc.</p> <p>As discussed at 4 above, black carbon emission reductions have been calculated using references provided by STAP and aligned with STAP taxonomy on BC.</p> <p>Consequential emission reductions have been re-calculated using 10-year market development of the off-grid solar technology market in Nigeria to 2030 using a combination of data produced by GOGLA and cross-checked with data from</p>
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Council Member for Germany Review Comments	Response
<p>1. The project proposes to address a significant problem (lack of access to sustainable electricity) in the context of significant barriers that present high risks to project success. The PIF does not go far enough in describing how the barriers will be overcome. In fact, some of the policy barriers should be overcome prior to beginning the project since, for example, in the absence of a governmental commitment to phasing out diesel subsidies for off-grid generators and lighting purposes, the project will fail due to the inability of solar to compete with diesel. (The PIF itself recognizes this risk as a deal-breaker for project success.) Please confirm if this governmental commitment will indeed be achieved before the PPG stage.</p>	<p>As discussed in Table 1 in the CEO ER, the issue of fuel subsidies is not an issue for the project since, indeed, government has taken the necessary step to practice cost-reflective fuel pricing over the past 3. This is also a reason why the Economic Risk related to fuel pricing in the Risk Log (Annex H in the ProDoc) has been reduced from 'high' to 'moderate'.</p> <p>The result of these changes in the baseline has been removal of all project outputs at PIF stage that were related to reforming / phasing out of fuel subsidies as justified in Table 1 in the CEO ER, and detailed in Section IV of the ProDoc.</p>
<p>2. Lack of end-user credit information: how will the project address the barrier about lack of financial credit data availability regarding individual clients (end-users), which is required for the technology providers to engage with a Pay-As-You-Go (PAYG) system? What can the project do in concrete terms to support the 'growth of the consumer credit industry'?</p>	<p>This comment is welcome, and it has been duly integrated in the project design. There are several ways in which the issue will be addressed:</p> <p>(1) The project will partner with FCMB (see letter of co-financing in Annex J of the ProDoc) that has one of the most extensive networks of micro-finance outlets in Nigeria. Its customers are predominantly involved in agriculture, and micro-financing is used to increase agricultural productivity, and, in turn, increase the creditworthiness of rural communities that practice mainly agriculture for income generation. The project will work with FCMB to target its existing base-of-pyramid (BOP) rural clients on the adoption of off-grid RETs. In this case, the purchase of off-grid RETs would be through a secondary loan secured through income on enhanced agricultural productivity and agricultural activities;</p> <p>(2) Under Output 1.1, the project will carry out market intelligence of rural communities with the specific objective of: (i) profiling their payment capacity; (ii) understanding energy demand; and (iii) assessing any impacts that climate change may have on income generating activities. The market intelligence will be used to then inform the formulation of appropriate financial schemes (Output 1.7 and 1 above) and appropriate payment mechanisms (Output 1.6). It is pointed out that the scope of Output 1.6 is not restricted to mobile money payment only.</p>

<p>3. Telecom financial services: what will the project do in concrete terms to facilitate the payments within the PAYG system. If the mobile service providers cannot provide this financial service, how will payments happen in rural settings? During mission, please find the main obstacles regarding scaling up of mobile money and then decide on niche entry points that UNDP can leverage on.</p>	<p>It is pointed out that the vast majority of off-grid solar products sold in Nigeria today is cash-based. This is because (1) most of the products are less than 15W capacity and hence are accessible through cash payments, and (2) lack of mobile money platforms in rural communities. Under Output 1.4, and supported by community capacity building on use and benefits of off-grid RETs (Output 1.5) and supporting consumer credit worthiness as described above, and supporting financial institutions to develop appropriate financing schemes (Output 1.7) based on market intelligence data (Output 1.1), the project will link telcos with energy service providers such as Solar Sisters (see letter of co-financing in Annex J to ProDoc) for scaling up the use of mobile money payments that it has recently piloted, especially for larger sized SHS. This will be facilitated by the recent favourable regulatory development in Nigeria that will allow telcos to collect deposits, carry out payments and remittances, issue debit and pre-paid cards, provide financial advisory services and invest in government and central bank securities. This is discussed at paragraph 10 in the CEO ER.</p>
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Council Member for USA Review Comments	Response
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<p>1. Our experts have significant concerns with this project since many of the essential policies, regulations, and financial services essential to success are not in place ? or at least at the scale and in the locations they are needed. The project acknowledges these challenges and notes that much of its efforts will focus on overcoming these constraints ? but there is no discussion of how these risks will be overcome. What will the project team actually do to get the government to adopt policies it has not adopted to date (despite much scoping and planning)? How will the project team make the necessary financial services available in areas where they currently are not? This needs to be clearly articulated in the project document prior to CEO endorsement.</p>	<p>The issues raised here are similar to several concerns raised by the GEF Council Member for Germany. A description of how these policy, regulatory and financial issues have been duly addressed in the project design are discussed in the previous table.</p> <p>The comment is not specific regarding the policies and regulations in question. As far as these are concerned, there are two main policies and regulations that impact the project. The first concerns the policy on rural energy access. As described at paragraph in the CEO ER, there are now clear public policies guiding off-grid rural energy access using decentralised solar technologies. This is evidenced by the fact that the World Bank has invested USD350million through the REA and REF for off-grid electrification. Please also see letter of cash co-financing to the tune of USD77.9 million provided by the World Bank and REA in support of the project with a view to implementing the Rural Electrification Strategy and Implementation Plan. Second, an inadequate regulatory framework for promoting mobile money transactions had been identified as a significant barrier to a sustainable market development of off-grid clean energy market. As discussed in the previous table, a new regulation now allows telcos to collect deposits, carry out payments and remittances, issue debit and pre-paid cards, provide financial advisory services and invest in government and central bank securities. Consequently, the project will capitalise on this change to promote market development of off-grid RETs using GEF funding.</p> <p>The approach to making financing available in BOP rural market segments is articulated in our response to Review Comment 2 from the GEF Council Member for Germany (previous table).</p> <p>It is also mentioned that UNDP's DREI methodology has been applied during the PPG stage to substantiate the measures proposed by the project to overcome barriers. The quantitative analysis of risks affecting private sector investments in off-grid RETs is summarised in Annex SA3 accompanying the ProDoc.</p>
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<p>2. While there are no serious environmental concerns associated with the project, there are two critical economic concerns that pose barriers to project success and that the project team should take into account:</p> <p>a. The poverty rate in rural Nigerian communities is high. Poor people tend to be extremely risk averse when offered new technologies at a cost because the penalty for making a bad investment is high. The proposed public awareness and demonstration sites could help overcome this.</p> <p>b. The lack of Mobile Money Networks could seriously limit the effectiveness of a planned pay-go (PAYG) system of financing the new standalone electricity/lighting systems.</p>	<p>Before discussing the economic concerns, it is worth mentioning here that UNDP's SESP (Annex E in the ProDoc) has identified the project as high risk based in environmental concerns related to e-waste associated with off-grid RETs after their useful life. This concern has been duly addressed through Activity 1.1.5 that will develop an Environmental and Social Management Plan (ESMP) in Year 1 of the project. Further, one eligibility criterion for private companies / entrepreneurs to participate in the REF Call for Submissions that will allow them to access working capital grants under the Working Capital Finance Facility to be established under REF will be a product take-back clause at the end of product lives.</p> <p>The economic concerns are duly acknowledged and the suggestions have been integrated in the project design in several ways:</p> <ol style="list-style-type: none"> 1. The affordability of SL and SHS will be increased through provision of 40% capital grants under the WCFF that the project will establish (Output 2.1). This level of on-granting is a financial risk transfer mechanism away from rural households; 2. The project will also link BOP rural households to micro-financing institutions, such as FCMB as explained in the previous table (Comment 2 from GEF Council Member for Germany); 3. Public awareness to be carried out under Output 1.5 will help increase social acceptability of off-grid RETs; 4. The cost-effectiveness of off-grid RETs based on household capacity to pay through avoided energy costs in the baseline (e.g. using kerosene lamps or stand alone diesel generators) has been demonstrated in Section V of the ProDoc and also in Annex SA5 accompanying the ProDoc. The energy use patterns and energy bill of households were collected during community visits and are captured in Annex SA1 accompanying the ProDoc. The financial analyses show that households will accrue significant net savings on energy bills through the adoption of off-grid RETs while spending no more than they would spend on existing baseline energy sources over a payback period of between 3.5 and 6 months. The results of financial analyses are summarised in Table 6 in the CEO ER; 5. Activity 1.4.1 will link energy service providers with telcos to promote mobile money payment (among other options) by capitalizing on recent regulatory reform allowing telcos to collect deposits, carry out payments and remittances, issue debit and pre-paid cards, provide financial advisory services and invest in government and central bank securities.
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<p>3. We appreciate the project team's response regarding the GEF's value added, which was too often described vaguely in the PIF, making it difficult for our experts to identify what will actually be done on the ground with the GEF funds. We hope that such vague presentations of project activities are not repeated in the future, since it sets us back in our ability to adequately review GEF projects.</p>	<p>No action needed.</p>
<p>4. The PIF identifies an impressive set of programs, organizations, and stakeholders that do related work in rural Nigeria and emphasizes which ones it will work closely with. Additionally, the last half of page 18 discusses how the project will work with civil society, NGOs, gender equality, and women's empowerment. What exactly will this work entail? The explanation is quite vague and leads the reader to think that perhaps such aspects have not been thoroughly thought out.</p>	<p>This comment has been perused and duly integrated in the project design. During the PPG Stage, detailed Gender and Stakeholder Analyses were carried out culminating in the Stakeholder Engagement Plan and Gender Action Plan described in Sections A.3. and A.4. in the CEO ER. Further, Table 5 in Section IV in the ProDoc gives a detailed account of the clear roles and responsibilities are all key project stakeholders during project implementation. It is pointed out that the Gender Action Plan given in Table 4 in the CEO ER is directly linked with the project outputs and activities, and that the Project Results Framework (Annex A in the CEO ER) provides gender-differentiated indicators for M&E purposes. The Stakeholder Engagement Plan and Gender Action Plan provide concrete examples of how project stakeholders and gender-issues have been integrated in the project design.</p> <p>Further, it is pointed out that the project has been designed through a participatory and inclusive approach and that the summary of all stakeholder consultations including discussion with NGOs and field visits to local communities, is given in Annex SA1 accompanying the ProDoc.</p>
<p>5. The project envisions facilitating the creation of a working market for renewable light and energy products. By definition, such a market would have a critical mass of willing buyers and sellers and so would likely be self-sustaining. The proposal needs to be much more convincing, however, that it can help create this working market.</p>	<p>The sustainability of the project to create a working market was a critical issue that GEFSec raised at PIF review, and the changes brought to the PIF based on suggestions from GEFSec were deemed adequate to clear the PIF and not requiring any further action at CEO ER stage. Nevertheless, it is useful here to mention that the sustainability and scaling-up potential of the project, which capture improvements following GEFSec recommendations, are discussed at paragraphs 9 and 10 in the CEO ER.</p>

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS.

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: 100,000			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Technical assistance (design technical elements as well as all the required financial and administrative components of the project)	83,600	71,570	12,030
Conducting missions to the project sites	5,000	3,587	1,413
Stakeholder consultation and validation workshop	11,400	10,455	945
Total	100,000	85,612	14,388

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)

n/a

ANNEX E: GEF 7 Core Indicator Worksheet

Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Core Indicator 6	Greenhouse gas emission mitigated				<i>(Metric tons of CO₂e)</i>
		Expected metric tons of CO ₂ e (6.1+6.2)			
		PIF stage	Endorsement	MTR	TE

	Expected CO2e (direct)	92,832	108,250		
	Expected CO2e (indirect)	4,533,480	5,644,400		
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector				
			Expected metric tons of CO2e		
			PIF stage	Endorsement	MTR TE
	Expected CO2e (direct)				
	Expected CO2e (indirect)				
	Anticipated start year of accounting				
	Duration of accounting				
Indicator 6.2	Emissions avoided Outside AFOLU				
			Expected metric tons of CO2e		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE
	Expected CO2e (direct)	92,832	108,250		
	Expected CO2e (indirect)	4,533,480	5,644,400		
	Anticipated start year of accounting	2019	2019		
	Duration of accounting	10 years	10 years		
Indicator 6.3	Energy saved				
			MJ		
			Expected		Achieved
			PIF stage	Endorsement	MTR TE

Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			1.053	0.348		
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					(Number)
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	n/a	41,515		
		Male	n/a	39,885		
		Total	50,000	81,400		

ANNEX F: Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

Level 1	Level 2	Level 3	Level 4
<input checked="" type="checkbox"/> Influencing models			
	<input checked="" type="checkbox"/> Transform policy and regulatory environments		
	<input checked="" type="checkbox"/> Strengthen institutional capacity and decision-making		
	<input checked="" type="checkbox"/> Convene multi-stakeholder alliances		
	<input type="checkbox"/> Demonstrate innovative approaches		
	<input checked="" type="checkbox"/> Deploy innovative financial instruments		
<input checked="" type="checkbox"/> Stakeholders			
	<input type="checkbox"/> Indigenous Peoples		
	<input checked="" type="checkbox"/> Private Sector		
		<input checked="" type="checkbox"/> Capital providers	
		<input checked="" type="checkbox"/> Financial intermediaries and market facilitators	
		<input type="checkbox"/> Large corporations	
		<input checked="" type="checkbox"/> SMEs	
		<input checked="" type="checkbox"/> Individuals/Entrepreneurs	
		<input type="checkbox"/> Non-Grant Pilot	
		<input type="checkbox"/> Project Reflow	
	<input checked="" type="checkbox"/> Beneficiaries		
	<input checked="" type="checkbox"/> Local Communities		
	<input checked="" type="checkbox"/> Civil Society		
		<input checked="" type="checkbox"/> Community Based Organization	
		<input checked="" type="checkbox"/> Non-Governmental Organization	
		<input checked="" type="checkbox"/> Academia	
		<input type="checkbox"/> Trade Unions and Workers Unions	
	<input checked="" type="checkbox"/> Type of Engagement		
		<input checked="" type="checkbox"/> Information Dissemination	
		<input checked="" type="checkbox"/> Partnership	
		<input checked="" type="checkbox"/> Consultation	
		<input checked="" type="checkbox"/> Participation	
	<input checked="" type="checkbox"/> Communications		
		<input checked="" type="checkbox"/> Awareness Raising	
		<input checked="" type="checkbox"/> Education	
		<input checked="" type="checkbox"/> Public Campaigns	
		<input type="checkbox"/> Behavior Change	
<input checked="" type="checkbox"/> Capacity, Knowledge and Research			
	<input checked="" type="checkbox"/> Enabling Activities		
	<input checked="" type="checkbox"/> Capacity Development		
	<input checked="" type="checkbox"/> Knowledge Generation and Exchange		
	<input type="checkbox"/> Targeted Research		
	<input checked="" type="checkbox"/> Learning		
		<input checked="" type="checkbox"/> Theory of Change	
		<input checked="" type="checkbox"/> Adaptive Management	
		<input type="checkbox"/> Indicators to Measure Change	
	<input checked="" type="checkbox"/> Innovation		
	<input checked="" type="checkbox"/> Knowledge and Learning		
		<input checked="" type="checkbox"/> Knowledge Management	

		<input checked="" type="checkbox"/> Innovation	
		<input checked="" type="checkbox"/> Capacity Development	
		<input checked="" type="checkbox"/> Learning	
	<input checked="" type="checkbox"/> Stakeholder Engagement Plan		
<input checked="" type="checkbox"/> Gender Equality	<input checked="" type="checkbox"/> Gender Mainstreaming		
		<input checked="" type="checkbox"/> Beneficiaries	
		<input checked="" type="checkbox"/> Women groups	
		<input checked="" type="checkbox"/> Sex-disaggregated indicators	
		<input checked="" type="checkbox"/> Gender-sensitive indicators	
	<input checked="" type="checkbox"/> Gender results areas		
		<input type="checkbox"/> Access and control over natural resources	
		<input checked="" type="checkbox"/> Participation and leadership	
		<input checked="" type="checkbox"/> Access to benefits and services	
		<input checked="" type="checkbox"/> Capacity development	
		<input checked="" type="checkbox"/> Awareness raising	
		<input checked="" type="checkbox"/> Knowledge generation	
<input checked="" type="checkbox"/> Focal Areas/Theme			
	<input type="checkbox"/> Integrated Programs		
		<input type="checkbox"/> Commodity Supply Chains (¹ Good Growth Partnership)	
			<input type="checkbox"/> Sustainable Commodities Production
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Financial Screening Tools
			<input type="checkbox"/> High Conservation Value Forests
			<input type="checkbox"/> High Carbon Stocks Forests
			<input type="checkbox"/> Soybean Supply Chain
			<input type="checkbox"/> Oil Palm Supply Chain
			<input type="checkbox"/> Beef Supply Chain
			<input type="checkbox"/> Smallholder Farmers
			<input type="checkbox"/> Adaptive Management
		<input type="checkbox"/> Food Security in Sub-Saharan Africa	
			<input type="checkbox"/> Resilience (climate and shocks)
			<input type="checkbox"/> Sustainable Production Systems
			<input type="checkbox"/> Agroecosystems
			<input type="checkbox"/> Land and Soil Health
			<input type="checkbox"/> Diversified Farming
			<input type="checkbox"/> Integrated Land and Water Management
			<input type="checkbox"/> Smallholder Farming
			<input type="checkbox"/> Small and Medium Enterprises
			<input type="checkbox"/> Crop Genetic Diversity
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Gender Dimensions
			<input type="checkbox"/> Multi-stakeholder Platforms
		<input type="checkbox"/> Food Systems, Land Use and Restoration	
			<input type="checkbox"/> Sustainable Food Systems
			<input type="checkbox"/> Landscape Restoration
			<input type="checkbox"/> Sustainable Commodity Production
			<input type="checkbox"/> Comprehensive Land Use Planning
			<input type="checkbox"/> Integrated Landscapes
			<input type="checkbox"/> Food Value Chains
			<input type="checkbox"/> Deforestation-free Sourcing
			<input type="checkbox"/> Smallholder Farmers

		<input type="checkbox"/> Sustainable Cities	
			<input type="checkbox"/> Integrated urban planning
			<input type="checkbox"/> Urban sustainability framework
			<input type="checkbox"/> Transport and Mobility
			<input type="checkbox"/> Buildings
			<input type="checkbox"/> Municipal waste management
			<input type="checkbox"/> Green space
			<input type="checkbox"/> Urban Biodiversity
			<input type="checkbox"/> Urban Food Systems
			<input type="checkbox"/> Energy efficiency
			<input type="checkbox"/> Municipal Financing
			<input type="checkbox"/> Global Platform for Sustainable Cities
			<input type="checkbox"/> Urban Resilience
	<input type="checkbox"/> Biodiversity		
		<input type="checkbox"/> Protected Areas and Landscapes	
			<input type="checkbox"/> Terrestrial Protected Areas
			<input type="checkbox"/> Coastal and Marine Protected Areas
			<input type="checkbox"/> Productive Landscapes
			<input type="checkbox"/> Productive Seascapes
			<input type="checkbox"/> Community Based Natural Resource Management
		<input type="checkbox"/> Mainstreaming	
			<input type="checkbox"/> Extractive Industries (oil, gas, mining)
			<input type="checkbox"/> Forestry (Including HCVF and REDD+)
			<input type="checkbox"/> Tourism
			<input type="checkbox"/> Agriculture & agrobiodiversity
			<input type="checkbox"/> Fisheries
			<input type="checkbox"/> Infrastructure
			<input type="checkbox"/> Certification (National Standards)
			<input type="checkbox"/> Certification (International Standards)
		<input type="checkbox"/> Species	
			<input type="checkbox"/> Illegal Wildlife Trade
			<input type="checkbox"/> Threatened Species
			<input type="checkbox"/> Wildlife for Sustainable Development
			<input type="checkbox"/> Crop Wild Relatives
			<input type="checkbox"/> Plant Genetic Resources
			<input type="checkbox"/> Animal Genetic Resources
			<input type="checkbox"/> Livestock Wild Relatives
			<input type="checkbox"/> Invasive Alien Species (IAS)
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangroves
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Sea Grasses
			<input type="checkbox"/> Wetlands
			<input type="checkbox"/> Rivers
			<input type="checkbox"/> Lakes
			<input type="checkbox"/> Tropical Rain Forests
			<input type="checkbox"/> Tropical Dry Forests
			<input type="checkbox"/> Temperate Forests
			<input type="checkbox"/> Grasslands
			<input type="checkbox"/> Paramo
			<input type="checkbox"/> Desert
		<input type="checkbox"/> Financial and Accounting	
			<input type="checkbox"/> Payment for Ecosystem Services
			<input type="checkbox"/> Natural Capital Assessment and Accounting

			<input type="checkbox"/> Conservation Trust Funds
			<input type="checkbox"/> Conservation Finance
		<input type="checkbox"/> Supplementary Protocol to the CBD	
			<input type="checkbox"/> Biosafety
			<input type="checkbox"/> Access to Genetic Resources Benefit Sharing
	<input type="checkbox"/> Forests		
		<input type="checkbox"/> Forest and Landscape Restoration	
			<input type="checkbox"/> REDD/REDD+
		<input type="checkbox"/> Forest	
			<input type="checkbox"/> Amazon
			<input type="checkbox"/> Congo
			<input type="checkbox"/> Drylands
	<input type="checkbox"/> Land Degradation		
		<input type="checkbox"/> Sustainable Land Management	
			<input type="checkbox"/> Restoration and Rehabilitation of Degraded Lands
			<input type="checkbox"/> Ecosystem Approach
			<input type="checkbox"/> Integrated and Cross-sectoral approach
			<input type="checkbox"/> Community-Based NRM
			<input type="checkbox"/> Sustainable Livelihoods
			<input type="checkbox"/> Income Generating Activities
			<input type="checkbox"/> Sustainable Agriculture
			<input type="checkbox"/> Sustainable Pasture Management
			<input type="checkbox"/> Sustainable Forest/Woodland Management
			<input type="checkbox"/> Improved Soil and Water Management Techniques
			<input type="checkbox"/> Sustainable Fire Management
			<input type="checkbox"/> Drought Mitigation/Early Warning
		<input type="checkbox"/> Land Degradation Neutrality	
			<input type="checkbox"/> Land Productivity
			<input type="checkbox"/> Land Cover and Land cover change
			<input type="checkbox"/> Carbon stocks above or below ground
		<input type="checkbox"/> Food Security	
	<input type="checkbox"/> International Waters		
		<input type="checkbox"/> Ship	
		<input type="checkbox"/> Coastal	
		<input type="checkbox"/> Freshwater	
			<input type="checkbox"/> Aquifer
			<input type="checkbox"/> River Basin
			<input type="checkbox"/> Lake Basin
		<input type="checkbox"/> Learning	
		<input type="checkbox"/> Fisheries	
		<input type="checkbox"/> Persistent toxic substances	
		<input type="checkbox"/> SIDS : Small Island Dev States	
		<input type="checkbox"/> Targeted Research	
		<input type="checkbox"/> Pollution	
			<input type="checkbox"/> Persistent toxic substances
			<input type="checkbox"/> Plastics
			<input type="checkbox"/> Nutrient pollution from all sectors except wastewater
			<input type="checkbox"/> Nutrient pollution from Wastewater
		<input type="checkbox"/> Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		<input type="checkbox"/> Strategic Action Plan	

		Implementation	
		<input type="checkbox"/> Areas Beyond National Jurisdiction	
		<input type="checkbox"/> Large Marine Ecosystems	
		<input type="checkbox"/> Private Sector	
		<input type="checkbox"/> Aquaculture	
		<input type="checkbox"/> Marine Protected Area	
		<input type="checkbox"/> Biomes	
			<input type="checkbox"/> Mangrove
			<input type="checkbox"/> Coral Reefs
			<input type="checkbox"/> Seagrasses
			<input type="checkbox"/> Polar Ecosystems
			<input type="checkbox"/> Constructed Wetlands
	<input type="checkbox"/> Chemicals and Waste		
		<input type="checkbox"/> Mercury	
		<input type="checkbox"/> Artisanal and Scale Gold Mining	
		<input type="checkbox"/> Coal Fired Power Plants	
		<input type="checkbox"/> Coal Fired Industrial Boilers	
		<input type="checkbox"/> Cement	
		<input type="checkbox"/> Non-Ferrous Metals Production	
		<input type="checkbox"/> Ozone	
		<input type="checkbox"/> Persistent Organic Pollutants	
		<input type="checkbox"/> Unintentional Persistent Organic Pollutants	
		<input type="checkbox"/> Sound Management of chemicals and Waste	
		<input type="checkbox"/> Waste Management	
			<input type="checkbox"/> Hazardous Waste Management
			<input type="checkbox"/> Industrial Waste
			<input type="checkbox"/> e-Waste
		<input type="checkbox"/> Emissions	
		<input type="checkbox"/> Disposal	
		<input type="checkbox"/> New Persistent Organic Pollutants	
		<input type="checkbox"/> Polychlorinated Biphenyls	
		<input type="checkbox"/> Plastics	
		<input type="checkbox"/> Eco-Efficiency	
		<input type="checkbox"/> Pesticides	
		<input type="checkbox"/> DDT - Vector Management	
		<input type="checkbox"/> DDT - Other	
		<input type="checkbox"/> Industrial Emissions	
		<input type="checkbox"/> Open Burning	
		<input type="checkbox"/> Best Available Technology / Best Environmental Practices	
		<input type="checkbox"/> Green Chemistry	
	<input checked="" type="checkbox"/> Climate Change		
		<input type="checkbox"/> Climate Change Adaptation	
			<input type="checkbox"/> Climate Finance
			<input type="checkbox"/> Least Developed Countries
			<input type="checkbox"/> Small Island Developing States
			<input type="checkbox"/> Disaster Risk Management
			<input type="checkbox"/> Sea-level rise
			<input type="checkbox"/> Climate Resilience
			<input type="checkbox"/> Climate information
			<input type="checkbox"/> Ecosystem-based Adaptation
			<input type="checkbox"/> Adaptation Tech Transfer
			<input type="checkbox"/> National Adaptation Programme of Action
			<input type="checkbox"/> National Adaptation Plan
			<input type="checkbox"/> Mainstreaming Adaptation
			<input type="checkbox"/> Private Sector
			<input type="checkbox"/> Innovation
			<input type="checkbox"/> Complementarity
			<input type="checkbox"/> Community-based Adaptation

			<input type="checkbox"/> Livelihoods
		<input checked="" type="checkbox"/> Climate Change Mitigation	
			<input type="checkbox"/> Agriculture, Forestry, and other Land Use
			<input type="checkbox"/> Energy Efficiency
			<input type="checkbox"/> Sustainable Urban Systems and Transport
			<input checked="" type="checkbox"/> Technology Transfer
			<input checked="" type="checkbox"/> Renewable Energy
			<input checked="" type="checkbox"/> Financing
			<input checked="" type="checkbox"/> Enabling Activities
		<input type="checkbox"/> Technology Transfer	
			<input type="checkbox"/> Poznan Strategic Programme on Technology Transfer
			<input type="checkbox"/> Climate Technology Centre & Network (CTCN)
			<input type="checkbox"/> Endogenous technology
			<input checked="" type="checkbox"/> Technology Needs Assessment
			<input type="checkbox"/> Adaptation Tech Transfer
		<input checked="" type="checkbox"/> United Nations Framework on Climate Change	
			<input checked="" type="checkbox"/> Nationally Determined Contribution
			<input checked="" type="checkbox"/> Paris Agreement
			<input checked="" type="checkbox"/> Sustainable Development Goals
		<input checked="" type="checkbox"/> Climate Finance (Rio Markers)	
			<input checked="" type="checkbox"/> Climate Change Mitigation 1
			<input type="checkbox"/> Climate Change Mitigation 2
			<input type="checkbox"/> Climate Change Adaptation 1
			<input type="checkbox"/> Climate Change Adaptation 2

ANNEX G: Project Budget Table

Please attach a project budget table.