



GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title: Hybridization of Diesel Engines of Multifunctional Platforms with Solar Systems			
Country(ies):	Togo	GEF Project ID ¹	9393
GEF Agency(ies):	BOAD	GEF Agency ID	
Other Executing Partner(s):	-the Ministry of Environment and Forest Resources (MERF); -Ministry of Grassroots Development of Craft, Youth and Youth Employment (MDBAJEJ) -Grassroots Development Support Programme (PRADEB) -Ministry of mines and energy (MME) -Togo Electricity Company(CEET) -Ministry for Development Planning -Ministry of Social Action, Advancement of Women and literacy -ASCENT (Africa Sustainability Centre)	Submission Date:	2017-08-28
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/>	Corporate Program: SGP	<input type="checkbox"/>
Name of Parent Program	[Grassroots Development Support Program (PRADEB) funded by BOAD]	Agency Fee (\$)	224,352

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES²

Focal Area Objectives/Programs	Focal Area Outcomes	Trust Fund	(in \$)	
			GEF Project Financing	Co-financing
(select) CCM-1 Program 2 (select)	Outcome 1 : The country has a revised national energy policy, rules, regulations and standards supportive of renewable energy with a focus on solar energy technologies (electrification, solar heating, and solar irrigation)	GEFTF	189,475	162,275
(select) CCM-1 Program 2 (select)	Outcome 2.1: Country has training standards and has trained technical staff with understanding of RE and capable of designing and maintaining hybrid diesel/PV installations Output 2.2: Well informed and aware political and social players have embraced expanded use of RE in rural electrification in Togo Outcome 2.3: Local companies have skills needed to prepare business plans and are able to deliver high quality products and services	GEFTF	110,525	1,415,160
(select) CCM-1 Program 1 (select)	Outcome 3.1. Financial mechanisms suitable for sustainable solar electrification are devised and implemented	GEFTF	184,210	2,047,935
(select) CCM-1 Program 1 (select)	Outcome 4.1: Hybrid solar energy capacity installed and the added value is monitored and demonstrated Outcome 4.2: Local interest groups are actively involved and engaged through support and group activities	GEFTF	2,030,315	8,096,535
(select) CCM-1 Program 2 (select)	Outcome 5-1: Project continually monitored, evaluated, corrective actions taken and experience documented Outcome 5.2 : Effectiveness of outputs evaluated and lessons learned disseminated in support of replication	GEFTF	109,475	5,046,095
Total project costs			2,624,000	16,768,000

¹ Project ID number remains the same as the assigned PIF number.

²When completing Table A, refer to the excerpts on [GEF 6 Results Frameworks for GETF, LDCF and SCCF](#) and

[CBIT programming directions.](#)

B. PROJECT DESCRIPTIONSUMMARY

Project Objective: To increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo						
Project Components/ Programs	Financing Type ³	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Confirmed Co-financing
1. Strengthening of regulatory, policy and institutional framework for Renewable Energy adoption and rural electrification	TA	Outcome 1-1: The country has a revised national energy policy, rules, regulations and standards supportive of renewable energy with a focus on solar energy technologies (electrification, solar heating, and solar irrigation)	Output 1-1: Formulated and adopted policies, rules, regulations and standards supportive of RE and energy efficiency systems with focus on solar energy in rural electrification. Output 1-2: The newly created AT2ER operationalized Output 1.3 : Contribute to the development of the National Appropriate Mitigation Actions (NAMA) in renewable energy including its funding scheme	GEFTF	180,000	150,000
2. Knowledge and capacity development supporting public and private sector to provide better quality of service to the rural areas	TA	Outcome 2.1 : Trained field technical staff with understanding of RE and capable of designing and maintaining hybrid diesel/PV installations Outcome 2.2: Well informed and aware political and social players are bought in	Output 2.1.1: Developed curriculum for training in planning and evaluation of RE as well as designing, implementation and maintaining hybrid diesel/PV to targeted to national, private and local partners and technical staff; 50% of those trained must be women and youth Output 2.1.2 : One national planning workshop and five sub-national technical training workshops (1 in each of the 5 project regions) for the design, installation and maintenance of hybrid systems; Output 2.1.3: Train local youth on the operation and \ass as well as off-grid electrification Output 2.2.1: Dissemination of material, TV and radio programmes organized to inform and	GEFTF	105,000	1,408,000

³ Financing type can be either investment or technical assistance.

		<p>expanded use of RE in rural electrification in Togo</p> <p>Outcome 2.3: Local companies have skills needed to prepare business plans and are able to deliver higher quality products and services</p>	<p>sensitize populations of the environmental health and social benefits of RE. Develop and disseminate toolkit on PTFM and PTFM hybridisation.</p> <p>Output 2.2.2 : Widespread outreach through local events consultations and meetings organized by villages used as a platform to sensitize rural communities on the benefits of solar energy; possibly 1 tailored event in each of the 5 regions</p> <p>Output 2.3.1: Strategy for the private sector for business plans development and accessing loans to expand their operations developed and adopted</p>			
3. Availability of, and access to financing of Renewable Energy and Energy Efficiency Projects	TA	Outcome 3.1. Financial mechanisms suitable for sustainable solar electrification are implemented	<p>Output 3.1.1: Review of the pricing, billing, and operational management system of electricity in rural areas</p> <p>Output 3.1.2: Completed design and development of sustainable financing schemes for solar electrification including establishment of a system of customs tax exemption and systems of subsidies to encourage private actors</p> <p>Output 3.1.3: Operational financing scheme for sustainability of RE integration in rural electrification projects (using the example of solar energy) established and tested using public - private partnership</p>	GEFTF	175,000	2,036,000
4. Deployment of hybrid solar energy Technologies and Applications	Inv	Outcome 4.1: Hybrid solar energy capacity installed and added value is demonstrated	<p>Output 4.1.1: Designs and implementation plans for the demonstration of the commercial applications of solar technologies are validated by stakeholders</p> <p>Output 4.1.2: Diesel/solar hybrid PV demonstration systems of 20 kWp PV in 50 villages and 50 kits of</p>	GEFTF	1,928,800	7,965,000

		<p>Outcome 4.2: Local interest groups are engaged through support and group activities</p>	<p>solar pumps for irrigation and drinking water supply installed and functional</p> <p>Output 4.1.3: Operational teams and pilot communities sensitised and trained on the use hybrid systems</p> <p>Output 4.2.1 : Selected agri-food/ artisanal products marketing channels identified in PRADEB study are engaged in the use of electricity to promote expansion of their marketing and generate additional resources</p> <p>Output 4.2.2: Increased number of local youth trained in output 2-1-3 are employed in rural electrification projects and or expanded agri-food networks</p>			
5. Monitoring and evaluation; information dissemination and replication	TA	<p>Outcome 5-1: Project continually monitored, evaluated, corrective actions taken and experience documented</p> <p>Outcome 5.2 : Effectiveness of outputs evaluated and lessons learned disseminated in support of replication</p>	<p>Output 5.1.1 : Operationalization of a system for monitoring and evaluating the results (Web-based info clearing house for PTFM/ Mini grid stakeholders) of this project integrating the assessment of the environmental, socio-economic benefits</p> <p>Output 5.1.2 : Independent evaluation of the project by a firm of external expertise</p> <p>Output 5.2.1: Evaluation of lessons learned and recommendations in terms of the impact of hybrid diesel/solar energy technologies on rural livelihoods as input to support implementation of other similar projects</p> <p>Output 5.2.1: Evaluation of lessons learned and recommendations in terms of the impact of hybrid diesel/solar energy technologies on rural</p>	GEFTF	104,000	5,039,000

			livelihoods as input to support implementation of other similar projects Output 5.2.2: Experiences from this project shared with all national entities and also with at least three other countries in the region Output 5.2.3 : Preparation of project to ensure the implementation of lessons learned and recommendations			
Subtotal					2,492,800	16,598,000
Project Management Cost (PMC) ⁴				GEFTF	131,200	170,000
Total project costs					2,624,000	16,768,000

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Recipient Government	Government of Togo through Grassroots Development Support Program (PRADEB)	Grants	944,000
GEF Agency	BOAD	Loans	12,000,000
Beneficiaries	Grassroots Development Support Program (PRADEB)	In-kind	3,824,000
Total Co-financing			16,768,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee ^{a)} (b) ²	Total (c)=a+b
BOAD	GEF TF	Togo	Climate Change	(select as applicable)	2,624,000	224,352	2,848,352
Total Grant Resources					2,624,000	224,352	2,848,352

a) Refer to the Fee Policy for GEF Partner Agencies

⁴ For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁵

The expected project targets are provided below as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>hectares</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>hectares</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	<i>Number of freshwater basins</i>
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	<i>Percent of fisheries, by volume</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (include both direct and indirect)	<i>Lifetime Direct GHG emission savings</i> <ul style="list-style-type: none"> • <i>112,706 tCO_{2e} from the 50 PTFMs in this project (pilot) phase.</i> <i>Then from the 1,783PTFMs:</i> <ul style="list-style-type: none"> • <i>3,906,393 tCO_{2e} Indirect Bottom-up Emission Savings</i> • <i>1,607,640 tCO_{2e} Indirect Top-down Emission Savings (tCO₂)</i> <i>when the regulatory, institutional and financial framework is strengthened through the project</i> <i>The breakdown is given table 4 on page 26 below. metric tons</i>
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	<i>Number of Countries: 1</i>
	Functional environmental information systems are established to support decision-making in at least 10 countries	<i>Number of Countries: 1</i>

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

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

⁵ Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

⁶ For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter “NA” after the respective question.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF⁶

A.1. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers scenario, GEF focal area⁷ strategies, with a brief description of expected outcomes and components of the project, 4) [incremental/additional cost reasoning](#) and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and [co-financing](#); 5) [global environmental benefits](#) (GEFTF) and/or [adaptation benefits](#) (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

All information is captured in the PIF with little additional information as follows: there is increasing lack of access to water in Togo. The challenge is greater in rural Togo where water supply infrastructure is mostly non-existent. This is exacerbated by decreased precipitation (hence surface water deficit) as well increased human settlement (population density) and water-reliant economic activities; hence increasing demand for water. To address lack of water access will require that non- traditional methods of availing drinking water to be brought to the mainstream.

Pumping water is already happening in many places. Diesel pumps are used and are costly. The cost is barrier to adopting irrigation large scale. The limited number of boreholes is another barrier and most of the existing boreholes are only equipped with manual pumps that only draw a negligible fraction of the potential due to diesel pump affordability challenges. To address this, the country can introduce, facilitate, promote and scale up the use of solar pumping for domestic and irrigation uses while reducing greenhouse emissions.

In cases where flash floods and other surface water has been harvested, and irrigation is possible, then this project can facilitate irrigation. This will be enabled by solar water pumping as a means to reduce the food insecurity which is rising with WFP estimating the acute malnutrition rate countrywide at 4.9 percent⁵.

2) The baseline scenario or associated baseline projects

I) Background: The Energy Sector

The major players in the electricity sub-sector are:

- the State through the Ministry of Mines and Energy of which the technical service is the Directorate General of Energy (DGE);
- the Electricity Sector Regulatory Authority (ARSE);
- Compagnie Energie Electrique du Togo (CEET) has signed a performance contract February 3, 2009 with the state for a period of five years from 2009 to 2013. This contract expired in December 2013; a new contract has been signed for the period 2016-2020.
- the Electric Community of Benin (CEB) governed by the International Agreement with Benin-Togo Electricity Code Revised December 23, 2003
- the company Contour Global Togo SA, an independent producer who has a concession for the rehabilitation, expansion and operation of the thermal power plant in Lomé (CTL), signed on 19 October 2006 with the Togolese Republic for a period of twenty-five (25) years.

The national energy policy envisages, by 2030, the entire population having access to clean energy quality, competitive

⁵WFP: <http://www1.wfp.org/countries/togo> Around 30% of children are stunted. A survey in 2010 found that 29.7% of children under 5 years old are chronically malnourished, with peaks of 43 % in the Savannah region, the poorest and most deprived region in Togo.

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preserving the environment by making every effort to develop an efficient and sustainable energy supply system based on public and private initiatives, individual and collective ability to promote economic and social development of Togo.

Analysis of the sector's vulnerability and mitigation scenarios

The results of the pessimistic scenario (RCP 8.5), the simulations with the SimCLIM2013 the 2025 and 2100 horizons show a temperature rise of 0.63 to 4.5°C. Rainfall in turn, will experience an increase of 3.26 to 39.2 mm rain horizons 2025 and 2100 (Third National Communication on Climate Change, 2015).

The energy sub-sectors that are most vulnerable are biomass, hydro and hydrocarbons. The different scenarios considered include the current growth rates of different regions of the country and an estimate of the annual water consumption of 22.5 m³ / person and population growth. Under this assumption, for the extreme scenario, all of Togo underground resources will be exhausted before 2097. For households in rural areas that remain largely poor, contiguous outlying areas to urban centres where the bulk of the urban poor and climate refugees would be found, the availability of biomass energy which is their main source of energy, would be seriously undermined in the coming decades.

Considering gender, women are more exposed because they are the ones who are usually responsible for collecting firewood and charcoal and wood constitutes for them a substantial additional income. Marketing activities to areas requiring electrical power source such as freezing and marketing chains of food remain very exposed to their limited means. Moreover, the entire restaurant chain will also be exposed following woody biomass shortage as the main source of energy for cooking, air conditioning, economic activities and refrigeration / freezing, etc.

The mitigation scenarios developed (TCN LEAP model, 2015) in the energy sector show that for the residential sub-sector, the total energy demand of the urban sector will evolve from 28.5 Million GJ in 2005 to 104.6 million GJ in 2030 with a strong contribution of biomass. Total energy demand of urban households will increase by 219% in 25 years (2005 to 2030). In effect, the total energy demand in rural areas will evolve from 11.2 million GJ in 2005 to 21.9 million GJ in 2030 with a strong contribution from biomass too. The total energy demand of rural households will increase by 95.5% in 25 years (2005 to 2030).

More specifically for the photovoltaic electrification scenario: a program that will focus on the 25% PV electrification in all non-electrified households by 2020 and 40% by 2030. The implementation of this scenario will reduce emissions GHG 79.2 Gg CO₂e in 2020 and 145.2 Gg CO₂e in 2030.

In sum, future climate change scenarios show an increase in temperatures could be due to the sunshine. Which would induce an increased efficiency of photovoltaic installations facto constituting a positive impact on the potential for solar energy. By 2050, a significant increase in the level of temperature could reduce the performance of solar equipment by emergence of phenomena such as increasing the resistivity of the conductors, peeling weld plates.

Breakdown of households by main sources of energy used for cooking given in Table 1

Table 1: Source: Energy sources and access analysis. QUIBB Survey (2011)

Residence	Firewood	Charcoal	vegetable waste	Oil	LPG	Electricity	Solar energy	Other	Total
Total	53.0	40.6	0.5	0.6	4.4	0.2	0.0	0.7	100.0
Urban	12.3	75.4	0.5	1.0	9.4	0.4	0.0	1.0	100.0
Rural	84.4	13.8	0.5	0.3	0.5	0.0	0.1	0.4	100.0

Analysis of the energy needs of the Togolese population, low access to electricity especially in rural areas

Togo imports over 70% of its electricity from neighbouring countries Ghana, Cote d'Ivoire and Nigeria. To make up the deficit, despite fluctuating market prices, the country produces some of its electricity from diesel generators which makes it oil dependent.

The total electricity supplied in 2012 in Togo amounted to 1,042 GWh with 886 GWh delivered to the CEET by the Benin Electricity Community (CEB). Own production of CEET based thermal power plants in 2012 amounted to 14.3 GWh, or 1.3% of demand. Until 2014, access to electricity in Togo remains low with 30% of urban households and 13% of rural households with access to electricity (DPI / CEET, 2015). The last census of population and housing (RGPH 4th, 2010), 60% of the rural population lives, making much of the population does not have access to energy. This shows a disproportionate distribution of resources of the State Vis -Vis the rural areas in access to electricity.

However, the total energy demand in rural areas will grow from 11.2 million GJ in 2005 to 21.9 million GJ in 2030 with a strong contribution from biomass, an increase of 95.5% in 25 years (from 2005 to 2030) (TCN Togo, 2015). The increase in electrical energy requirements will result in increased bill of the state in the supply of petroleum products.

Currently, the production cost per kWh is between 70 and 76 FCFA, which already represents a fairly high cost of production in the West African sub-region. In this context it is important to take actions contributing to the promotion of the use of clean energy sources in order to reduce GHG emissions in the energy sector, but also to meet the requirements by reducing pressure on wood energy resources. The project on hybridization of PTFM with solar systems will help to avoid worsening the situation of GHG emissions in Togo and in particular in the energy sector.

II) Renewable Energies in Togo

The renewable energy sub-sector is still embryonic in Togo. Therefore, there is very little policy that applies directly to renewable energy in the current policies of the country. However, its potential remains considerable. It is estimated the average solar energy received on the ground is above 4 kWh / m² / day with insolation exceeding 700 Wp / m², especially in the dry season when the sky is clear and the humidity of the air is low (SIE Report -Togo, 2007).

This delay in adoption is due to weak technical capacities of actors in renewable energy, no institution promoting renewable energy, lack of access to finance and lack of a tax policy conducive to development clean energy. For example besides the solar panels that are exempt from customs duties, other components of the solar system including batteries, converters, regulators, freezers, water heaters and solar pumps are not zero-rated; or represent a significant cost thus making it inaccessible to solar populations. The decree creating the rural electrification agency and renewable energy was adopted May 11, 2016 but the agency is not yet operational.

Several pilot projects have been executed for the production of electricity from renewable energy and can provide good examples: a 4 MW biomass plant, a central base of municipal waste 20 MW, two photovoltaic plants with a capacity of 5 MWp each in the North Togo and South and a wind power plant with a capacity of 25.2 MW.

The Togo intends to achieve an ambitious target of 20% renewable energy by 2020 to improve energy services for the majority of people, especially the poorest. The Conference of Heads of State and Government of the Economic Community of West African States (ECOWAS) have planned to increase the share of renewable energies in the sub-region to 35% 2020 and 48% 2030.

III) Weather patterns and greenhouse emissions in the energy sector

Togo is characterized by a tropical Sudanese regime in the north to unimodal regime with an average of 850-1400 mm rain/year and the Guinean regime tropical south, bimodal 1,000 to 1,600 mm of rain / year. The average temperature is 28°C in the northern areas, 27°C in the coastal zone and varies between 24 and 26°C in other areas. The average relative humidity is also high in southern areas (73-90%), but low in the northern regions (53-67%). The average wind speed is 1.93 m / s and

the average duration of exposure was 6 hours 37 minutes per day. The average evapotranspiration is 1,540 mm/year.

The climate observations over the period 1961-2012 reveal unequivocally increased temperatures (+ 1°C) against a decrease in rainfall and number of rainy days. The aridity index is also down, confirming the trend of increasing aridity. Daily temperatures for February, March and April, more frequently exceed 35 °C, resulting in the increase of extreme heat during this period. It also appears from the analysis of climate data that major climate risks occurred during the period 1961 to 2012 are summarized in a succession of droughts and floods. This paradox creates great confusion and distress in rural communities.

The period from 1986 to 2012 was particularly marked by a warming that is felt differently in the north from the south. However, since 2005, an extreme event of rainfall, though irregular has been found in some weather stations. This recovery is due to an increase in rainfall intensity and rainfall frequency which would explain the recurrent floods in recent years in the country.

The latest climate scenarios provide in the case of the pessimistic scenario (RCP 8.5), an overall increase in average annual temperatures compared to current levels. The temperature increases from 0.60 to 0.71 °C in 2025 and from 3.6 to 4.5 °C in 2100 depending on the latitude. Annual rainfall would experience the same horizons, an increase anywhere in the territory of 4 and 8 mm respectively in 2025 and 18 to 39 mm of rain compared to their current level (Third National Communication Togo, 2015).

Several sectors will be impacted by these disturbances and regions of Togo, already face significant poverty, show little capacity to respond to these disturbances. These regions will be more prone to worsening food and nutrition insecurity and an increase in poverty. The wood energy supply, agricultural products, meat and fish in urban centres become difficult and could lead to social tensions, the decrease in producers' incomes, land degradation, loss of biodiversity, and the disappearance of zones wet.

These impacts are already visible but considered related emissions of greenhouse gases (GHG) worldwide, increased by 40 Gt CO₂-e in 2000 to 49 Gt CO₂e in 2010 (IPCC, 2014) (Annex 1). Nationally, the trend in aggregate emissions of direct GHG (CO₂, CH₄, and N₂O) for the period 1995 - 2010, shows an increase of 10,361.71 Gg CO₂e to 20,758.12 Gg CO₂e, a rate of increase of 100.33%. Furthermore, CO₂ emissions remain the most important and go from 6,281 to 14,500 Gg CO₂e, a growth rate of 130.85%.

The national GHG inventory shows that the energy sector was 9.38% and 15% of emissions in 2005 respectively 2010. In this context, it is important to take actions contributing to the promotion of use of clean energy sources in order to reduce GHG emissions in the energy sector, but also to meet the requirements by reducing the pressure on wood energy resources.

IV) Review of past experiences and lessons learned

Appraisal of the experience

- The National Development Programme of the multifunctional platform (PN-PTFM)

The Multifunctional Platform (PTFM) are energy service centres comprised of a diesel-run engine as a prime mover for multiple equipment sets for productive use. These productive elements include flour milling, de-husking machines, battery charging units, among others; and in some cases alternators. Where alternators exist, the engines supply electricity to mini or micro-grids or a series of public lighting especially street lights.

Access to affordable and reliable energy services can improve living conditions of rural populations. The multifunctional platform is an appropriate response to also reduce energy and monetary poverty in rural areas through the development of modern tools for processing agricultural products, development of income generating activities to improve the social, health

and education, preservation of the environment and saves time.

The Togo has set in 2011 a National Programme for Development of Multifunctional Platform (PN-PTFM) after the enthusiasm generated by the pilot project funded by the United Nations Development Programme (UNDP).

The multifunctional platforms are located in small towns of between 500 and 2,000 people. The PN-PTFM planned installation of 1,783 PTFM over the period (2012-2018) with 75% of them being 15 kVA power and 25% as 20 kVA. It was a commitment of the Togolese government. In 2017 only one hundred PTFM was installed is an implementation rate of 10%.

The mid-term evaluation of the PN-PTFM conducted in 2015 revealed that the platforms of the services are used by 89.6% of the beneficiaries of which 82% are satisfied with their quality. This rate is satisfactory midterm and demonstrates the relevance of the program. In addition, the program is a source of many beneficial effects for the beneficiary communities: in agricultural production, the area has increased from 0.25 to 6 hectares, livestock from January to June heads of animals, from 3 to 45 kg soybean processing, 3 to 75 Kg sorghum transformation, and from 75 to 250 litres of red oil (3 to 10 cans of 25 litres) transformation palm nuts. In total 263 income-generating activities were initiated and 28 new companies have been created. Moreover since starting the program, PTFMs have created 490 direct jobs in the beneficiary communities and allowed 35.1% of households to increase their income from 500 CFA to 300 000 CFA. The PTFM have had direct effects on food, education, health and access to energy. Thus 78.9% of the households surveyed feel they have improved their diet, 53.3% of group members improved their access to health services and 53% of group's estimate that the education of their children has improved.

The evaluation also highlighted the technical difficulties associated with the use of diesel engines. This is the difficulty of women to start engines, lack of nearby mechanics artisans, not near the fuel outlets and spare parts, some of which are unavailable on the market, the economic unsustainability platforms companies due to the excessive consumption of fuel and repair faults.

- **Grassroots Development Support Programme (PRADEB)**

Grassroots Development Support Programme (PRADEB) is the Togolese State Program undertaken with the financial support of the West African Development Bank (BOAD). It was initiated in 2012 following the results of the QUIBB survey conducted in 2011. The survey had shown that 61.7% of the Togolese population lived below the poverty line or 2 Togo 3 with an estimated incidence of 73, 4% in rural areas and where concentrate almost 80% of the poor of the country. The segment of the population most affected were women and rural youth who typically faced constraints such as unemployment, underemployment, low technical and entrepreneurial capacity, lack of production assets, difficult access to credit and an energy deficit.

The overall objective of the program is to contribute to poverty reduction through support to grassroots development and promotion of youth employment. Specifically, these are:

- i) strengthening the institutional foundations and professionalize economic interest groups;
- ii) facilitate rural access to modern energy services and
- iii) reduce youth unemployment.

The program is implemented by a Management Unit (PMU / PRADEB) have financial and administrative autonomy, helped by local relay agencies are NGOs with strong local roots and that implement activities on the including field studies and monitoring of beneficiaries. The PRADEB has nationally of a National Steering Committee (NSC), a Technical Committee (TC) and on the regional level of a consultation framework (CC) and a regional selection committee (CRS). These bodies are composed of representatives of stakeholders in the program (Ministries, technical services, micro-finance, civil society, beneficiaries) to promote inter sectoral and institutional synergy.

This first phase of 5 years of PRADEB, running, benefited in 2013 from funding of 8, 384 billion FCFA tax (approximately \$ 16,768,000 USD) including 6 billion West African CFA Bank of development (BOAD), as a loan to the Togolese State.

The main results expected by the PRADEB are:

- i) supervision and access to credit 500 economic interest groups;
- ii) installation of 200 multifunctional platforms and
- iii) the creation or consolidation of 3 750 micro and small enterprises to benefit graduates and artisans.

The PRADEB recorded after four years of implementation, the following main results: i) supervision of 611 GIE and facilitating the granting of 250 loans to GIE; ii) installation of 170 multifunctional platforms, iii) training 3,500 young people in business creation techniques and 900 in business management and financing of 573 micro-projects for young people.

The total number of platforms installed to date on all the national territory all programs is 270 barely 15% of needs (1783). BOAD is requested for additional funding for the installation of new PTFM.

The multifunctional platforms currently installed, despite their success and significant impact on the well-being of communities entail significant costs for maintenance and purchase of diesel (about 70% of revenue) .The beneficiary communities located in rural areas remote and isolated experience difficulty in sourcing spare parts and diesel in official service stations and depots which are only found in the city and some major rural centres. Moreover the lack of installers and repairers of nearby mechanics in most localities beneficiaries makes it difficult repairs and PTFM are fixed for a relatively long time. Vis-à-vis diesel dependency limits the development of new energy services around the platform because in addition to not being available, it is expensive to beneficiaries (average \$ 0.92 USD / litre) .This situation does not allow the program to achieve the expected level of development in these localities. Added to this is noise pollution (75 dB on average), the emission of greenhouse gases, emission of industrial waste (used oil, filters, spare parts) whose management requires additional costs for beneficiaries and the risk of fire and burns.

Regarding the granting of credit, lack of experience of young neo-individual developers and entrepreneurs, lack of technical support on the value chain, both upstream and downstream of the activity n ' has not achieved all the desired results in terms of profitability and sustainability of their business. Loans to solidarity groups have, meanwhile, experienced a higher rate of reimbursement, but the question of their real impact on improving people's living conditions remains intact, because the means of support were limited in their together. We note that in general illiteracy of the beneficiaries is an obstacle to the achievement of results.

- **Emission of greenhouse gases and fossil energy consumption PTFM**

Togo has set 2018, 1,000 PTFM and eventually cover all target 1,783 communities in rural villages. On the basis of quotas, it gives 75% of PTFM 15 kVA (1,337 units) and 25% to 20 kVA (446 units). The successful operating duration for PTFM is 20 hours per day for 300 days a year. Hourly fuel consumption by 15 kVA PTFM is 3 litres or 60 litres per day and 18,000 litres per year. That of a PTFM 20 kVA is 3.5 litres, or 70 litres per day and 21,000 litres per year. The corresponding annual quantities of CO2 emissions for 1,783 are PTFM 469,385 tonnes of CO2. The total amount of CO2 emitted in 20 years is 9,387,705 tons.

In 20 years of operation, the total consumption of 1,783 PTFM could reach 33.432 million litres of diesel for a total cost of 377,781,600,000 at an average cost of 565 F CFA per litre of diesel.

If no durable solution is introduced to correct the situation, installing PTFM result in

- (i) significant investment of rural populations to cover the cost of fuel needed to operate the PTFM and
- (ii) a substantial contribution to increased greenhouse gases in the energy sector at the national level with implications for the adverse weather patterns in Togo especially to the same beneficiary communities. This pilot project will demonstrate an alternative solution for reducing GHG emissions, fuel consumption and the expensive cost and

promote renewable energy.

- The Support Project Employability and Youth Integration in Sectors Porters (PAIEJ-SP)

Launched April 24, 2016, the PAIEJ-SP aims to contribute to creating conditions for a more inclusive economic growth through enhancing the employability of young people and the promotion of entrepreneurship in growth sectors. It intends to provide a cyclical response to youth insertion needs through support to entrepreneurship particularly in the agricultural value chain (CVA). Specific support to people from vulnerable and isolated villages will be provided to connect the economic dynamics that the project aims to boost rural areas. In addition, the project envisages a structural solution to the underemployment of young people by developing foresight tools and adaptation of the vocational training system to labour market needs. The project covers a period of 5 years (2016 -2020) and aims to create 20,000 direct jobs and 150,000 indirect jobs. The project is funded by the African Development Bank (AfDB) and the Togolese Government. It targets small and medium businesses, young entrepreneurs and young people trained in the training centres supported by the project, the producers / farmers, women from rural areas and vulnerable.

- Togo experiences and initiatives for the promotion of renewable energy and efficiency

To better address the issue of electrification and promotion of renewable energy, the government created in May 2016 the Togolese Agency Rural Electrification and Renewable Energies (AT2ER) which is responsible for the implementation of the State policy in these areas.

In the current situation, the realization of electrification projects is fraught with conditions that do not allow their rapid development in rural areas. Indeed, funding of external resources or internal resources is generally conditioned by the financial profitability of investments; which in current conditions, pose rural problem.

However, the contribution of modern renewable energy in general and electricity in particular in rural areas, is one of the essential conditions:

- development of economic activities notably by improving productivity in the agricultural, craft and processing of agri-food products;
- to the fight against poverty and improving living conditions of rural populations;
- to the emergence of a demand for modern energy expected to develop gradually as and when the level rises in incomes

In the light of the above and in order to contribute to a better consideration of the environmental dimension of energy policy that the following projects have been initiated:

- RURAL ELECTRIFICATION PROJECT AND PRODUCTION OF ELECTRICITY FROM SOLAR

Togo's energy resources including renewable energy have been little or underutilized.

In order to enable people living in rural access to electricity services areas, thus increasing the rate of access to electricity in Togo, the Togolese Government undertook a decentralized rural electrification program by photovoltaic solar system in very remote areas of the existing power grid. To this end, a study was undertaken and has identified 400 locations that could be electrified by this system.

The first phase of this program will electrify sixty-two (62) selected localities of the 400 localities of the program. It involves the construction of 62 solar photovoltaic plants of power between 50 kWp and 300 kWp in the 62 localities and installation of 40 energy-saving lamps in LED type average 50 W in each of the communities to illuminate the streets and public squares.

- PROJECT FOR SUPPLY AND INSTALLATION OF 50,000 SOLAR PHOTOVOLTAIC LAMPS IN TOGO.

As part of the strengthening of the public lighting network in Lomé and in major cities of the interior, the program

initiated by the Togolese government will continue in the next four years to come.

This program to run in the period 2017-2021, involves the supply and installation of 50 000 (fifty thousand) photovoltaic solar street lights in the city of Lomé and its surroundings as well as in major cities of the interior.

To this end, these lamps will be distributed as follows:

- Lomé and its surroundings benefit from five thousand (5,000) units;
- The capitals of regions will have eleven thousand (11,000) units;
- Prefectures capitals benefit of thirty-four thousand (34,000), two thousand (2000) units per prefecture.

The pace of implementation is 12,500 lamps a year.

- SUPPLY AND INSTALLATION OF INDIVIDUAL SOLAR KITS IN COMMUNITY FACILITIES AND HOUSEHOLDS

After the successful experience of the development program and promotion of renewable energy and energy efficiency (PRODERE) conducted as part of the Regional Initiative for Sustainable Energy (IREDE) defined by the Committee on Economic Union and west African monetary (UEMOA), Togo has opted for electrification and pumping drinking water in rural areas by photovoltaic solar systems of twenty-two (22) rural localities. The project helps diversify renewable energy to the energy mix in the national production base and improve the living conditions of the population depths, throughout the national territory.

The project aims at:

- electrification of the following community infrastructure: schools, clinics, churches, wells and public lighting;
- household electrification by photovoltaic kits;
- maintenance training and equipment operation in beneficiary communities

- REHABILITATION OF MINI HYDRO POWER PLANT AT Kpimé

Located 120 km north of Lomé, the micro-hydro Kpimé (1.6MW and 62 MW) was built in 1963 and commissioned in 1965 and supplies the city of Lomé. Since its commissioning, it continues to work but requires rehabilitation to obtain maximum capacity and injected into the national grid to reduce to reduce the high dependence of the country from the outside.

The rehabilitation of this plant is necessary to avoid a risk of failure that can result in loss of production due to outdated structures.

For electrical work, it is the replacement of hydro-mechanical equipment, electromechanical, electrical and all the work of renewal and renovation of equipment and measuring equipment.

- CONSTRUCTION OF SOLAR POWER PLANT 20 MW AT SOKODE

As part of the development and promotion of renewable energy sources including solar, and to increase the national production base, it is envisaged the construction of a solar power plant of 20 MWp in Sokodé at a site that has grid link to evacuate the power and to inject the existing power grid.

- CONSTRUCTION OF SOLAR POWER PLANTS IN TOGO 34 MW

As part of strengthening the national capacity of electric power generation and renewable energy promotion in Togo, the Togolese Government has initiated a project to build and 34 MWp of photovoltaic power plants operating

in five cities in Togo that are : Tsévié- 14 MW, 5 MW-Atakpamé, Sokode-5 MW, Kara 5 MW and 5 MW Dapaong. Private operators will be selected to sign the public service concession Convention for electric power production on the production plant based solar PV that forms part of a promotion of renewable energies in compliance existing texts to.

- ASSESSMENT AND MAPPING OF MICRO HYDRO SITES OF TOGO

All selected sites are subject to feasibility study undertaken by the European Union within the framework of the partnership between the EU and Togo. Their implementation will increase the national generation capacity and less dependent on energy supply from neighbouring countries.

The achievement will inject the energy produced on the network from transmission lines and electrification of villages Tététou, Landa-Pozanda, Danyi-Konda and Banga and the surrounding rural areas from the medium and low lines tension to build.

LESSONS

Execution of these projects, the following lessons can be learned to improve the evaluation and implementation of PTFM hybridization program:

- focus on the participatory approach and the application;
- expand the use of clean energy readily available in the localities;
- facilitate the availability of water to facilitate agricultural production whose products will be processed on the multifunctional platform and for drinking.
- focus on capacity building, monitoring and close supervision of the beneficiaries;
- train local players responsible for the maintenance of equipment;
- encourage private sector participation in making available spare parts locally;
- provide a credit line in the facilitation device access to credit adapted to financing SMEs / SMIs;
- facilitate the development of income-generating activities (IGA) and microenterprises around PTFM favouring a development approach in value chains;
- systematically provide a literacy program for all beneficiaries;
- raise awareness about the benefits of renewable energy;
- strengthen the technical capacity of the players, operators and installers in the field of renewable energy;
- Need for an institution to promote renewable energy.

3) The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project

The project on hybridization of multifunctional platforms with solar PV is aimed at promoting renewable energy and energy efficiency as a climate mitigation strategy.

The overall objective of this project is to facilitate better access to electricity and modern energy services in the villages of Togo while ensuring a reduction in greenhouse gas emissions through the introduction of clean energy.

The specific objectives are:

- i) Strengthening the policy, institutional and financial framework for the promotion and development of renewable energy;
- ii) Strengthening the technical capacity of national stakeholders in the planning and implementation of renewable energy projects;
- iii) reduce emissions of greenhouse gas and
- iv) Induce sustainable economic and local.

The project envisions an alternative scenario with the following expected results:

- The Togolese agency for Rural Electrification and Renewable Energy (AT2ER) is operational;
- 100 national players are trained on planning and implementation of renewable energy;
- 250 members of the Management Committee are trained in maintenance of solar equipment and the pump;
- 50 multifunctional platforms are hybridized with photovoltaic sun;
- 50 kits of solar pumping are provided to beneficiary communities of PTFMs for irrigation or drinking water supply;
- 100 rural micro-enterprises are consolidated in areas of concentration of PTFMs.

Project Intervention Strategy

Project intervention strategy is based on:

- the demand approach which is to intervene in response to a specific request of the beneficiaries;
- the participatory approach is to involve stakeholders in the design and implementation of the planned actions;
- the principle of local ownership which is to focus on contracting with local players with the capacity required for the implementation of the planned actions;
- supporting the development of value chains;
- Taking into account technical and methodological achievements of similar projects at national and sub-regional levels.

GEF field Strategies

The strategies implemented by the GEF in its areas of intervention are based on three objectives broken down into five programs with several components. The content of these objectives and associated programs are as follows (Table 2).

Table 2: The field strategies adopted for this GEF intervention

programs	Activities eligible for support	Expected results
Objective 1: To promote innovation, technology transfer and support policies and strategies		
Program 1: To promote the development, demonstration and timely funding of low-carbon technologies and mitigation	Demonstration and deployment of technologies with processing capacity, including without effect on climate technologies, acceleration of technological innovations with low emissions and practice through demonstrations, deployments and transfers using policies and mechanisms, development of initiatives in collaboration with stakeholders, including the private sector, to adapt technologies to user needs.	Promote the rapid adoption of innovative technologies and management practices to reduce greenhouse gas (GHG) emissions and carbon sequestration, promote the rapid development with low greenhouse gas emissions and mitigation of emissions policy frameworks, planning and regulations, and demonstrate and operationalize financial mechanisms to support GHG reductions.
Program 2: Develop and demonstrate trains innovative measures and market initiatives to encourage a new series of mitigation actions	design trains of innovative measures that address the concerns mitigation of climate change demonstration mechanisms based on performance related to emissions reduction, and support for measures to secure investments in low emission solutions	promote the rapid development of low-emission and GHG emissions mitigation in policy frameworks, planning and regulations and demonstrate and operationalize financial mechanisms to support the GHG reductions
Objective 2: To demonstrate the systemic impacts of mitigation options		

Program 3: Promoting low-emission integrated urban systems	Adoption of urban interventions with significant potential climate change (e.g. Strategies, urban policies and regulations that combine energy efficiency and development of renewable energy) to help cities move to urban development low emission	Promote the rapid development of low-emission and GHG emissions mitigation in policy frameworks, planning and regulations and demonstrate and operationalize financial mechanisms to support the GHG reductions
Program 4: Promote the preservation and enhancement of carbon stocks in forests and other land uses, and support agriculture adapted to climate change	Implementation of management practices focused on mitigating climate change in land use, changes in land use and forestry (LULUCF) and agriculture, adoption of policies and financial mechanisms to preserve and increase carbon stocks or reduce emissions from LULUCF and agriculture and introduction and strengthening of accounting and monitoring, reporting and verification in the LULUCF and agriculture	Accelerate the adoption of innovative technologies and management practices to reduce greenhouse gas (GHG) emissions and carbon sequestration and promote the rapid development of low-emission and GHG emissions mitigation in policy, planning and regulatory frameworks.
Objective 3: Promote conditions conducive to integration of mitigation concerns into sustainable development strategies		
Program 5: Integrate the findings of the obligations of the Conventions and of enabling activities into national planning processes and contributions to mitigation	Preparation of the planned contributions and determined nationally and other guidance of COP in areas such as technology needs assessments (TNAs) and capacity building. Production and implementation of appropriate mitigation actions (NAMAs) will also be considered	Promote the rapid development of low-emission and GHG emissions mitigation in policy frameworks, planning and regulatory

On analysis of GEF financing strategies, it is clear that the activities proposed in this project submitted by Togo comply with the programs 1, 2 and 5 through its two components, namely:

- strengthening the regulatory, institutional and sustainable financing rural electrification;
- Establishment of demonstration projects and sustainable exploitation of solar energy.

Description of the PTFM

The concept of multifunctional platform is based on the correlation between on the one hand, some dimensions of poverty that particularly affect women and girls and on the other hand, domestic activities in which they are bound and which are characterized by a loss of time and human power. The PTFM aims to alleviate this; to free women from some tedious tasks, and allow girl to attend school and increase the income of beneficiaries.

The platform is composed of a diesel engine of power 15 and 20 kVA which can actuate one or more food processing modules and power generation. This is a small rural food processing facility, which is part of local value chains. With its multi-functionality and its proven organizational structure, the PTFM, with simple equipment, low cost, provides energy services and induces social and economic organization that promotes economic development. The various energy services provided by the PTFM are: milling, crushing, grinding, mixing, and charging mobile phones, sharpening the metal grinding mills and fields of tools, the supply of electric current to community infrastructure.

Project Components

The project has 3 well-aligned components:

- i) support the development of renewable energy,
- ii) application of solar technology on multifunctional platforms,
- iii) Monitoring and evaluation and project management.

Supporting the development of renewable energy

The use of renewable energy in Togo comes down essentially to biomass (wood energy) and hydropower. Primary energy production in Togo was estimated in 2012 to 2502.795Ktoe 2,495,150 Ktoe (or 99.69%) of which is biomass energy and 7,645Ktoe (0.31%) hydropower.

The renewable energy sub-sector is still embryonic in Togo. Therefore, there is very little policy that applies directly to renewable energy in the current policies of the country. However, its potential remains considerable. It boils down to the modern use of solar energy. This use is limited to some installation of solar water heating projects at some hotels, maternity and observable photovoltaic panels on the roofs of some NGOs, religious representations and homes. This form of energy is not even considered in the national energy balance. Much work remains to be done in the development and popularization of equipment and application systems, data acquisition on solar and investment in the technologies.

Component 1: Strengthening the regulatory, political and institutional framework

Despite the expressed will of the Togolese authorities to promote the electrification of rural and peri-urban areas, there is no legislative or regulatory framework for rural electrification and renewable energy.

Apart from the fact that it is important to take fiscal and customs measures for the development of renewable energy, the adoption of a regulation could help the Togolese government to achieve its goals of energy self-sufficiency to more or less long term especially taking into account the abundance of energy sources such as sun, wind (despite its inconsistency), etc.

• The regulatory framework

The main regulatory objectives will be to promote the development of renewable energy investment, education and training professionals, the mastery of technology, equipment use, etc.

Devices to set up

- The regulations on renewable energy must adopt measures aimed initially to facilitate the importation and dissemination of equipment using this technology. Measures should ensure a second phase, the transfer of technology relating to these energies to enable Togo to control the entire circuit starting from equipment manufacturing, through installation to the production of electricity ;
- The regulations on renewable energy should also define the terms under which the energy produced by households and self-producers can be connected to the national grid and sold at preferential prices to operators of the electricity sector.

• The institutional framework

It is important to remove barriers related to inadequate regulatory and institutional frameworks and policies by supporting the promotion and use of renewable energy in electricity production in Togo. The implementation will be to work closely with all relevant agencies including the Ministry of Environment and Forest Resources, the Ministry of Grassroots Development, Grassroots Development Support Programme, the Ministry of mines and Energy and the Electric Power Company of Togo (CEET).

The Togolese state created an institution responsible for the promotion of renewable energy. The Togolese Agency for Rural Electrification and Renewable Energy (AT2ER) is to ensure rural electrification and to promote renewable energy. The project will strengthen the institutional framework of the sub-sector of renewable energy through support to the

operationalization of AT2ER.

The expected result is that the country has a revised national energy policy, rules and favourable regulations to renewable energy with a focus on solar electrification and an institution responsible for its implementation.

To achieve this, the following activities are offered by this GEF Project:

- i) Review of the regulatory and legal framework suited to renewable energy systems and energy efficiency. The texts governing the legal and regulatory framework will be revised or developed to promote renewable energy systems and energy efficiency;
- ii) Reviewed CEET's Energy Management Plan to integrate the promotion of renewable energy. The aim will be to review the director of CEET plan to incorporate guidelines encouraging the use of renewable energy systems and validate the new master plan;
- iii) The operationalization of the AT2ER. The aim is to equip this agency of financial, material and human capital for its operation. The GEF will provide support for the training of personnel and equipment necessary for the operation of the agency.

Component 2: Improving access to finance renewable energy projects and energy efficiency.

This aims mainly to identify funding strategies for the development of renewable energy.

The expected result is to improve the availability and accessibility of financial resources and the development of a safer environment for private investors willing to participate in the electrification. Funding opportunities, including microfinance methods, and the development of sustainable energy use will be evaluated and public-private partnerships will be encouraged for the sustainability of project results.

The main result is the establishment of financial mechanisms in the field of electrification:

- i) The current pricing system, billing and management of electricity in rural areas will be reviewed and evaluated and amended;
- ii) sustainable funding strategies for the electrification will be implemented, including the establishment of an exemption from customs tax system and support systems for private actors;
- iii) A grant system will be developed by the actors involved in the promotion of solar energy and will be deployed as a catalyst for the sale of certified equipment of good quality by private companies;
- iv) Funding for the integration of renewable energy in rural electrification projects (example of solar energy) will be operationalized and tested in public - private partnership. The actors involved are: National banks, BOAD, financial institutions, private services installation of solar systems, the Ministry of Energy, the CEET and other actors involved in the promotion of solar energy will conduct work sessions to develop and operationalize a financial mechanism adapted to public-private partnerships for renewable energy development.

Component 3: Capacity building and support to public and private sectors

The project will organize and implement a coherent program to develop the technical skills of operators and installers required by technological change. This will include capacity building, training, promotion and technical support to various target groups such as local developers and designers, as well as service providers. Efforts will be made to ensure that women and men can have all the same opportunities to participate in and benefit from all the capacity building activities. A comparative analysis between the sexes will define concrete targets for women's participation and strategy to provide equal opportunities to women and men. The participation of local authorities will be encouraged to ensure the long-term viability. This component will ensure coordination of information and awareness throughout the project. Activities and outreach materials will be developed and used throughout the project. The knowledge and data generated during the project will help the country to address issues of access to energy and energy efficiency, and to improve Togo's contribution to climate change mitigation.

As expected result were the technical staffs trained in the understanding of renewable energy and able to design the implementation of hybrid systems and a population base well aware of the benefits of renewable energy. Activities that contribute to achieving this result are:

- i) The development of training programs, provision of guidelines and other technical documents for the planning, design, implementation and maintenance of systems;
- ii) A National Planning workshop and five technical training (1 in each of the 5 regions of the project) for the design, implementation and maintenance of systems;
- iii) A national workshop on the formulation of development projects eligible renewable energy to climate fund;
- iv) Radio-television programs to promote renewable energies and diesel hybrid systems / solar PV will be produced and disseminated;
- v) information, communication and awareness-bearing communities to diesel platforms;
- vi) The meetings organized by the villages will also use as a platform to educate rural communities about the benefits of solar energy.
- vii) A national sensitization workshop for policy makers, private sector partners and local leaders will be organized;
- viii) Capacity building of managers of the multifunctional platform;
- ix) The exchange of experience trips to national and sub-regional level.

Component 4: Application of solar technology on the multifunctional platforms

This component aims at rural communities' access to modern energy services emit less greenhouse gas, intended to lighten the burden of women and improve the incomes and living conditions of the beneficiaries. It will demonstrate the added value of renewable energy to improve the access of communities to electricity, water with a positive impact on their health, education, and improvement opportunities and local business income. It will be implemented through activities to support sustainability and social improvement with the commitment of groups, solidarity groups and local youth.

This component includes the following sub-components:

- 1) Hybridization of PTFMs with photovoltaic solar and
- 2) Development of income-generating activities.

The "PTFM hybridization" sub-component concerns:

- i) the formation of a network of artisans to facilitate the installation and maintenance of the hybridized platform;
- ii) hybridizing 50 multifunctional platforms;
- iii) installation of 50 sets of solar pumps for irrigation or drinking water;
- iv) training of members of management committees on preventive maintenance of the hybridization system and pump.

The flap "Income-generating activities (IGA) Development" covers the following actions:

- i) the studies on value chains around the platforms and identification of stakeholders,
- ii) capacity building of different actors in qualifying trades around the reservoir die
- iii) Capacity building and structuring PTFM groups

Component 5: Monitoring, evaluation and Project Management

This component aims adequate monitoring of results and impacts of the project, supervision of beneficiaries and the management, monitoring, supervision and coordination of project activities at the technical, administrative, financial and accounting.

It includes two sub- components:

- i) monitoring and evaluation and audit and

ii) Project Management

The actions adopted under part "monitoring and evaluation and audit" include:

- i) review of monitoring and evaluation, and financial and administrative procedures manuals of PRADEB,
- ii) conducting impact assessment surveys,
- iii) participatory annual assessment
- iv) close monitoring of beneficiaries by ARL
- v) the development and implementation of a communication plan,
- vi) the annual audit,
- vii) Monitoring of the management plan environmental and social.

The actions selected under the "project management" component are:

- i) to adopt management tools such as administrative procedures manual and monitoring and evaluation manual;
- ii) manage the financial, human and material;
- iii) support of the members of the management unit;
- iv) ensure the implementation of monitoring and evaluation system;
- v) ensure the execution and monitoring of contract performance;
- vi) ensure coordination and synergy with other projects / programs;
- vii) prepare periodic reports on the implementation of the Project;
- viii) conduct surveys and studies;
- ix) ensure the National Steering Committee Secretariat and the Technical Committee and
- x) Prepare for auditing, supervision, mid-term review and final evaluation.

4) N/A no incremental costs

5) Global Environmental Benefits

In Togo under the baseline business-as-usual (BAU), the Presidential multi-functional platforms program seeks to set up 1783 platforms across the country in a bid to avail productive energy for communities. In some cases, these platforms provide electricity for households and lighting of public spaces. These platforms also provide power for commercial activities such as agro-processing – shops which de-husk and grind maize and other agricultural products. They are run by small diesel generators. Many public service institutions like clinics and schools also use diesel generators for electricity typically attached to these platforms but often as standalone systems. The PRADEB runs part of this program and seeks to hybridize the platforms with solar as well provide water pumping as additional services and optimization mechanism. The project has designed for full capacity solar PV and assumes that 70% of the energy requirements from the platforms will be from solar. Therefore for the purpose of this project the baseline scenario is assumed to have diesel generators running for 20hours daily (component 4). Multi-functional platforms are sized between 15kVA and 20kVA.

In the GEF alternative, i.e. the project scenario, the services are provided through a hybrid system (solar and diesel) which generates power in the platform then used for the motive energy and for electricity where it applies. The solar PV sizing is designed between 15kW and 20kW peer system for a total of 50 sites, each with a solar water pumping system. The households, commercial entities and, in some cases, the public service entities in the villages are provided with energy services. The direct emission reductions have been calculated assuming standard assumptions on Plant Load Factor (PLF) and lifetime (years) of diesel-solar off-grid hybrid systems and by using default emission factors for diesel generators. It is assumed that all the electricity generated will be consumed due to the on-demand means of operations in the selected high demand villages in Togo as well as the all-day pumping set-up in the sites.

The key assumptions on GHG emission reduction calculations are provided in the table 3 below:

Parameter	Value
Specific Diesel substitution ratio	0.33 litres/kWh ⁶
Emission Factor for Diesel energy conversion	1.40 kgCO ₂ e/litre ⁷ or 0.0741tCO ₂ /GJ ⁸
Share of electricity generation displacing diesel	35% ⁹
GEF Project lifetime RE Generation	1,701,000 MWh

Table 3: key Assumptions for emission reduction calculations

The Overall GHG Estimation Results

From the GCF5 CCM Tracking tool, the summary of the GHG emissions savings is as below:

Overall Results								
All Components	Cumulative			Annual				
	Total	2017-2020	2021-2040	2017	2020	2025	2035	
	Direct Electricity Savings (MWh)	1,701,000	212,625	1,488,375	8,505	85,050	85,050	85,050
Direct Diesel Savings (GJ)	1,521,000	190,125	1,330,875	7,605	76,050	76,050	76,050	
N/A	0	0	0	0	0	0	0	
N/A	0	0	0	0	0	0	0	
Direct Total Energy Savings (GJ)	7,644,600	955,575	6,689,025	38,223	382,230	382,230	382,230	
Direct GHG Emission Savings (tCO ₂)	112,706	14,088	98,618	564	5,635	5,635	5,635	
Direct Post-project GHG Emission Savings (tCO ₂)	0		0					
Indirect Bottom-up Emission Savings (tCO ₂)	3,906,393		3,906,393					
Indirect Top-down Emission Savings (tCO ₂)	1,607,640		1,607,640					

Figure 1: Summary of GHG Emission Savings. Detailed Tool attached with this CEO ER.

The estimation Approaches explained:

Bottom-up approach

Under a customized bottom-up approach, the Hybridization project plans to set hybridize 50 existing diesel platforms across Togo, thereby substituting diesel with solar PV. This will be done in a period of 3 years during this project period, and then be used for over 20 years upon completion. Component #4 establishes the actual installation of these energy systems for use by captive energy users in the communities already using the diesel-run platforms. Under this project, 50 systems complete with pumping systems to increase productive use of renewable energy. It is expected that the remaining 1,733 platforms will attract funding through the exchequer. The solar capacity for this project is 0.81MW with a potential of rising to 35MW directly in the medium term. This remains very conservative given that the household lighting penetration rate stands at 23%, according to the National Energy Efficiency Action Plan (NEEAP, July 2015), and solar remains a fairly easy solution to the sustainable energy challenge. The rate of access to electricity in Togo is in progression but with huge disparities between urban areas (access rate = 68%) and rural (access rate = 9%). Renewable energies (solar, wind, etc.) are present in the electricity generation capacity of the country. Access to clean cooking solutions does not reach 5% nationally. Solar technologies will play a key role to meet the country's SE4All targets. Based on these assumptions the total lifetime indirect emissions avoided by this project are 1,607,640 tCO₂e which working backwards translates into a replication factor (RF) of 14.26.

⁶Cader, C et al, 2013, High-resolution global cost advantages of stand-alone small-scale hybrid PV-battery-diesel systems

⁷ UNFCCC: AMS-III.BL.: Integrated methodology for electrification of communities --- [Version 1.0](#)

⁸ Default value based on IPCC (2006)

⁹ 35%: It is considered that Solar PV supplies an average of 7 (of 20) hours per day of power with peak factor occasioned by the use of pumping and minimalistic battery storage

The total lifetime direct emissions avoided as a result of direct GEF support (INV and TA) for the 50 sites targeted under Component #4 is 112,706 tCO₂e (the details of the calculations are shown in the attached Annex). It is important to note that the indirect avoided emissions are calculated from the existing platforms programme of government which ends at 1,783 units (50 of which are covered in this project) rather than an open market estimate.

The same Component #4 has total lifetime electricity generation of 1,701,000 MWh, from the 0.81MW installed capacity operating 7 hours daily for motive power and water pumping. This takes off over 1.5 million GJ of diesel from the 50 platforms over 20 years.

The emission reductions that will result from the implementation of the project have been calculated using the top-down and bottom-up approaches as noted below.

Bottom-up approach

Under a customized bottom-up approach, the PRADEB business plan has been installing custom-made PTFMs run by diesel to be completed by 2018. Of these, this project has selected 50 well-functioning high impact sites to hybridise. The project plan is for 3 years. In 2017, the plan is to install 5 systems to be used as demonstration and training ground for technicians and other technical staff who are later to be deployed nationally. In years 2018 and 2019, 20 systems in each year will be installed and then 5 systems in the closure year, 2020. This estimate of avoided emission covers this period and the 20 years post-implementation. The PRADEB programme is under the national program for which the Government of Togo will mobilise resources to replicate this GEF project. This then remains a fairly small fraction (**2.8%**) of the platforms in the programme. Based on these assumptions the total lifetime indirect emissions avoided (as a result of the envisioned 50 hybrid systems that will be replicated after the end of the project) amount to **3,906,393 tCO₂e** which working backwards translates into a replication factor (RF) of 34.66.

Top-down approach

Similarly a top-down approach can be used to estimate total lifetime indirect emissions avoided. In this approach it is assumed conservatively that all the platforms installed will be hybridised with solar in the ten years following project completion. This will translate to 1783 hybrid platforms and PV water pumping systems. The total life time indirect emissions as a result of this scenario would be **4,019,100 tCO₂e**. Applying a highly conservative modest GEF causality factor (CF) of 40%, reduced emission reductions of **1,607,640 tCO₂e** can be indirectly attributable to GEF funding.

Table 4 below provides details of the targeted direct and indirect emissions avoided by the project.

Table 4: Targeted energy savings and CO₂ emissions avoided from project interventions

Target/Indicator	Value
Direct Lifetime Avoided Emissions from Project Outputs 2017-2020	
Lifetime RE Electricity Generation	212,625 MWh
Diesel savings due to displacement of diesel usage by solar	6,099,843.75 litres
Lifetime avoided direct emissions (GEF TA and INV)	14,088 tCO₂e
Lifetime direct emissions avoided due to the project impacts post-project	
Lifetime RE Electricity Generation	1,488,375MWh
Diesel savings due to displacement of diesel usage by solar	42,698,906.25 litres
Lifetime avoided direct emissions (GEF TA and INV)	98,618 tCO₂e

Total Lifetime direct emissions	
Lifetime RE Electricity Generation	1,701,000 MWh
Diesel savings due to displacement of diesel usage by solar	48,798,750 litres
Lifetime avoided direct emissions	112,706 tCO2e
Indirect Bottom-up Emission Savings (tCO2)	3,906,393 tCO2e
Indirect Top-down Emission Savings (tCO2) with modest Causality Factor (CF) of 40%	1,607,640 tCO2e

6) Innovativeness and potential for scale-up

The project adds a component of solar water pumping- a need that had been identified as central to ensuring sustainability of the project by bundling it with other modern energy services under membership. Water will therefore be offered as bonus to members of the community. This arrangement will then increase the revenues from each system hence increases capacity to sustain the energy service centres. With the community structures and entities created as a consequence of this arrangement (e.g. local water committees, IGA cooperatives, etc.) , the trust and cohesiveness will grow and joint ownership for market gardening (commercial agriculture) will be more likely to succeed hence strengthening the economic stability and climate resilience of the communities.

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 –this is already described in PIF and additional info in A.1. above

Refer also to B.2 above (Baseline)

A.3. *Stakeholders*. Identify key stakeholders and elaborate on how the key stakeholders’ engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes /no)? And indigenous peoples (yes /no)?¹⁰

Key stakeholders in the Programme are:

- GEF Operational Focal Point
- Ministry of Territorial Administration and Decentralization and Local Government to involve local administrative officials in assisting beneficiary communities
- Department of Grassroots Development, Crafts, Youth and Youth Employment(MDBAJEJ);
- Ministry of Mines and Energy(MME);
- Ministry Environment and Forest Resources(MERF);
- Ministry of Economy and Finance(MEF);
- Ministry of Agriculture, Livestock and Water(MAEH);
- Ministry of Development Planning(MPD);
- Ministry of Social Action, Advancement of Women and Literacy(MASPFA);
- Ministry of Commerce, Industry, Promotion of the private sector and Tourism;
- Electric Power Company of Togo(CEET)
- Grassroots Development Support Program (PRADEB);
- National program of development of multi-functional platforms(PN-PTFM);
- Regulator of the Electricity Sector(ARSE);
- West African Development Bank(BOAD);
- National banks and micro-finance institutions(MFIs);
- National Agency that Guarantees Promotion and Financing of SMEs / SMIs(ANPGF);

¹⁰As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.

- companies specializing in renewable energy;
- Direct Beneficiaries
- Civil society, particularly through the associative and professional organizations often a federated umbrella body
- Regional crafts rooms, Networks Operators of multi-functional platforms and development NGOs.
- Africa Sustainability Centre (ASCENT) as executing agency

All stakeholders are involved in the project design, implementation and post-execution. At project preparation stage, consultation was close and constant to ensure all relevant aspects are incorporated. They provided the suitable data that allowed the project design and participated in the development and validation of the final document of the project.

In implementing the project, stakeholders will be represented in the various project management bodies at national and sub-national levels. Details are given in A.6 below.

A.4. *Gender Equality and Women's Empowerment.*¹¹

This project takes into account the issue of gender equality: the project was designed to alleviate the suffering caused by search for energy services- a role played by women since these services tend to be related to food sourcing preparation. Women in rural Togo are the key community members who look after water wells. They also till the land and take care of the well-being of children and family; other burdening roles that complicate matters further so they are no longer able to comfortably play this role.

Furthermore, women are often having an array of domestic roles. Processing of agricultural produce is usually manually performed hence can occupy entire days. The search of water for domestic use is another role preserved for women.

With just survival chores taking all their time, children especially girls step in to help their mothers. This dynamic takes them away from them the possibility of carrying out any economic activities. The education of girls is also adversely affected. The perpetuation of these inequalities impacts the socio-economic status of women. The project takes into consideration these factors and will actively seek to create greater equality between women and men in these aforementioned areas for their development.

This hybridization PTFM project will allow continuous access to energy service hence free time for them. The platforms ensure the processing of agricultural products, increased availability of water and lower cost through the macro and mini water supply pumping systems, lighting for domestic and commercial needs. The ownership of the PTFMs and water pumping systems is already well-shared across the genders. This allows women to make cash savings. The extra time saved from hybridisation will enable women to occupy themselves with the implementation of other mainly commercial activities. Girls who are often called upon to help their mothers in their role may also be relieved and have more time to devote to school as the boys. This will have a positive impact on the education of the girls in terms of school enrolment, success, completion rates.

The illiteracy rate for women is by far much higher compared to that of men. To support optimisation of the gains made by especially women, the project will offer functional (project related) literacy program to group members.

Through the project activities and over time, the project seeks to improve the status of women within the household. Households can have expanded economic sources when their wives make increased financial contribution to household expenses. As a result, women will have more say on how household income is spent.

¹¹Same as footnote12 above

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Communities firstly mobilize around the platforms in groups or cooperatives. The project creates forum groups to promote consultation and inclusion by giving the chance to air views in an open and comfortable manner; possible because they realize they are developing their financial power. Some women will also become leaders of their groups (president, secretary, treasurer, etc.), and they develop their leadership skills; which can lead to greater influence and a greater role in the community. However, this does not automatically give rise to be elected to a position. The project will ensure capacity building, knowledge sharing and support women and youth to fully play their role as leaders.

Choice of Target Groups and Beneficiaries

The project reflects the approach of targeting by small communities and must primarily meet the objective of promoting access to basic energy services by rural populations affected by poverty. The project reflects the targeting approach by small communities and must meet primarily with the objective of promoting access of rural populations affected by poverty to basic energy services. With this approach, the project will help to reduce disparities between rural communities and sustainable landlocked localities with access to modern energy services infrastructure.

The project primarily targets people in rural communities, especially those isolated and vulnerable. The number of rural communities is 1,783 amounted to almost half of the villages. Targeting areas takes into account the following key parameters:

- Vulnerability of the resort: it reflects the level of isolation with respect to the grid and rural electrification program, the regional incidence of poverty, the regional rate of households located more than 3 km from a health centre and the difficulty or complexity of access to drinking water.
- Population density of the locality: localities with a population between 500 and 2,000 people are eligible.
- Economic potential of the area: it is the high availability of agricultural products in the area, the importance of food processing needs and demand for energy services.

The application of these parameters provides the ability to correct regional imbalances (the detriment of sustainable energy services to private areas) while contributing to inclusive economic growth strategy in areas where poverty is most pronounced. The direct beneficiaries are women organized into groups or cooperatives and rural populations of clients PTFMs. There will be at least 50 new groups, approximately 500 direct beneficiaries, mostly women (average per group is 10 members).

The actions of the project will be beneficial to all of the beneficiary population of 50 villages with an estimated population average of 62,500 people. Considering that around a PTFM, at least 1/5 of the population of three villages on average also seek these services, the external population affected by the project actions is an estimated 37,500 or so people. This gives an estimate of about 100,000 beneficiaries of the project in rural areas, 52,000 of which will be women. Table 5 below gives a summary.

Table 5: Gender analysis

	Settings	Indicators
1	Number of female members in PTFM management committees (50 PTFM)	200
2	Number of women trained on maintenance of solar equipment	300
3	Number of women affected by income-generating activities (IGA)	1,500
4	Women population affected by the demonstration	52,000
5	Women population affected by the overall project	2,426,000

A.5 Risk. 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.(table format acceptable)

- *Organizational Risks:* the need to involve all stakeholders creates organisational hence management complexities that pose a risk to the project implementation success. The creation of an oversight organ, the National Project Steering Committee that draws membership from all the stakeholders, will mitigate this.
- *Institutional risks:* the absence of an institutional and regulatory framework in the country may create conflicts and delays. The project has a component that is addressing the institutional capacity building
- *Technical risks:* The development of technicians by the project will mean they are fully dependent on the project hence the payment and expectations of benefits may vary owing to scarcity of technicians thereby affecting project planning. Perceptions around the low rate of conversion of sunlight into electricity have created sceptics of the technology. This technology is proven and efficiencies have risen. The higher risk is therefore in the absence of national expertise in photovoltaics. The lack of local capacity may be a moderate risk to the development of solar projects. To remedy this, it will be embedded and complementary training programs for technicians capable of ensuring the installations and maintenance of the systems. This is part of a wider Ministry of Energy strategy. Training sessions and awareness of the beneficiaries on care and maintenance works are embedded on the project too.
- *Property/land ownership risk:* The need for extra space (ground) to install the solar system including PV panels and technical room will introduce new challenges of property rights and ownership.

Mitigation: the risk is low since this project is hybridising platforms that are already operational therefore property ownership has been addressed. However, in cases where additional space is required, the same process will be followed; that of having the community to decide the exact siting following all community dynamics for safety and security as well as conflict resolution mechanisms.

- *Economic and Socio-economic risks:* The sustainability of the systems depends on revenues which in turn is dependent on energy management. The systems are at a risk of burglary and/or sabotage. The low purchasing power of the project areas hinders the population's capacity to pay for electricity consumption and other energy services. Economic risks could result from a cost per kWh too high (too high dependence on diesel prices) with the consequent non-fuel technology. Demanding for the services when the more cost-effective PV supply is at peak may require a habit change. Mitigation: This project is particularly focused on eliminating this risk. Promoters must limit this low risk by allowing an optimal design and sensitisation that minimises the use of diesel. In terms of sabotage and burglary, the way the project avoids this is through ensuring cohesive agreement on the community ownership and management structure.
- *Environmental risk:* since hybridization does not involve substantial storage, to maintain the current levels of consumption, there is the risk that the fuel requirement remains the same. With rural communities consisting mostly of farmers, demand for energy services is mostly in the evenings, during which time PV supply is down. That means therefore, that diesel usage may remain as high even with hybridization. The environmental impact is mainly in the manufacturing, transportation, installation and recycling infrastructure. The solar photovoltaic off-grid batteries have heavy metal lead, which is harmful to both human health and the environment. Recycling is the only legal way of handling the lead, and the logistics and infrastructural requirements are complex. No significant negative impact on plant diversity in the operating phase is envisaged. However, the project will be implemented in line with new Environmental and Social Policies and Procedures of the BOAD, approved by the GEF to ensure the minimization of these risks.
- *Risk of low co-financing:* This risk refers to the co-financing of US \$ 16,768,000 equivalent, which is core to the success of the project yet its planning is independent. The non-materialization of the co-financing is a real risk. Thus the contribution of PRADEB is considered a counterpart of the hybridization project.
- *Cultural risks:* The implementation of the project will impact the traditional habits of the population, which will

no doubt affect the rate of acquisition and acceptance of solar kits and subscription to electricity. This is a low risk to be mitigated through awareness and continuous training sessions to allow for behavioural change.

- *Political risk:* Every project needs to be borne by the government. Thus the lack of political support for the hybridization project would seriously handicap its implementation. Given that the project must be part of the government's development objectives political support is essential to its success. So far, various consultations with the Togolese government has offered strong political support understandably so since the Government is developing renewable energy capacity, including solar in rural electrification. All departments involved in the project have all been consulted and have demonstrated their commitment to supporting this process. The political risk is considered very low.

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 BOAD is obliged to contract the Executing Agency (EA) ¹²appointed by the Government of Togo through the GEF FP. The EA reports to BOAD and coordinates all project activities.

Division of Responsibilities:

- **BOAD** is the **Implementing Agency (IA)** for this GEF project. BOAD shall in its role as GEF Implementing Agency, provide project oversight to ensure that GEF policies and criteria are adhered to and that the project fully meets its objectives and achieves expected outcomes in an efficient and effective manner. It shall also in partnership with the Ministry of Grassroots Development, Crafts, Youth and Youth Employment (MDBAJEJ) and other key project partners engage in promoting the project to mobilize resources and create partnership. Project supervision will be entrusted to the BOAD DEFIC (Division of Environment and Climate Finance) Director who will discharge this responsibility through the assigned Task Manager who represents the BOAD Director on the Project Steering Committee.

Project supervision missions by the Task Manager shall constitute part of the project supervision plan. BOAD will perform the liaison function between Togo and the GEF Secretariat and report on the progress against milestones outlined in the CEO approval letter to the GEF Secretariat. BOAD shall inform the GEF Secretariat whenever there is a potentially substantive co-financing or implementation change (i.e. one affecting the project objectives, the underlying concept, scale, scope, strategic priority, conformity with GEF criteria, likelihood of project success, or outcome of the project). It shall rate, on an annual basis, progress in meeting project objectives, project implementation progress, risk, and quality of project monitoring and evaluation, and report to the GEF Secretariat through the Project Implementation Review (PIR) report prepared by the Executing Agency (EA) and ensure that the Evaluation and Oversight Unit of BOAD arranges for an independent terminal evaluation and submits its report to the GEF Evaluation Office.

Africa Sustainability Centre (ASCENT) is the Executing Agency (EA). As to the letter reference No. 011/PFOFEM dated 30 September, 2016, the Government of Togo through Ministry of Environment and Forest Resources, appointed ASCENT as the Executing Agency as advised by the GEF Operational Focal Point. ASCENT the premier African sustainability think-tank providing solutions to foster innovation and interdependence in Africa.

The EA will participate fully in the successful implementation of the Project and in close collaboration with BOAD in order to achieve all Project Objectives and in strict compliance with the budget lines. Under the direction of

¹²The Government of Togo has appointed an Executing Agency who will have a contract with BOAD to execute it on BOAD's behalf
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BOAD, ASCENT will be able to represent it where necessary, in accordance with the Protocol governing their relations. The Project Coordinator is under the authority of the Executing Agency.

The Executing Agency (EA) shall take responsibility to ensure that the project is implemented in accordance with the agreed objectives, activities and budget and deliver the outputs and demonstrate its best efforts in achieving the project outcomes. For that purpose the EA will sign a MOU with the relevant national stakeholders.

ASCENT will also advise all stakeholders including the PSC in line with institutional capacity development. Further, the EA through BOAD, will provide resources to the project coordinator according to the project budget. ASCENT is fully accountable to BOAD.

The Project management structures will comprise of the following:

A national Project Steering Committee (PSC) will be established to oversee the GEF Hybridisation project in Togo

Members

- Minister of MDBAJEJ through PRADEB or representative (Chair)
- West African Development Bank (BOAD) Task Manager or representative - Co-chair
- GEF – Operational Focal Point (OFF);
- Representative of the Community Groups owning PTFMs in the Project Areas
- A representative of each of these ministries:
 - Ministry of Territorial Administration and Decentralization and Local Government to involve local administrative officials in assisting beneficiary communities
 - Ministry of Mines and Energy(MME);
 - Ministry Environment and Forest Resources(MERF);
 - Ministry of Economy and Finance(MEF);
 - Ministry of Agriculture, Livestock and Water(MAEH);
 - Ministry of Development Planning(MPD);
 - Ministry of Social Action, Advancement of Women and Literacy(MASPFSA);
 - Ministry of Commerce, Industry, Promotion of the private sector and Tourism;
- Representative of the Private Sector, elected by peers
- Project Coordinator(as rapporteur);
- PRADEB as key co-financier
- Executing Agency as appointed by BOAD
- Two representatives of civil society chosen by the stakeholder platforms to be established in the project area

The Project Steering Committee (PSC) will be chaired by MDBAJEJ, Co-Chaired by BOAD and will meet at least twice a year, or extraordinarily as may be warranted to from time to time. The Steering Committee is composed of representatives of key stakeholders. The NSC provides general supervision, guidance, inter-sectoral coordination and monitoring of compliance of project activities with national sector policies and strategies. The two times a year meetings are to review and approve the Work Programmes and Annual Budgets and the activity reports and audit of Project accounts. The PSC shall report to the representative of the Chair, MDBAJEJ and BOAD.

The roles of the PSC include:

- a) provide overall guidance and ensure coordination between all parties;
- b) provide monitoring of project implementation progress;
- c) review and adopt the annual work plans and budgets prepared by the Project Coordinator and Technical Adviser, in conformity with the project objectives and subject to the rules of GEF and BOAD;
- d) review the biannual progress reports to be prepared by Project Coordinator and oversee the implementation of corrective actions, when necessary;
- e) enhance synergy between the GEF project and other initiatives being implemented in the project areas; and
- f) provide advice on policy and strategic issues to be taken into account during project implementation.

INTERNAL MANAGEMENT STRUCTURE

A Project Management Unit (PMU): The Executing Agency (EA) will create a PMU which will be responsible for project implementation. The PMU will be lodged in the Regional Delegation of MDBAJEJ. This Unit will be headed by a Project Coordinator who meets the requirements set out in the ToRs appointed by EA, approved by the PSC, and assisted by a Financial Manager / Project accountant as well as a Monitoring, Evaluation and learning expert to work to follow on technical activities and to document and promote the project's evidence to a wider audience.

The Project Coordinator will provide overall direction for contractual, technical and administrative aspects of the project, in accordance with annual work plans and budgets adopted by the Project Steering Committee. The Technical Adviser/ Project Coordinator, who will respond to the EA, will be responsible for day-to-day operational and administrative aspects of the project within the Project Area and for ensuring the achievement of project outcomes, the delivery of project outputs and the realization of project activities and expenditures in accordance with the Annual Work Plans and Budgets (AWPBs) approved by the Project Steering Committee. The Project Coordinator will lead the development of the project M&E plan to be adopted by the PSC.

Individual roles:

- Project Coordinator – financed by the project, reports to ASCENT. Co-share financial accountability and co-signs cheques according to approved activities.
 - Financial Management Officer/Project Accountant (locally recruited).
 - M,E&L Expert
 - Driver (ideally a MDBAJEJ salaried staff).
- **The Project Coordinator** and the Financial Management Officer/Accountant will be recruited competitively by a joint selection committee whose members are representatives of ASCENT, BOAD and 1 or 2 identified key stakeholders.
 - **MDBAJEJ–EA – PRADEB Tripartite quarterly coordination Process:** A quarterly coordination meeting is established between the 3 agencies to ensure that the project is delivering as planned but most importantly delivering according to the national project objective and in line with the deliverables agreed between the 3 entities. This meeting will provide corrective measures as necessary in consultation with BOAD. The EA may represent either by its Chairman or the Project Coordinator. The 3 institutions can also conduct joint monitoring of project activities.
 - **Fiduciary responsibilities:** The financial management and procurement responsibilities will be defined by the provisions of the Project Coordination Agreement (PCA) between BOAD and the Executing Agency (ASCENT). The BOAD ensures that procurement and accounting of funds and equipment is carried out in accordance with the procedures and agreements in force between the executing agency and the BOAD.

ASCENT through the Project Coordinator will be jointly responsible for ensuring that procurement, and accounting for project funds are conducted in accordance with national executing agency (EA) procedures and agreement signed with BOAD.

Technical Committee (TC)

The Technical Committee (TC) includes representatives of major technical bodies involved in the implementation of the Programme. The Technical Committee provides technical monitoring of the implementation of project activities and make recommendations to improve project implementation and report to the National Steering Committee. It includes representatives of MDBAJEJ, the MME, the MERF, MEF, the Ministry of Agriculture, Livestock and Water (MAEH) MFIs and their support structures and control (CASIMEC and APIM), local relay Agencies (RLA).

To implement the project, the TC will be expanded to CEET, the National Program of the multi-functional platform development partner banks and Promotion Agency of the SME Guarantee and Financing / PMI (ANPGF).

The TC is chaired by the Director of the National Agency for Development Support at the Base.

EXTERNAL STRUCTURE

- **Collaboration with other projects:** The project has been prepared, and will be implemented, in close coordination with other projects working in the area. Coordination with other key projects by MDBAJEJ especially the parent programme will be achieved at the Steering Committee Meetings and by holding regular technical coordination meetings to ensure administrative efficiency, streamlining of budgeted annual work-plans and close coordination of activities. The project will establish a technical working group on specific thematic issues and the Steering Committee will guide the project team in choosing the appropriate
- **Engagement of local CSOs, Service Providers and Private Sector.** Many CSOs, service providers and private sector actors are active in the Project area although there are only one or two active around some of the PAs. They are key implementing partners for activities. The PMU will engage the services of CSOs / service providers and the private sector as needs arise. The Project will “contract” CSOs / local service providers / private sector to support local community groups to implement agreed activities on the ground. ASCENT will negotiate Conventions with these organizations / service providers using procedures adopted in the PCA.
- **Engagement with local stakeholders:**

At local level, various stakeholders groups will play important role in the project execution. These include among others:

- **Community based organizations (CBOs)**

These are various traditional organizations whose role is important in the social balance of the communities. In the project areas, PRADEB has documented them. Under the project, their role will be to:

- (i) Bring together the social conditions for the execution of the project in their respective localities and offer to draft a framework for dialogue and Community Exchange.
- (ii) Contribute to the resolution of possible conflicts in the context of the implementation of the project
- (iii) Help the beneficiaries of the project in decision-making activities

- **Youth groups**

These groups will play an important role in project activities. They will specifically:

- (i) Contribute to the planning of activities targeting the youths
- (ii) Stimulate and encourage the participation of youth in capacity-building sessions.
- (iii) Participate in the follow-up of the activities of the project and collection of necessary information related to youth involvement in the project
- (iv) The management of goods, equitable access to community facilities acquired or installed through the project.

- **Organised women groups:**

These group will be important in ensure that the activities design for women of properly carried out and the expected results are fully achieved. Their role will be specifically to:

- (i) Contribute to activities for women by ensuring equitable membership and participation of women in organised groups and the participation of these groups the activities to be performed.
- (ii) Stimulate and encourage the participation of women in capacity-building sessions. For this purpose women's groups will participate in the diagnosis leading to the identification and evaluation of their training needs in order to effectively design appropriate capacity-building programmes.
- (iii) Participate in the follow-up of the activities of the project through their availability to collect and provide the necessary information related to women and the project activities in which they are involved
- (iv) The management of goods, equitable access to community facilities acquired with the project. These groups of women will be adequately trained to do so.

- **Coordination and co-financing with PRADEB.** The following components will require close coordination with other Ministries, Projects and partner organizations. The relationship between the GEF Project and these partners will be governed by Memorandums of Understanding (MoUs) to be negotiated during Project Inception phase.

During implementation, ASCENT will draft MoUs for the implementation of the various sub-components listed above where BOAD/GEF project intends to collaborate with other partners (as identified above) and negotiate with identified partners as required.

OVERSIGHT MECHANISM

The project Steering Committee will receive periodic reports on progress and will make recommendations to BOAD concerning the need to revise any aspects of the Results Framework or the M&E plan.

Project oversight to ensure that the project meets BOAD and GEF policies and procedures is the responsibility to the Task Manager in BOAD-DEFIC. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Details of Project Monitoring & Evaluation, including external evaluations are provided in Annexes.

Project Organogram:

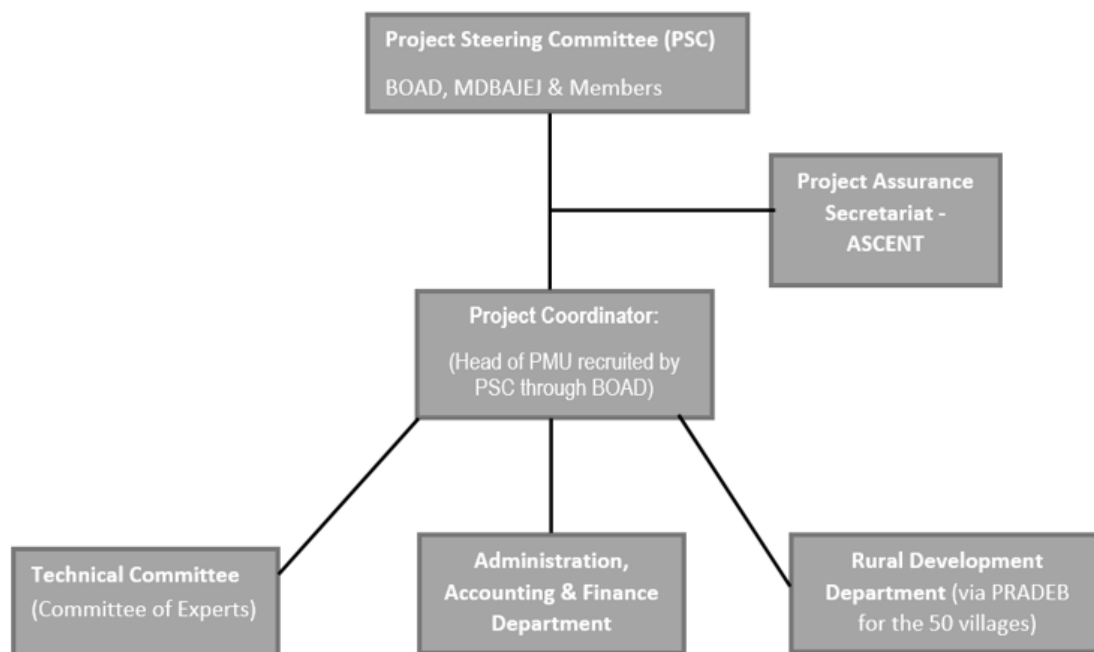


Figure 2: Project Organigram

Roles and stakeholders' interventions

- The Ministry of Grassroots Development, Crafts, Youth and Youth Employment (MDBAJEJ) will be responsible for implementing the project in collaboration with the Ministry of Energy, Environment and Agriculture. The MDBAJEJ intervene through its various departments (Crafts Directorate of Youth Employment Directorate, Directorate of Community Development), the National Agency for Development Support Base (ANADEB) and the National Programme development of multi-functional platform (PN-PTFM). He is a member of the NOC and CT.
- The Ministry of Mines and Energy (MME), will speak through its Directions notably through the Directorate General of Energy (DGE), the Electric Power Company of Togo (CEET) and the Sector Regulator Energy (ARSE). It will enforce the strategy and countries in terms of political development of renewable energy and rural electrification. The Company of Electric Power of Togo (CEET) in charge to annually conduct performance tests on the use of hybrid systems and kits of solar pumps. The MME is a member of the NOC and TB.
- The Ministry of Environment and Forest Resources (MERF) through the Directorate of Environment and Forestry Resources and the National Agency of Environmental Management (ANGEL) ensure the effective implementation of the project, environmental monitoring, the analysis of environmental parameters and the implementation of the environmental and social management Plan (ESMP). He is a member of the NOC and TB.
- The Ministry of Economy and Finance (MEF) will assist in the establishment and operationalization of financial mechanisms and incentives, as well as domestic banks. It will also intervene in the context of the monitoring of decentralized financial systems (SFD) through the Support Unit and Mutual Institutions Monitoring and Savings and Credit Cooperatives (CAS-IMEC) whose mission is to supervise and control the SFD. It will also help to support and facilitate the financing of businesses through the National Agency for the promotion and guarantee of funding for SMEs and SMIs (ANPGF). He is a member of the NOC and TB.
- The Ministry of Agriculture, Livestock and Water (MAEH) will participate in the implementation of water supply and irrigation systems in accordance with its policy. He will be a member of the CT.
- The Ministry of Development Planning (MPD) will participate in the program through its Regional Directorates and the Directorate General of Statistics and National Accounting (DGSCN) that intervene in the monitoring and evaluation system through the realization of starting investigations , mid-term and end of execution;

- The Ministry of Social Action, Advancement of Women and Literacy (MASPFA) intervene for the integration of gender aspects and functional literacy beneficiaries through the Directorate of Literacy and non-formal education (DAENF).
- The Ministry of Commerce, Industry, Promotion of the private sector and Tourism will participate in the program by promoting private sector development mechanisms. He is a member of the NOC.
- The prime contractor for the project will be provided by the PRADEB Management BOAD and GEF implementing agency will proceed with the approval of design documents, evaluation and project supervision and provide technical support for the project.
- Domestic banks and micro-finance institutions participate in the implementation of measures facilitating access to credit for businesses, youth and economic interest groups.
- The beneficiaries will participate in the design and implementation of the project. They are members of the NOC, TB and regional bodies (CRS and CC).

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 platforms hybridization project will result in a real and visible paradigm shift in remote rural communities of Togo towards transition to low carbon sustainable development. The project directly addresses the energy sector that is the second highest GHG emitter in Togo and implements specific actions recommended in the second national communication under the UNFCCC and the TNA.

Although solar energy is a clean energy, electric power producers in Togo not only have the perception that the costs of installing solar units are exorbitant but also lack the technical, regulatory and institutional framework for mass adoption. So far, thermal installations have been preferred and better mastered, despite the GHG emissions generated by them.

The analysis of the energy sector in Togo reveals that the sub-sector of renewable energies is facing financial difficulties and technical failure. But the energy requirements are becoming higher due to strong population growth. In addition, the important fragility of production and distribution systems and renovation costs are obstacles to full coverage of electricity needs.

The private sector, by comparison, is actively involved in the renewable energy sector but the lack of financial support, the absence of a regulatory and legal framework, and incentives prevent this sector from fully playing its role. Consumers do not fully appreciate the benefits of solar energy and more are restricted by the high acquisition costs they deem important enough. The establishment of stronger institutions and improved governance in the energy sector would also facilitate the planning of rural electrification through public-private partnerships.

Without external financial mobilization, the private sector and the actors involved in the energy sector as a whole will continue to face challenges of developing the renewable energy sector, hindering the move towards an effective rural electrification. The mobilization of funds for the promotion of solar energy through the establishment of hybridization devices for 1,783 PTFMs is needed to raise awareness of the benefits of solar energy. These will also create a sustainable framework for electrification with rural renewable energy.

So GEF will support the strengthening of the institutional and regulatory framework governing the energy sector but also provide support for the implementation of demonstration projects of solar energy, management and monitoring evaluation.

Component 1 does not generate revenue but helps improve the performance of the component 2. The component has two aspects of income generation, but it is not guided by commercial logic: the support of the GEF to the acquisition of solar panels is designed to ensure that stakeholders including rural communities with low incomes can benefit from this technology. The revenue collected from households are low since they are poor and vulnerable households living in very remote regions and those revenues cover only 9% operational costs of the facility including their contribution. Given the social public nature of this component in the service of a remote and vulnerable community, it is recommended that a grant from the GEF fully covers the capital costs of the facility.

Furthermore, it is important to keep in mind that the subsidies provided by the GEF will be complemented by significant loans in co-financing by BOAD. Therefore, the project proposes a package for investors consisting of a combination of grants; loans and BOAD own resources for communities and capital of the state. This mixture allows the project to mobilize more resources, in addition to GEF funding, and thus to extend the project to bring transformational change to the desired energy systems by GEF.

The co-financing of PRADEB implementing the PTFM program will support the management, monitoring and evaluation of the project for the establishment of a regulatory framework favourable to renewable energy.

The main economic benefit of the project is the diesel avoided marginal cost due to the replacement of a large fraction of existing capacity of power generation by diesel generator with solar energy. This is in addition to the well documented that reliable, affordable and clean supply of electricity for rural households provides a number of additional benefits, such as increasing the productivity of home businesses, the time saved for tasks household or leisure, and general economic value of access to quality and reliable lighting and television experiences. These benefits were quantified for some countries in a report by the World Bank in 2008. However, the report does not quantify the benefits for Togo.

As such the project will also bring several additional benefits. Households will have:

- a) easy access to electricity will allow them to have access to information and opportunity through the use of communications and telecommunications media (radio, television, mobile phones...)
- b) easy access to drinking water and irrigation of farmland;
- c) improving the quality of lighting, hence better indoor air quality and the possibility of extending the working day;
- d) the opportunity to create income-generating activities;
- e) better conditions for learning and work for children, and youth enrolled in vocational training;

By implementing a regulatory and legal framework, and technical incentives, for the promotion of renewable energy, the GEF project will encourage public and private stakeholders to invest in renewable energy. The public sector will be a long term beneficiary and promoter of renewable energy through the Rural Electrification Agency to make it operational. The private sector will benefit from the favourable environment created by ins1.

The support provided by the GEF to expand the photo-voltaic sector in rural communities will rely on a solid core program "National Development Program of the multi-functional platforms in Togo" but represents an innovation in itself by the use of an initial grant mechanism for households and contribution to operating expenses. A classic pricing approach would exclude much of the low-income population of the adoption of photo-voltaic technology. The element of subsidy which will be integrated into all the components supported by the GEF will reduce acquisition costs and installation plates and investment risks perceived by removing financial barriers, building institutional capacity and developing favourable policy environment.

Global environmental benefits (GEFTF) and / or adaptation benefits (LDCF / SCCF)

This project directly contributes to avoided GHG emissions (105,131.52metric tons CO2e for the 50 PTFMs in the pilot phase and 3,748,990metric tons CO2e for the 1,783PTFMs when finally hybridized). The PTFMs as are produced spent

oil can harm land, water and finally trees. Many of communities dump this waste on land. And this contaminates soil, water and can finally affect trees. In a business as usual scenario, more and more waste related to the used oil will be produced posing long-term environmental hazards. In hybridized scenario, the waste oil will be significantly reduced hence averting this hazard.

Due to the impact of climate change, the Government of Togo will suffer substantial expenditure on adaptation to climate change. Although the GEF project is not specifically focused on adaptation, it nevertheless provides rural communities with key benefits for adaptation in the form of creation of income-generating activities and improved access to energy. The real benefits of this project for the global environment will come from the establishment of a framework with financial mechanisms for the development of renewable energy. This will enable:

- easier hybridization of 1,783PTFMs;
- establish a comprehensive agreement with CEET for the installation of mini isolated networks (off grids);and
- hybridization of the national network by the possibility of electrical injection into the national grid by private companies.

The staff of CEET, agency and other stakeholders as well as some members of the beneficiary communities will be trained in the installation, management and maintenance of the hybridized platforms. This will satisfy the need for competence and the necessary national expertise expressed in SCOND to conduct successful and sustainable initiatives in the area of climate change.

The energy sector in Togo is highly vulnerable. 70% of it is run on imports of fossil fuels. Greater production of renewable energy produced locally increases resilience to climate change. This applies to each component, but particularly component.

2. Environmental and Socioeconomic Co-benefits are shown in Table 6 below:

Table 6: Environmental and Socio-economic Benefits

Co-Benefit	Parameter	Expected impact	Project Description
Economic (SDG 1&8)	Number of jobs created	250	<p>Directly, program activities related to food and craft services processing enterprises will create opportunities for nearly 250 direct and permanent jobs, generate total revenues of F CFA 58 million, will produce additional value of nearly CFA300 million.</p> <p>As "green jobs", jobs induced by the project include those associated with SMEs entitled to enter the long-term PV market. Direct jobs include:</p> <ul style="list-style-type: none"> • Agency staff • People involved in the import of solar panels • workers employed in the installation of photovoltaic panels • The persons responsible for the maintenance of PV panels, including regular cleaning; <p>Indirect jobs will include all ancillary businesses created to support the above activities, such as provision of spare parts, battery recycling.</p>
Economic (SDG 12)	Foreign currency savings	US\$2.06 million	<p>Currently, oil and gas account for 70% of the cost of total imports and 15% of Togo's revenue goes to the oil and gas bill. The value added of industry was 36.097 billion of F.CFA in 2005 against 59.1 billion FCFA in 2013, an annual increase of 2.55%¹³</p> <p>Since the energy sector is a large consumer of fuel, the GEF project will considerably reduce fossil fuel The lifetime of PV panels and new renewable energy operators entering the market following the strengthening of the network and operationalization of the Agency has long-term economic benefits</p>
Social (SDG 7)	PV Democratization	50 installed platforms have full funding for PV systems	This Project will enable rural community which mainly depend on agriculture for their livelihoods, access to clean energy and improve their livelihoods through improved energy supply for households, schools, health centres, etc.
Education of children (SDG 4)	Improve education access rate	Reducing wait times from water sources.	Accelerated promotion of access to basic social services (improving access and leverage of core infrastructure priority: health, education, water, etc.
Environmental (SDG 3 &13)	Improving air quality	Reducing NO _x emissions of SO _x , NMVOCs & CO ₂ emissions	The emission of nitrogen oxides, volatile organic compounds Non-methane and sulphur dioxide, from diesel engines, will decrease the production of power in inverse proportion to the energy produced from renewables.
Inclusive development (SDG10&6)	Social, health impact and gender-sensitive economic participation	New employment opportunities will benefit the men and women	There will be training and employment opportunities that will ensure the representation of women. Improving access to clean energy and water should benefit women and schoolgirls who need adequate lighting for security, education and maintenance of the household. It is also expected that improving electricity supply creates revenue generating opportunities that involve women entrepreneurs and micro definitely help at home, many of which are headed by women.

National Debt Sustainability

¹³ TCN 2015, page xvi

The need for GEF funding is partly explained by the evolution and policy of the public debt of the Togolese Government according to the IMF report. Togo's debt has evolved over the last four years, from 49.3% of GDP in 2011 to 61.1% in 2016. The high fiscal deficit of the Government of Togo, and debt reduction government obligations under the Finance Act, make the requested GEF grants very important in enabling the government to meet its commitments and accelerate the SCOND - the country's transition to a low carbon economy.

SOCIO-ECONOMIC BENEFITS OF PTFMs INSTALLED IN TOGO

•Benefits to the Recipients of currently installed diesel platforms

There are direct beneficiaries and indirect beneficiaries of the current PTFMs:

The direct beneficiaries are mainly composed of populations of villages with installed multi-functional platforms, implementing partners, program service providers (artisans and others), and program staff. It is estimated that over 315 000 people directly benefit from the services offered by the program. Among them, the populations of PTFMs installation localities estimated 313,500 people (99.52%).

The indirect beneficiaries are composed of people living in the zone of PTFM influence (5 to 10 km or more from the village of installation) and have access to services from the PTFM. These are the people of the surrounding villages estimated at over 940, 000 assuming that each village with PTFM borders three (3) other villages. The average number of people per village is estimated at 1,500.

In total, the number of direct and indirect beneficiaries of the program is estimated at over 1,255,000 people as of December 2016.

Activities by groups of PTFM managers

The managers PTFM groups lead two types of activities: food processing activities taking place at the PTFM and income-generating activities by individual members.

- The agri-food processing activities in connection with PTFM equipment installed are: the production of palm oil; selling palm nuts; processing soybean; breeding goats, pigs, and poultry; production and sales of bean fritters; production and sale of the local drink "Tchoucouthou"; production and sales of *gari*; preparation of shea butter, etc.
- Other income generating activities undertaken by female members of groups at the PTFM include: growing or sale of maize, rice, sorghum, millet, soy, ginger, *voandzou*; food trade, purchase and resale of maize, chilli and peanuts, etc.

IMPACTS / EFFECTS OF PROGRAM BENEFICIARIES

• *Ease of access to energy services*

Before installing PTFMs, women and girls walked for kilometres in some villages to grind corn, sorghum and soybeans. In other cases, they pounded the paddy rice or grated the cassava for whole days. This is no longer the case since PTFM installation. Therefore, the ease of access to energy services is cited as the first change in communities. Indeed, PTFMs enabled the beneficiary communities to access services locally and thus have multiple benefits from the time savings.

• *Expansion and diversification of income-generating activities*

The advent of the platform in the communities has led on the one hand the expansion of the activities of the beneficiaries and also the introduction of new activities by them.

• *Expansion of the volume of agro-food processing activities of women*

Some activities by households prior to the installation of the platforms were enlarged. Indeed, it appears from the mid-term review of PN-PTFM in 2014 that 21% of households surveyed have enlarged some of their activities through PTFMs. The types of activities involved vary from one region to another and are mainly related to agro-processing, marketing of finished or semi-finished produce, sale of foodstuffs, and livestock breeding.

- *Development of new Income Generating Activities (IGA)*

IGAs are occasional or secondary activities in addition to permanently conducted activities to increase income. Thanks to the services of multi-functional platforms, 15.9% of beneficiaries started an IGA that they did not practice before. Initiated new activities include the processing of agricultural products, agricultural production, trade in agricultural products or products of transformation. These activities are executed directly on the platforms (milling, processing of agricultural products) or related to the developments of the activities of the transformation i.e. agriculture and trade. Overall, the new activities initiated are related to the expanded activities and contribute to the development of agricultural value chains nationally.

- *Creation of rural businesses of food processing*

The company in this context is a core business, well-structured and exercised permanently. Overall, the most PTFM have contributed to the creation of new companies. In fact, 28 new companies have been created thanks to the multi-functional platforms including 23 women and 5 male. Only 1.5% of respondents claimed to have created at least one new rural enterprise.

- *Increased Access to micro-credit*

The multi-functional platforms have contributed to improving access to micro-credit among members of the groups. Thus 16.6% of the groups (5 out of 30 groups) offer their members micro-credit services. The amounts awarded per individual ranged from 5,000 CFA to 30,000 CFA francs. The credit is used in the development of AGR, agricultural activities (purchase of fertilizers, seeds, etc.), breeding, or for the resolution of health problems, education or food. The interest rates vary from 0% to 20% annually.

- *Job creation around the platforms*

The PTFM contributed to the creation of direct and indirect jobs in the communities that are beneficiaries

Direct jobs

These are jobs of managers of PTFMs, who ensure capacity building of PTFM companies. They include members of the management committees, recruited millers, local Relay Agents (ARL), the Programme Coordination Unit, etc.

The members of the Management Committee

For direct jobs created by PTFM include positions held by members of the management committee (presidents, secretaries, treasurers, cashiers and milling). These jobs are estimated at 6 per platform. Thus for 209 platforms installed, 1,254 direct jobs are created for women (1041) and youth (213). Members of groups or management committees involved in the daily management of the platform derive different benefits from their involvement. They benefit of a financial incentive and / or certain services at a reduced price.

Millers

The platform has helped to create jobs directly to millers in the communities where handling modules by women experiencing difficulties of various kinds. The miller of employment is remunerated differently according PTFM and varies from 3 000 to 20 000 CFA / month. In the surveyed communities, 53.3% of the groups employ a full-time or part-time sucker. The total number of jobs created millers (young) is estimated at 111.

The Retail Local Agencies (RBA)

As part of the implementation of activities related to the installation and management of PTFM, the ARL received both the PN- PTFM as PRADEB, financial and material support to strengthen the staff to supervise the PTFM companies. In sum, 45 people were recruited (facilitators, supervisors) by ARL in the five regions of Togo. The Management Unit of the PN-PTFM and PRADEB

The multifunctional platform related activities are coordinated by the coordination cell of the PN-PTFM and PRADEB Management Unit. On these two programs, at least ten (10) people are recruited and dedicated to the activities of PTFMs. In total, an estimated 1,420 direct jobs created thanks to the multi-functional platforms.

Indirect or temporary jobs

Indirect or temporary jobs are those created downstream through the provision of services by PTFM installers, craftsmen and equipment repairers. The PTFMs are a source of additional jobs for artisans. Indeed, during the PTFM equipment installation, craftsmen sign preventive maintenance contracts with suppliers over a period of 12 months and receive monthly incentives. Within five (5) regions, 50 artisans are selected, trained and provide maintenance and repair of equipment installed PTFM.

It is also worth mentioning that participatory feasibility studies (PFS) which constitute a decisive step before committing to PTFM installation are also a source of additional income for employees of NGO partners and even individual consultants. While a pre-study is carried out in one day by one person, PFS is conducted in five (5) days by a multidisciplinary team of four (4) people. The average cost of a study (pre-study and PFS) is 325 000 F CFA. In total, more than 97 million FCFA is invested for conducting more than 300 PFS as part of PTFM installation.

- *Increased household income*

Changes in the activities of women have positively affected their income. Indeed, access to platform services has allowed them to develop new activities, increase activities already exercised, to benefit from the financial advantages and thereby increase their income. Increases in income vary on average from 500 FCFA to 300 000 FCFA since the advent of PTFMs. The average rate of increase of income of the households is 80%.

- *Changes in the living conditions of households*

Access to energy services provided by PTFMs has allowed beneficiary communities to improve their living conditions particularly in the areas of food, education, health and electricity.

- *Food*

The food has improved significantly in households with the advent of platforms. 78.9% of group members feel that the platform has had a positive impact on access to a regular supply and quality of food in the households, in the sense that flour (from corn processing) is regularly obtained, of better quality, and surplus income generated allows them to have more full meals and diversified diets.

- *Education*

The revenue generated through the development of activities through the services of PTFMs and the ability to have access to credit within groups, have allowed households of beneficiary communities to meet the educational needs of children. This includes the purchase of school supplies and the payment of school fees. 53.3% of respondents think groupings around the PTFMS for this purpose means education of children is better supported by parents.

- *Health, sanitation and Access to Safe Water*

Overall, households have better access to healthcare through income from IGAs. 53% of the groups are of the view that financial access to health care has improved in the communities with the implementation of the platforms to the extent that they constitute opportunities for some households to increase income or to access credit to meet the health needs of their families. Some PTFMs have contributed financially to the drilling of wells in their communities, with the income they generated.

- *Energy*

Access to energy services is one of the major changes seen with multifunctional platforms. The energy provided by the platform provides access to different services. Thus, apart from the food processing, other noteworthy benefits include, grinders for sharpening household and agricultural tools, and charging of electronic devices including communication gadgets.

- *Changes in gender relations*

The multi-functional platforms have contributed to the financial empowerment of some women and the reduction of other financial dependency in the beneficiary communities. With increased incomes through the development of their activities, they are less dependent on their own financial needs and those of their homes. 87.4% of men surveyed believe the multi-functional platform installation took positive changes in women's lives and their homes.

Punctual meal times in homes due to accessibility of energy, means time saved resulting in creation of peaceful environments within households.

The platforms have also promoted women's leadership and improved the image that men have towards them because they hold positions of responsibility in the management committees and in their groups. Women hold milling positions in these committees, a function that was previously assumed by men. Additionally, women leadership is also expressed through the chair positions they occupy in the management committees.

- *Changes in relationships between groups and communities*

The groups are beneficiaries and managers PTFM, well perceived as a tool for community development and poverty reduction. Beyond this document, certain groups such as Kourientré in the prefecture of Tône and Oligo (Ayeladou) in eastern Mono contributed to the achievement of community infrastructure (buildings put up with their financial assistance for the construction of housing for nurses, and electrification of the village lanes). As such, there were changes in their relationship with their communities. These relationships vary from one community to another and depend on several factors including the management of the platform by the group, the communication platform between the group and the community, etc.

In most cases, the surveyed group members say they have found that the relationship between them and the communities have been improved. Also, group members feel they are increasingly visible and valued (respected) by other members of the community. In general, the platforms have generated greater understanding and solidarity between the community and the groups especially if the community feels involved in the management of the platform. The majority of the surveyed groups (76.3%) believe that multifunctional platforms have promoted social cohesion within the community.

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.

The project's knowledge Management Plan is based on the aspiration to create a model success for Togo and for West Africa where there are over 4000 PTFMs, either installed or planned. In the inception period, the project will facilitate learning of Togo stakeholders from other similar and related projects in the region and elsewhere in Africa. For increased awareness, in cases where we have an external experience, the project will bring the experts into Togo so that multiple stakeholders can tap from their knowledge and ease replication. Given that the off-grid market is massive, this project aims to collect information, develop learnings, document them and share them with all relevant stakeholders nationally and regionally. Specifically, the project plans to:

- a) Attend events related to the project activities to learn from experiences shared by other projects and initiatives
- b) Document experiences from these other projects into easy-to-understand knowledge products singling out best practices and success factors
- c) Tailor-make the documented best practices to this project

During implementation, the project will lay emphasis on determining what works best and applying as well as replicating it. As lessons emerge, they will be captured under the M, E&L plan (component 5: Monitoring and evaluation; learning and information dissemination and replication), analysed and mainstreamed into the project implementation. To ensure these learnings are cascaded to all levels during and beyond the project, the project has a plan to:

- a) In line with Component 5, disseminate information through project-organized events and forums as outlined in *Component 2, Output 2.1.2 of the Project Description Summary (Part 1.A): One national planning workshop and five sub-national technical training workshops (1 in each of the 5 project regions) for the design, installation and maintenance of hybrid systems*; these events will also involve stakeholders from elsewhere to initiate debates on the best way forward.
- b) Organize online and offline events or participate in learning and sharing opportunities given by other events as part of continuous improvement strategy through the project plans to attend in order to share evidence from the project activities or any other products generated by the project from others initiatives
- c) Develop targeted communication to raise awareness and promote the technologies and other related renewable energies. This is captured under *Output 2.2.1: communication and awareness-raising materials and programs (flyers, TV and radio broadcasts) for the promotion of renewable energy and hybrid diesel/solar PV*. These communiques will be ratified by all stakeholders so that cascading to policy making is made easier.
- d) The project will develop and publish an information booklet which will also serve as an installation manual capturing best practices and step-by-step execution procedures for hybridisation of diesel engines with solar as well as for solar water pumping. This publication will be a developing document throughout the implementation period and will then be validated by the stakeholders towards the end of the project period.
- e) Initiate or join network/platform at local, sub-national, national and regional levels that will gather stakeholders on climate mitigation and renewable energy, more specifically on off-grid PTFMs. The ultimate goal here will be to establish the West Africa and Africa Multi-Functional Platforms Network which will help fast-track the gains in global climate mitigation from hybridisation
- f) For sustainability sake, the development of business cases is key goal for this project. Cases that become models

for private sector to adopt and replicate. These business cases will be basis for increasing financing, especially from private financiers, into sub-sector as envisioned in *Component 3, Outcome 3.1. Financial mechanisms suitable for sustainable solar electrification are implemented*. These business models will be captured in the publication in d) above for ease in training potential investors/lenders/beneficiaries.

The Executing Agency, ASCENT, will also use its prowess and strong networks in the area of knowledge development to share about this project and develop a showcase project for GEF and other investors in the area of climate mitigation.

B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

B.1 Consistency with National Priorities. Describe the consistency of the project with national 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.:

This project is in line with multiple policies and plans developed by Togo to support sustainable development. The project is fully aligned with key government policies and strategies below:

THE SCAPE

The Accelerated Growth Strategy and Employment Promotion (SCAPE) adopted for the period (2013-2017), gives the medium-term guidelines for growth and poverty reduction in Togo. It is in line with Togo's national development strategy with aims of driving significant progress towards achieving the SDGs and the vision of the emerging Togo by 2030.

The objective of the SCAPE is accelerated economic growth to reduce poverty and inequality especially in rural areas and create jobs with multiplier effects on income level and quality of life for Togolese people.

It is built on five strategic areas below:

- a. development of high-growth potential sectors;
- b. development of economic infrastructure;
- c. development of human capital, social protection and employment;
- d. strengthening governance; and
- e. promotion of balanced and sustainable participatory development.

The Hybridization Project interventions fall under the fifth (5th) strategic area.

In addition, the government plans to increase the power generation capacity of the country from 161 MW in 2010 to 300 MW in 2015 and to 500 MW in 2020. As regards the distribution of electrical energy, the objective is to improve people's access to public electricity services, raising it from 23% in 2010 to 40% in 2017 and 42% in 2020. In rural areas, access rates over this period are expected to increase by 5% to 16% then to 18% respectively. Rural electrification will be accompanied by the adoption of a rural electrification strategy, the creation of a national rural electrification agency and the implementation of a rural electrification fund. The SCAPE includes measures such as the establishment of a legal and regulatory framework encouraging the promotion of renewable energy.

Rural Development Policy

The overall rural development policy in Togo is based on the development of agriculture, which employs 60% of the workforce. The agricultural development policy is presented in the document entitled "Agricultural Policy Note" outcome of the review of the Declaration of Agricultural Development Policy adopted in Note 2000. This is the framework for Government interventions in the sector, and is in the perspective of achieving the SDGs. To access an efficient agriculture, the general objective of the agricultural policy is to increase the income of farmers, and contribute to the sustainable

improvement of living conditions of rural people. The specific objectives of agricultural policy are:

- a. develop the capacity of all stakeholders in the agricultural sector;
- b. improve farm productivity and promote sustainable agricultural development;
- c. reduce the dependency rate vis-à-vis imported food products; and
- d. facilitate access to the market for local agricultural products.

The Hybridization Project is in line with the second objective.

Global Development Policy at the grassroots, crafts, youth and youth employment

The global development policy at the grassroots, crafts, youth and youth employment is presented in the LPOS, adopted in June 2011. This reference document is based on the PRSP-Complete, specifically Pillar 4: "grassroots development and reducing regional imbalances". The LPOS represents the framework for Government interventions in this cross sector which is in the perspective of achieving the SDGs.

The vision displayed by the overall policy development at the grassroots, crafts, youth and youth employment in 2011 is "to sustainably ensure the grassroots communities and individuals within them, the satisfaction of basic needs, allowing them access to the Common Minimum Vital (CMV) by 2030?"

Through the concept of grassroots development, the Government aims to benefit the entire population with economic growth. The concept also aims to strengthen ownership and tackle higher socio-economic challenges by the communities themselves, through targeted actions across areas such as social and community infrastructure, energy, job creation and livelihood improvement. The following major intervention actions will be considered:

- a. capacity building through training,
- b. support for economic activities, and
- c. rehabilitation and development of basic infrastructure (multifunctional platform etc.) to support economic growth and human development.

The Hybridization Project falls under the third intervention.

Social Development Policy and Women

The Social Development Policy, adopted in 1999, includes four priority components:

- a. the protection and promotion of the family and children through the development of income generating activities;
- b. Socio-professional reintegration of disabled people in the craft sector, and support of older people? in communities;
- c. construction and equipping of literacy centres to increase adult illiteracy rates

The Hybridization project is in line with the first component.

Moreover, the Women's Promotion Policy, adopted in 2001, aims to remove large disparities against women. In order to operationalize the strategic directions of this policy, the Government has defined the following four priority programs:

- a. the economic empowerment of women and the fight against the feminization of poverty;
- b. improving the level of education and training for women and girls;
- c. institutional strengthening of the Women mechanisms; and
- d. improving the legal status of women and the girl.

The Hybridization project is in line with the first Priority Program.

SCOND 2015

SCOND explicitly targets the expansion of renewable energy with the support of international donors. In Section 3.2, it provides for mitigation in the energy sector, the introduction of solar equipment in households, and capacity building of different stakeholders.

This is in line with the objectives of the Hybridization Project.

National communications

The Hybridization Project will support key issues outlined in the Second and Third National Communications of the country. Indeed, the options in Chapter 3 of the Second National Communication focus on three strategic areas that include, the development of renewable energy technologies, including solar power. In the third National Communication, priority options adopted in the field of energy (in section 4.1.2) are include rural solar photovoltaic electrification.

Public Investments Program 2016-2018

The Public Investment Program provides traditional electric power supply for 60% of the population in Togo. There is need to increase the production capacity either by diesel generators (GENSETS) or by extending the conventional network. This would require an investment of 280 million EURO over 5 years, equivalent to 80 million EURO per year. However, these diesel generators are sources of GHGs and high fuel operating costs. The project will help green the Public Investment Program. This medium and long term development framework provides strategic guidance that addresses the fight against CC and disasters. This Hybridization mitigation project will be recognized for the implementation of the SCAPE.

The National Program of Investments for Environment and Natural Resources (PNIERN)

The PNIERN is a strategic investment framework in the environmental sector which enables the alignment and harmonization of interventions of partners and stakeholders. It responds to the need to sustainably manage the environment and natural resources in order to contribute to the improvement of food security in the country's economic growth and poverty reduction. There are a number of axes provided by the PNIERN prominently promoting adaptation and mitigation actions and mobilizing resources to meet its needs. This Hybridization project will consolidate the implementation of PNIERN for achieving results.

Technology Needs Assessments (TNA)

The UNFCCC's TNA (2016) process has developed methodologies, tools and capacity building to prioritize sectoral technologies, undertake detailed analyses of barriers, and undertake a detailed socio- economic analysis of mitigation technologies. It also developed Concept Notes on Climate Finance to support the transfer and dissemination of technology. The promotion of solar photovoltaic technology in the Hybridization project, occupies a key place in this assessment.

National Action Plans for Renewable Energy, Energy Efficiency and Sustainable Energy for All (NREAPs, NEEAPs, SE4ALL)

Recognizing the critical need to improve global access to sustainable, affordable and environmentally, the United Nations General Assembly declared 2012 the International Year of Sustainable Energy for All and urged member states members and the United Nations system to increase awareness of the importance of addressing energy issues and promote action at the local, national, regional and international levels.

In response, the United Nations Secretary-General launched a global initiative to achieve sustainable energy for all by the year 2030 (SE4ALL-2030).

This initiative seeks to mobilize action by governments, the private sector and civil society on three targets for 2030:

1. ensure universal access to modern energy services;

2. double the global rate of improvement in energy efficiency, and
3. doubling the share of renewables in the global energy mix.

The UN Secretary General through the initiative called the UN system, governments, the private and civil society sectors to come together to lead a revolution of clean energy with a strong commitment and concrete action to contribute to universal access to sustainable energy by 2030.

To this end, the Renewable Energy Policy of ECOWAS (PERC) and the Policy on Energy Efficiency of ECOWAS (CCAP) were adopted by the ECOWAS Member States in October 2012 and by the Heads of States ECOWAS July 18, 2013. Guidance documents have been prepared with the technical support of the Centre for Renewable Energy and Energy efficiency of ECOWAS (ECREEE) and a wide range of international partners (UNIDO, EUEI- PDF, GEF- SPWA, Austria and Spain). The policies include a minimum of targets / objectives and scenarios for Renewable Energy and Energy Efficiency (EE) measures, standards and incentives to implement at the regional and national levels.

The PERC provided for the development of National Action Plans on Renewable Energy (NREAP) by the fifteen Member States of ECOWAS at the end of 2014. PANERs (National Renewable Energy Plans), whose implementation will be five-year, contribute to the success of targets set by the regional PERC 2020 and 2030. PANERs are established by Member States of ECOWAS, in accordance with the model which was developed by ECREEE. The PANERs contain basic data on the status quo of national policies for the development of renewable energy and proposes achievable goals and targets. Some indicators are disaggregated by gender, and based on the national potential and socio-economic assessments.

In addition, a presentation of concrete laws, incentives and measures to be implemented by countries to achieve the targets are included. The Ministry of Mines and Energy and ECREEE will oversee the implementation of PANERs on behalf of the ECOWAS Commission in a continuous consultation process. The PANER model was prepared with the technical assistance of UNIDO and ECREEE. The process of implementation will be supported by numerous partners including the GEF Strategic Program for West Africa, GIZ, IRENA, and the governments of Austria and Spain.

Togo joined the **Sustainable Energy for All** initiative in 2012, and has developed its plans for Renewable Energy, Energy Efficiency and also for the **Sustainable Energy for All (SE4ALL)** initiative. These action plans were validated during a national workshop on August 20, 2015.

The developed and validated documents include targets for 2020 and 2030 for Renewable Energy and Energy Efficiency and the Measures to be implemented to achieve these objectives.

1. The objectives of the action plans for 2030

Access to Energy

- 82.5% of the population to access electricity;
- 80% of the population with access to improved stoves;
- 75% of the population using LPG as cooking fuel.

Renewable energy

- 24% of electricity production and 45.5% of the installed capacity of renewable sources;
- 10% biodiesel in diesel consumption and DDO;
- 7% ethanol in gasoline consumption;
- 8.9% of the population is connected to renewable mini-networks;
- the use of solar water heaters is widespread.

Energy Efficiency

- 10% losses in the electrical system;
- 100% of new private buildings comply with energy efficiency standards;
- 30% improvement in energy efficiency in industry;
- the use of efficient private and public lighting is widespread;
- 45% efficient production of charcoal.

2. Vision of the energy future of Togo

The energy vision of Togo axis around three priorities:

1. increase the energy supply;
2. strengthen security and energy independence of Togo,
3. reduce inequalities in access to modern energy services between urban and rural households.

To do this, Togo must regulate the sustainable energy sector to allow the development of an attractive market for local and international private investors.

3. Measures for achieving the objectives

Access to electricity

Intensification of already electrified areas:

- make available the connection cost to the poorest households;
- densify MV distribution networks in connecting the localities in the network.

Extension of MV networks to electrify priority localities of over 2,500 inhabitants and related areas; establish a demarcation of the accessibility of the service area for 2030.

Opt for electrification solutions for isolated grid or distributed energy system to achieve a coverage rate of 100% in 2030
Opt for the electrification of isolated mini-network for communities of less than 1,300 / 1,500 inhabitants and remote network;

Opt for individual solutions for communities of less than 500 inhabitants:

- Photo-voltaic solar kits;
- Multi-functional platforms with micro / mini grid. Access to the cooking energy.

Return to level the sustainable management methods of the timber resource:

Accelerate the transfer of responsibility for forest management to rural communities (massive exploitation, production discipline charcoal, trees in the fields).

Focus on energy efficiency in terms of penetration of improved stoves, regulation of the production of charcoal and efficient carbonization:

Develop the homes market improved by:

- The mass production of efficient stoves for wood and charcoal for urban use by creating pooling production units and forming human resources;
- The development of a program to support the construction and home maintenance mud improved supported by a voluntary carbon credit program;

Generalize carbonization improved by training producers of charcoal to achieve optimal carbonization rates;

Accelerate the adoption of the use of butane gas in urban areas

Develop national outreach program of bio-digesters

Renewable Energy

Develop the institutional and regulatory framework:

Create an agency in charge of renewable energy;

Establish a development fund for renewable energy to capture and centralize the maximum funding for the sub-sector;

Develop clear guidelines for the development of renewable energy;
Take into account the solar variant in public energy supply markets;
Establish a law on tax benefits in the field of the use of renewable energy; and
Exempt the equipment and photo-voltaic and thermal solar equipment, the customs duty, tax and value added tax (VAT);

Improving the planning capacity:

Provide a tool for planning and management structures;
Determine the optimal production plan for the whole country and to maintain the system in sufficient spinning reserve.

Create an enabling environment for the private sector:

For the design, financing and operation of renewable power plants;
For the local production of components and systems;
Support training and the market for installers, distributors and local technicians.

Develop pilot projects:

Establish pilot projects for the production of energy conversion devices and systems of biomass;
Establish mini pilot project networks powered by renewable sources.

Energy Efficiency

Power Systems:

Expansion of the transmission network and voltage increase;
Build capacity and extend the electricity distribution network;
Improve consumer database to control consumption, recover and optimize electricity billing;
Do energy audits and promoting the energy management system according to ISO50001.

Transport:

Attractive tax for the purchase of new vehicles and the use of alternative fuels;
Surtax petrol and diesel and older vehicles.

Lighting:

Adoption of minimum energy performance standards for lighting by the network and outside the network;
Promotion policy and measures to support the energy efficient lighting through awareness campaigns targeting end consumers;
Put in place a system of monitoring, verification and enforcement (MV & E) minimum energy performance standards (MEPS) for lighting systems;
Rational environmental management, through the implementation of a system of collection and disposal of energy efficient bulbs.

Solar water heaters

Adoption of standards of equipment by building class for solar water heaters;
Promotion policy and measures to support the installation of solar water heaters through awareness campaigns targeting end consumers;
Setting up a system of monitoring, verification and enforcement (MV & E) based on minimum standards for equipment and energy performance (MEPS) for solar water heaters.

Improved Stoves:

Make available improved stoves negotiated rates in rural and urban areas;
Distribute improved stoves and gas fireplaces in extreme poverty areas;
Train craftsmen in the manufacture of gas fireplaces;
Install bio-digesters in environments with high raw material potential.

Carbonation:

Develop and promote technologies for energy-efficient wheels;
Train producers of charcoal carbonization best practices.

Industry:

Make mandatory energy audits, energy management and energy balance in the industries;
Give financial support to the implementation of energy efficient technologies;
Raise commercial banks to finance energy efficiency projects in industrial enterprises;
Develop performance contracts.

Buildings:

Developing a building code and make mandatory energy audits, energy management and energy balance in buildings;
Develop regulations on heat loss from buildings;

Public sector:

Improve the energy efficiency of the public sector;
Make mandatory energy audits, energy management and energy balance.

3. Financing necessary for the achievement of objectives for 2030

Universal access to electricity: hundred and thirty (130) billion CFA francs for the development of electricity infrastructure.

Cooking Energy and solar water heaters: three hundred and forty (340) billion FCFA to finance programs for access to clean cooking energy and strong penetration of solar water heaters.

Renewable energy: an investment of two hundred thirty-three (233) billion CFA francs for the implementation of hydropower projects; hundred and eleven (111) billion FCFA for solar projects and thirty-two (32) billion FCFA for the wind project.

Energy efficiency: a total investment of three hundred twenty-six (326) billion FCFA to meet the energy efficiency programs

By 2030, a total cumulative investment of 1172 billion CFA francs would be needed to achieve the goals set by the various plans developed actions.

C. DESCRIBE THE BUDGETED M &E PLAN:

The BOAD Document provides a detailed description of the monitoring, reporting and evaluation to be undertaken during the Project. Full details of indicators, baseline values and targets are presented in Annex 1 to this document (Results Framework).

Monitoring and evaluation activities will follow standard BOAD and GEF monitoring and evaluation policies and guidelines. Monitoring and evaluation of progress in achieving project results and objectives will be done based on the targets and indicators established in the project Results Framework (Annex A). The project Monitoring and Evaluation Plan has been budgeted at US\$53,000 (see Table below). The project monitoring and evaluation approach will also facilitate learning and mainstreaming of project outcomes and lessons learned into international good practice as well as national and local policies, plans and practices. A summary of the envisaged M&E activities is provided in table 1 below:

Table 7: Monitoring and Evaluation Activity Summary

M&E Activities	Responsibility	Time frame	Budget US\$
Inception Workshop	Project Coordinator, BOAD	Q1	5000
Monitoring and Verification of Project Progress on outputs and implementation	Project Coordinator	Annually prior to ARR/PIR and definition of annual work plans	None
Annual Project Review/Project Implementation Reports (APR/PIR)	Project Coordinator, BOAD	Annually	None
Periodic status/ progress reports	Project Coordinator	Quarterly	None
Mid-term Review	Project Coordinator; Technical Adviser; BOAD; External evaluation team (international and national consultants).	7th quarter of project implementation	Budgeted cost: 20,000
Terminal Evaluation	Project Coordinator; Technical Adviser; BOAD; External evaluation team (international and national consultants).	In the last quarter of project implementation	Budgeted cost: 20,000
Project Terminal Report	Project Coordinator; Technical Adviser; BOAD	In the last quarter of project implementation	None
Audit	BOAD, Project Coordinator	Every year	Indicative cost per year: \$2,000 = \$8,000
Field visit	Project Coordinator Technical adviser, MDBAJEJ and BOAD	When required	PM Travel budget
Total Budgeted cost			USD 53,000

PART III: CERTIFICATION BY GEF PARTNER AGENCY (IES)

A. GEF Agency(ies)certification

This request has been prepared in accordance with GEF policies¹⁰ and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email Address
Almamy M'BENGUE West African Development Ban			Fatoumata TOURE SANGARE ftoure@boad.org	+22822215906	ambengue@boad.org

¹⁰ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT

List of Annexes

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ANNEX A: PROJECT RESULTS FRAMEWORK

Project Objective: To increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo						
Components/Key Result Areas	Outputs	Objectively Verifiable Indicators & Results		Verification Methods	Budget (USD) Source	
		Indicators/Activities	Results	Outcomes	GEFTF	co-finance
Key Result Area (Component) 1: Strengthening of regulatory, policy and institutional framework for Renewable Energy adoption and rural electrification	Output 1.1.1: Reformulated and adopted policies, rules, regulations and standards supportive of RE and energy efficiency systems with focus on solar energy in rural electrification. Output 1.1.2: The newly created AT2ER operationalized Output 1.1.3 : Development of the National Appropriate Mitigation Actions (NAMA) in renewable energy including its funding scheme supported	1.1.1.1 Revise the texts governing the regulatory framework and legal basis for the promotion of renewable energies and energy efficiency. 1.1.2.1 Supporting operationalisation of an institution/agency for the promotion of renewable energies. 1.1.3.1 Promote the programs and initiatives seeking low-carbon energy pathways and seek the funding for their implementation.	Result 1.1.1: The texts governing the legal and regulatory framework to promote renewable energy systems and energy efficiency are revised or developed Result 1.1.2 : an institution for the promotion of renewable energies (AT2ER) operational Result 1.1.3 : national programs and financial incentives appropriate to reduce greenhouse gas emissions and contribute to sustainable national development funded.	Outcome 1.1 : The country has a revised national energy policy, rules, regulations and standards supportive of renewable energy with a focus on solar energy technologies (electrification, solar heating, and solar irrigation)	180,000	150,000
Key Result Area 2: Knowledge and capacity development supporting public and private sector to provide better quality of	Output 2.1.1: Developed curriculum for training in planning and evaluation of RE as well as designing, implementation and maintaining hybrid diesel/PV to targeted to national, private and local partners and technical staff; 50% of	1.1.1 Design and edit the Guide for the development of training programs related to the maintenance of equipment hybrids (Diesel/solar energy) 1.1.2 Develop and update documents on the technical design and maintenance of equipment The hybrids (Diesel/solar energy)	Result 2.1.1: A comprehensive Guide for the development of training program and technical documents for the planning, design and maintenance of equipment hybrids (diesel/solar energy) are available for the technical staff and national private operators targeted.	Outcome 2.1 : technical staff are trained and equipped with understanding of RE and capable of designing and maintaining hybrid diesel/PV installations	105,000	1,408,000

<p>service to the rural areas</p>	<p>those trained must be women and youth</p> <p>Output 2.1.2 : One national planning workshop and five regional technical training workshops (1 in each of the 5 project regions) for the design, installation and maintenance of hybrid systems;</p> <p>Output 2.1.3: Train local youth on the operation and management of PTFMs as well as off-grid electrification</p> <p>Output 2.2.1: Dissemination of material, TV and radio programmes organized to inform and sensitize populations of the environmental health and social benefits of RE. Develop and disseminate toolkit on PTFM and PTFM hybridisation.</p> <p>Output 2.2.3 : Widespread outreach through local events consultations and meetings organized by villages used as a platform to sensitize rural communities on the benefits of solar energy; possibly 1 tailored event in each of the 5 regions</p>	<p>2.1.2.1 Organize a regional workshop of planning for national partners, private enterprises and technical staff - project & Govt.</p> <p>2.1.2.2 Organize five technical trainings regional (1 in each of the 5 regions of the project) on the design, implementation and maintenance of hybrid systems</p> <p>2.2.1.1 Design of awareness programs relating to the use of renewable energy in rural areas</p> <p>2.2.1.2 Disseminate awareness programs relating to the use of renewable energy in rural areas (workshops, prospectus, radio, television, newspapers, etc.)</p> <p>2.3.1.1 Develop strategies to support local businesses for the design of their business plans incorporating renewable energy</p> <p>2.3.1.2 put in place a reliable mechanism of financing the business plans of the local businesses in the sector of renewable energies</p>	<p>Result 2.1.2: planning workshop and technical trainings related to the design, implementation and maintenance of hybrid systems are carried out.</p> <p>Result 2.2.1: awareness programs are produced and disseminated nationally</p> <p>Result 2.3.1: strategies of support to local businesses for the preparation and financing of their plans for the case exist</p>			
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	Output 2.3.1: Strategy for the private sector for business plans development and accessing loans to expand their operations					
Key Result Area: 3. Availability of, and access to financing of Renewable Energy and Energy Efficiency Projects	<p>Output 3.1.1: Review of the pricing, billing (tariff schemes), and operational management systems of electricity and energy services in rural areas.</p> <p>Output 3.1.2: Completed design and development of sustainable financing schemes for solar electrification including establishment of a system of customs tax exemption and systems of subsidies to encourage private actors</p> <p>Output 3.1.3: Operational financing scheme for sustainability of RE integration in rural electrification projects (using the example of solar energy) established and tested using public - private partnership</p>	<p>3.1.1.1 A system of customs rebate (exemption and subsidy) to encourage the private operators in the sector of especially off-grid renewable energy is put in place.</p> <p>3.1.1.2 The texts to exonerate or subsidize the customs taxes on the sale of certified material of good quality by private companies are developed and adopted.</p> <p>3.1.2.1 Develop the financing plan for the sustainability of the integration of renewable energy in the projects of rural electrification</p> <p>3.1.3.1 Perform the working sessions, in a framework of public-private partnership, with the national banks, BOAD, financial institutions and private services involved in the promotion of solar energy, the Department of Energy, The AT2ER to develop and operationalise an appropriate financing mechanism for the development of renewable energies.</p>	<p>Result 3.1.1: pricing, the existing billing and the system of operational management of the electricity by off-grid operators are reviewed, assessed and modified.</p> <p>Result 3.1.2: a system of sustainable financing for the use of solar energy is put in place.</p> <p>Result 3.1.3: the financing plan for the sustainability of the integration of renewable energy in projects of rural electrification is operationalised and tested using the public-private partnership.</p>	Outcome 3.1. Financial mechanisms suitable for sustainable solar electrification are implemented	175,000	2,036,000
Key Result Area: 4.	Output 4.1.1: Designs and implementation	4.1.1.1 Design models and implementation plans for the	Result 4.1.1: models and implementation plans for the hybrid	Outcome 4.1: Hybrid solar	2,065,000	7,965,000

<p>Deployment of hybrid solar energy Technologies and Applications</p>	<p>plans for the demonstration of the commercial applications of solar technologies are validated by stakeholders</p> <p>Output 4.1.2: Diesel/solar hybrid PV demonstration systems of 20 kWp PV in 50 villages and 50 kits of solar pumps for irrigation and drinking water supply installed and functional</p> <p>Output 4.1.3: Operational teams and pilot communities sensitised and trained on the use hybrid systems</p> <p>Output 4.2.1 : Selected agri-food/artisanal products marketing channels identified in PRADEB study are engaged in the use of electricity to promote expansion of their</p>	<p>hybridization of the solar energy with the diesel.</p> <p>4.1.1.2 Identify the platforms of hybridization with solar energy as well as the Economic interest groups for their use</p> <p>4.1.2.1 acquire and install the equipment hybrids solar/</p> <p>4.1.3.1: To put in place a mechanism to aid in the direction of actors (GIE, physical persons) who wish to put in place income-generating activities around the platforms equipped with solar energy</p> <p>4.1.3.2: to strengthen the capacity of the organisation and management of groups of women and young people interested in the establishment of income-generating activities</p> <p>4.2.1.1 and 4.2.2.1 train the actors of chains of marketing of agri-food products of PRADEB to the use of platforms for the development of their activities and entrepreneurship.</p>	<p>solar technology with the commitment of the local stakeholders concerned and of the operational teams are developed</p> <p>Result 4.1.2: hybrid solar equipment are installed and used (50 Diesel / solar PV systems hybrids that have each up to 20 kWp PV) in 50 villages. 50 platforms with solar panels 20 kWp PV- 50 kits of solar pumps) for irrigation and drinking water supply</p> <p>Result 4.1.3: income-generating activities are developed by the beneficiaries (100 rural groups of young people and women)</p> <p>Result 4.2.1: The chains of marketing of agri-food products identified in the study of PRADEB are integrated in the use of solar energy (for each region - (1) to two (2) chains of agro-food products / Crafts)</p>	<p>energy capacity installed and added value is demonstrated</p> <p>Outcome 4.2: Local interest groups are engaged through support and group activities</p>		
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	<p>marketing and generate additional resources</p> <p>Output 4.2.2: Increased number of local youth trained in output 2-1-3 are employed in rural electrification projects and or expanded agri- food networks</p>		<p>Result 4.2.2 : creation of jobs for young people and women in rural areas facilitated</p>			
<p>Key Result Area: 5 Monitoring and evaluation; information dissemination and replication</p>	<p>Output 5.1.1 : Operationalisation of a system for monitoring and evaluating the results (Web-based info clearing house for PTFM/ Mini grid stakeholders) of this project integrating the assessment of the environmental, socio-economic benefits</p> <p>Output 5.1.2 : Independent evaluation of the project by a firm of external expertise</p> <p>Output 5.2.1: Evaluation of lessons learned and recommendations in terms of the impact of hybrid diesel/solar energy technologies on rural livelihoods as input to support implementation of other similar projects</p>	<p>5.1.1.1: the tools necessary for the proper operation of the system of follow-up and evaluation are developed</p> <p>5.1.1.2: the actors in charge of the activities of follow-up and evaluation are trained</p> <p>5.1.2.1 Recruit a business to highlight of the indicators of the performance of the project and the lessons learned.</p> <p>5.2.1.1: Perform a thorough analysis of the lessons learned and recommendations relating to the evaluation of the project of hybridization (diesel/solar energy)</p> <p>5.2.2.1: Designing the media of communication necessary to the dissemination of information on solar energy.</p> <p>5.2.2.2: Use all channels of communication customary (pamphlets, television, Internet, radio, documentaries, meetings,</p>	<p>Result 5.1.1: a system of monitoring and evaluation of the results of development of the project including the environmental and socio-economic benefits is operationalized</p> <p>Result 5.1.2: An independent evaluation of the project by an external evaluation firm is carried out.</p> <p>Result 5.2.1: lessons learned and recommendations in terms of the impact of hybrid technologies diesel / of the solar energy on rural livelihoods as supporting documentation to support the formulation of other projects are evaluated</p> <p>Result 5.2.2 : the experiences of this project are shared with all national entities and also with at least three other countries of the region</p> <p>Result 5.2.3: The draft implementation of lessons and recommendations is developed</p>	<p>Outcome 5-1: Project continually monitored, evaluated, corrective actions taken and experience documented</p> <p>Outcome 5.2 : Effectiveness of outputs evaluated and lessons learned disseminated in support of replication</p>	104,000	5,039,000

	<p>Output 5.2.2: Experiences from this project shared with all national entities and also with at least three other countries in the region</p> <p>Output 5.2.3: Preparation of project to ensure the implementation of lessons learned and recommendations</p>	<p>etc.) to disseminate information on the Solar Energy</p> <p>5.2.3.1 Prepare the project to follow up the implementation of the recommendations and lessons learned</p> <p>5.2.3.1 formulate a renewable energy project on a large scale to cover all 1,783 PTMF planned by Togo.</p>				
Project Management Cost (PMC)					131,200	170,000
Total Project Cost/Budget					2,624,000	16,768,000

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).

There were no comments from STAP at PIF stage.

Comments from GEF Secretariat at PIF Stage	Responses	Changes made in the Full Project
<p>Please address the drivers or root causes of global environmental degradation that is relevant to this project. For example, high cost of installation for solar power might be the root cause for the lack of use of solar systems. Then, justify how this project will overcome the root problem and make sure this project will be sustainable and have a transformational impact on the market in renewable energy investment in Togo. (Some of relevant information is shown on page 11. The PIF needs to be re-arranged and modified to meet the requirement).</p> <p>Please re-write the paragraph on page 12 that is addressing sustainability.</p> <p>Please focus on how the GEF project will continue operation after the project implementation period is over.</p> <p>Please answer specifically how the operation and maintainable costs of the 1 MW solar PV equipment will be covered, and how the regulatory framework and financial mechanisms for solar PV investment will be continually effective in the country</p>	<p>Comments were addressed. But detailed GHG calculations with GEF recommended methodologies need to be presented in CEO ER document.</p>	<p>The drivers of global environmental degradation (in this case, climate change) have been addressed in detail. The exact ways this project mitigates global climate mitigation is shown in details estimates are also well-elaborated</p> <p>Sustainability has been addressed in close detail following findings from the stakeholder consultations and other studies during PPG activities. Sustainability is addressed through innovative and inclusive local ownership structures as well as local capacity development entrenched in community operations and governance structures. The business models around each platform ensure sufficient cash flows to cover maintenance costs.</p> <p>Nationally, creation of a favourable solar PV investment environment is a key focus area of the project.</p>

<p>In Component 2, please clearly indicate the number of workshops to be conducted, the number of programs and materials to be developed, and the number of agri-food/ artisanal products to be generated from this project. Please also allocate some co-financing resources to Component 1.</p> <p>Component 2 in Table B is budgeted a total of \$13.4 million for 1 MW solar PV equipment and 50 kits of solar water pumps. The average cost of the solar PV system seems very high: over \$13 per watt. Please provide detailed information on the costs of the solar PV system and justify them.</p> <p>The GEF finance figures in Tables A (\$2,534,000) & B (\$2,660,700) do not match. Please fix them.</p> <p>Please check all the numbers carefully in Table B. The sum of sub co-financing amounts does not match the total amount (\$16,768,000). Please double check every number in every Table in the PIF to make sure there is no mistake.</p>	<p>Yes, comments were addressed and issues were cleared.</p> <p>Addressed and issues cleared.</p> <p>Done</p>	<p>Refer to Part I Section B Output 2.1.2 of the of the CEO Endorsement Request- Description of Component 2.</p> <p>Refer to Part I Section 4.1 and 4.2 of the of the CEO Endorsement Request- Description of Component 4. Widened to demonstrate value added by the project.</p>
<p>At CEO ER stage, please present detailed calculation of GHG emission reductions by using GEF recommended methodologies.</p>	<p>Done</p>	

CEO endorsement Review

Secretariat Comment at CEO Endorsement/First Review	Secretariat Comment at CEO Endorsement	BOAD Responses to Secretariat comments/ Changes in the full project
<p>GEF Council</p> <p>1-5-2017</p> <p>Not at this time. Please address the comments of the Council.</p>	<p>10-7-2017</p> <p>Not at this time. Please address the comments of the German Council.</p> <p>4-4-2016</p> <p>Germany</p>	<p>16-18-2017: Changes in the full project</p>

	<p>Germany approves this PIF in the work program but asks that the following comments are taken into account:</p> <p>Germany welcomes the efforts made by Togo to promote rural electrification via the use of renewable energies</p> <p>Suggestions for improvements to be made during the drafting of the final project proposal:</p> <p>The project design could benefit from considering the following aspects:</p> <ul style="list-style-type: none"> • The term “PTMF” should be specifically defined to clarify whether they just include an electricity generation unit or also a motor and different productive elements as the picture in annex 2 implies. • Prices for PV technology have gone down dramatically in recent years. During project preparation, please conduct a detailed cost-revenue analysis (from the investor’s point of view) and chose policy instruments that avoid over-subsidization. Public funds should be used to catalyse private investments. A complete funding of the PTMF investment costs is not necessary as the sale of electricity will generate revenues and the operation of the units might be profitable even without or very little subsidies from public budgets. 	<p>31-7-2017</p> <p>This is done. PTFM has mainly productive use elements and in some cases electricity generation units. In all cases, the productive uses are more prominent.</p> <p>Reference: Page 12 of the CEO ER</p> <p>This project is set to hybridise 50 out of a planned 1,783 platforms as a way of demonstrating the technology and approach. The strategy is as described in pages 12, 13 and 14 of CEO ER, under IV) Review of past experiences and lessons learned, is to use existing experiences of economic activities enables by the PRADEB Program to enhance the business case of the PTFM. This cost-revenue analysis conducted during the project preparation identified gaps (especially profitability and cost-effectiveness) that hybridisation would close or narrow.</p>
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	<ul style="list-style-type: none"> • Please consider using batteries as part of the PTMF as it allows storing surplus solar energy for hours of no sunlight and thus further reduces the need to use fossil fuel (diesel) and emit greenhouse gases. • Germany encourages coordination and information sharing with all donors active in the sector, including German technical and financial cooperation, in order to generate synergies. 	<p>Further, Component 2 on knowledge and capacity development supports increased private investment into hybridisation. The platforms being set up also include investor contribution from the onset, thereby eliminating over-subsidization. Reference: Pages 12, 13, and 14 of the CEO ER</p> <p>31-7-2017 Batteries are incorporated in the planned systems to enable storage for longer hours of functionality of the systems. Reference: page 24 of CEO ER document</p> <p>31-7-2017 Beyond Components 1 and 2 strengthening the regulatory framework and on knowledge and capacity development, component 3 seeks to develop practical financing and technical cooperation for renewable energy financing so as to promote growth in the subsector. This includes German institutions and corporations from where solar technologies identified would be sourced.</p>
<p>GEF Council 8/14/2017: Not completed at this time. Please use the Table on page 61 at Annex B to put the comments of German Council, fill the "Responses" and indicate "Changes in the full project".</p>		<p>16-8-2017: Changes to full project Table on page 61 at Annex B amended to include the responses to German Council comments appropriately.</p> <p>Annex B.2 also updated and attached with the full project proposal.</p> <p>Reference: Table on page 61 through 64 of CEO ER</p>
<p>Recommendation: Is CEO endorsement recommended?</p>		<p>16-8-2017: Changes to full project</p>

<p>8/14/2017: In Table A, please delete the row of "agency fee". Before the row of "project management", please sum all the above costs to get sub-total. Then, the Project Management costs are calculated at 9% of the Sub Total.</p>		<p>Amended appropriately by adding a row for sub-totals before PMC row then calculating PMC from that and summing up.</p> <p>Reference: Table A, page 2 of the CEO ER Document</p>
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Annex B.2: RESPONSES TO FIRST AND SECOND REVIEW AT CEO ER (ATTACHED)

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS¹⁴

A. Provide detailed funding amount of the PPG activities financing status in table 7 below:

Table 8: PPG analysis

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	GETF/LDCF/SCCF/CBIT Amount (\$)		
	Budgeted Amount	Amount Spent To date	Amount Committed
CONSULTANTS/EXPERTS	40,000	40,000	40,000
PROPOSAL VALIDATION WORKSHOP	2,000	3,000	3,000
STAKEHOLDER CONSULTATION	7,000	7,000	7,000
FEASIBILITY (FIELD WORK AND SITE	21,320	20,320	20,320
TRANSPORT (International and local)	9,018	9,018	9,018
Total	79,338	79,338	79,338

¹⁴If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: TERMS OF REFERENCE (ToR) FOR THE PROJECT EXPERTS

1. TERMS OF REFERENCE (ToR) FOR THE PROJECT COORDINATOR

Context:

These ToR are within the framework of the project *Hybridization of Diesel Engines of Multifunctional Platforms with Solar Systems* in Togo which aims Increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo. The project covers all regions of Togo and the platforms to be hybridised have been installed by PRADEB so collaboration with PRADEB's anchor Ministry is at the centre of it.

This project is initiated by the Government of Togo through the GEF Focal Point as a climate mitigation initiative. Being a national project funded by GEF, it is multi-stakeholder and coordination requires close collaboration so as to be efficient, effective and create the lasting change in the policy environment and practices around rural electrification and renewable energy adoption in Togo. For purposes of knowledge management, the coordinator will ensure that the relevant lessons learned and replicable technologies are promoted in line with the project components.

The project will hire a coordinator to lead implementation whose terms of reference are as follows:

Duties of the coordinator:

- Coordinate the project activities in line with the project document;
- Initiate and manage partnerships with other projects and programs;
- Prepare periodic project activity plans;
- Prepare periodic technical reports- internal and for external reporting;
- Coordinate and manage the project team;
- Consult regularly ASCENT's president for the proper implementation of activities
- Manage consultants to be recruited under the project.
- Contribute to the recruitment of experts.
- Facilitate technical and managerial project meetings and prepare reports of these meetings.
- Prepare ToR for services and expert for services to be outsourced
- Provide technical control of the results produced by the experts and other providers
- Provide periodic monitoring and evaluation

Qualifications:

High Level Education (at least MSc) in one of the areas of sustainable development (Energy, Environment, Agriculture), endowed with proven managerial skills and having relevant professional experience of at least ten (10) years. Fluency in English is highly desirable.

2. TERMS OF REFERENCE OF THE SPECIALIST MONITORING, EVALUATION & LEARNING (INTERNATIONAL EXPERT)

Context:

These ToR are within the framework of the project *Hybridization of Diesel Engines of Multifunctional Platforms with Solar Systems* in Togo which aims Increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo. The project covers all regions of Togo and the platforms to be hybridised have been installed by PRADEB so collaboration with PRADEB's anchor Ministry is at the centre of it.

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The project implementation requires the recruitment of an M, E &L specialist whose terms of reference are as follows:

Duties of natural resource management specialist

- Develop an M, E &L plan for the project during inception period;
- Propose and develop a monitoring tool for the project based on the agreed and approved results framework;
- Carry out mid-term evaluation of the project and recommend adjustments;
- Participate in meetings PSC meetings and other relevant activities relating to the project;
- Carry out end-term evaluation of the project; document learning and recommend actions post-implementation

Qualifications:

Masters Level Education in one of the following disciplines: social sciences, Environment, and proof of experience of at least ten (10) years in project management as well as evidence of having carried out similar assignments.

3. TERMS OF REFERENCE OF THE COMMUNICATION EXPERT

Context:

These ToR are within the framework of the project *Hybridisation of Diesel Engines of Multifunctional Platforms with Solar Systems* in Togo which aims Increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo. The project covers all regions of Togo and the platforms to be hybridised have been installed by PRADEB so collaboration with PRADEB’s anchor Ministry is at the centre of it.

This project is initiated by the Government of Togo through the GEF Focal Point as a climate mitigation initiative. Being a national project funded by GEF, it is multi-stakeholder and coordination requires close collaboration so as to be efficient, effective and create the lasting change in the policy environment and practices around rural electrification and renewable energy adoption in Togo. For purposes of knowledge management, the coordinator will ensure that the relevant lessons learned and replicable technologies are promoted in line with the project components.

The implementation of the project requires the recruitment of an expert in communication whose terms of reference are as follows:

Duties of communication expert

- Diagnose the current state of communication relevant to the project in Togo;
- Develop the project communication plan;
- Propose a communication budget;
- Select and propose adequate communication tools in the project area
- Develop and monitor various communication strategies
- Contribute to the evaluation of communication programs;
- Participate in meetings and other activities relating to the project;
- Produce regular reports on communication activities within the project;
- review all communication materials and project reports for accuracy in messaging

Qualifications:

Masters Level Education in Communication Sciences, energy, Agriculture or Environment with proof of experience of at least ten (10) years in the field of communication

4. TERMS OF REFERENCE OF THE FINANCE OFFICER

Context:

These ToR are within the framework of the project *Hybridisation of Diesel Engines of Multifunctional Platforms with Solar Systems* in Togo which aims Increase access to electricity and modern energy services through the development and use of solar energy technologies in the villages of Togo. The project covers all regions of Togo and the platforms to be hybridised have been installed by PRADEB so collaboration with PRADEB’s anchor Ministry is at the centre of it.

This project is initiated by the Government of Togo through the GEF Focal Point as a climate mitigation initiative. Being a national project funded by GEF, it is multi-stakeholder and coordination requires close collaboration so as to be efficient, effective and create the lasting change in the policy environment and practices around rural electrification and renewable

energy adoption in Togo. For purposes of knowledge management, the coordinator will ensure that the relevant lessons learned and replicable technologies are promoted in line with the project components.

The implementation of the project requires the recruitment of a Finance Office/Project Accountant whose terms of reference are as follows:

Duties of Finance Officer

- Implement Finance and administrative systems of the Project
- Preparation of periodic budgets and procurement plans;
- Ensure payments are promptly remitted, received, processed and filed in an accessible manner
- Facilitate preparation and carrying out of audits on the project as may be required by GEF/BOAD;
- Participate in meetings and other activities relating to the project;

Qualifications:

Bachelor Level Education in Finance and/or accounting, Public Administration, Business Administration, or other relevant discipline; with 7years experience. Project finance experience is an added advantage.

Annex E: List of Acronyms

ANADEB	- National Agency for Development Support Base
ANPGF	-
APIM	-
ASCENT	-Africa Sustainability Centre
AT2ER	- Togolese agency for Rural Electrification and Renewable Energy
BAU	-Business as Usual
BOAD	-West African Development Bank
CASIMEC	-
CBOs	- Community based organizations (CBO)
CEET	- the Electric Power Company of Togo
CO _{2e}	-Carbon dioxide equivalent
CSOs	-Civil Society Organisation
ECREEE	-Centre for Renewable Energy and Energy efficiency of ECOWAS
FCFA	-French Francs
GHG	-Greenhouse Gas
GWh	-Gigawatt-hour
IRENA	-International Energy Agency
ktoe	-Kilotons of oil equivalent
kVA	-Kilovolt-ampere
kWh	-Kilowatt-hour
kW _p	-Kilowatt peak
LPG	-Liquefied Petroleum Gas
LULUCF	- land use, changes in land use and forestry
M, E&L	-Monitoring, Evaluation and Learning
MDBAJEJ	- Ministry of Development Database, Development Support Programme at the base
MEA	- multilateral environmental agreements
MERF	- The Ministry of Environment and Forest Resources
MFIs	-Micro-finance institutions
MoUs	-Memorandums of Understanding
MWh	-Megawatt-hour
NAMA	-Nationally appropriate mitigation actions
NGO	-Non-governmental organisation
NREAP	-National Action Plans on Renewable Energy
PANERs	-National Renewable Energy Plans
PCA	-Project Coordination Agreement
PERC	-Renewable Energy Policy of ECOWAS
PLF	- Plant Load Factor
PLF	-Plant Load Factor
PMU	- Project Management Unit
PN-PTFM	- the National Programme development of multi-functional platforms
PRADEB	- Grassroots Development Support Program Programme
PSC	- The Project Steering Committee
PTFM	-Multi-functional platform
PV	-Photovoltaic
RLA	-local relay Agencies
SCAPE	-The Accelerated Growth Strategy and Employment Promotion
SDG	-Sustainable Development Goals
SE4ALL	-Sustainable Energy for All
SME	-Small and Medium Enterprises
TNA-	- technology needs assessments
UNFCCC	-United Nations Framework Convention on Climate Change

Annex G: List of 50 selected for the hybridization PTFM

NO.	Town	Canton	Prefecture	Region
1	Tanou Bokocopé	Attitogon	Lower Mono	Maritime
2	Dzogadzé	Dzolo	Ave	Maritime
3	Sédomé	Sédomé	yoto	Maritime
4	Gapé-Adjido	Gapé center	Zio	Maritime
5	Esse-Nadje	Tchekpo	yoto	Maritime
6	Ogou Agrani	Badin copé	is Mono	uplands
7	Konadabo	Kamina	is Mono	uplands
8	Bena Plateau	Ok or	Wawa	uplands
9	Klabe Soto	Klabe Efoukpa	Wawa	uplands
10	Adogli	Ekpégnon	Amu	uplands
11	Litito	Dawlotou	Kpélé	uplands
12	Fangodo	Badin copé	is Mono	uplands
13	Anani copé	Kamina	Akébou	uplands
14	Akakégan	Kpédomé	Haho	uplands
15	Témé Oulo	Kpatègan	Amu	uplands
16	Kpalavé Gboyéyé	Kpalavé	Akébou	uplands
17	Kessibo Séwa	Késsibo	Wawa	uplands
18	Gnezimde	Djarkpanga	Sotouboua	power plant
19	N'konta	Kagnigbara	Plain Mô	power plant
20	Agbawiliga	alibi 1	Chamba	power plant
21	Sada2	Kparatao	Tchaoudjo	power plant
22	Akawilou	Bago	Chamba	power plant
23	Tchethekou	Saiboudè	Plain Mô	power plant
24	Tembio chou	Adjengueré	Sotouboua	power plant
25	Aug matchatom	Lama Tessi	Tchaoudjo	power plant
26	Niamtougou kope	Tchare- Bahou	Blitta	power plant
27	Welly center	Welly	Blitta	power plant
28	Talkate Cope	Agbandi	Blitta	power plant
29	Kadjingarada	Daoude	Assoli	Kara
thirty	Pangouda center	Pangouda	Kéran	Kara
31	Binadjoubé	Bitchabé	Bassar	Kara
32	Sintewota	Ossacré	Kéran	Kara
33	Agbassa	Kadjala	Doufelgou	Kara
34	Tchoré-Nacoco	Tchoré	Doufelgou	Kara
35	Djabokou	Katchamba	Dankpen	Kara
36	Adjaïtè	Pessidè	Kéran	Kara
37	Helota	Helota	Kéran	Kara

38	Sam Naba	Sam Naba	Cinkassé	savannas
39	shearing	Tami	Tône	savannas
40	Kongo moba	Namare	Tône	savannas
41	Galpoli	Ogaro	Kpendjal	savannas
42	Bombengou	Borgou	Kpendjal	savannas
43	Djakpaga	Poissongui	Tône	savannas
44	liek	Doukpelgou	Tandjouaré	savannas
45	Palate	Naki- West	Tône	savannas
46	Nayergou up	Tamongue	Tandjouaré	savannas
47	Malagou	nano	Tandjouaré	savannas
48	Takpapieni	Gando	Oti	savannas
49	Djandjatiè	Takpamba	Oti	savannas
50	babona 1	Dapaong	Tône	savannas