PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Scaling up small hydro power (SHP) in Nigeria		
Country(ies):	Federal Republic of Nigeria	GEF Project ID:[1]	5375
GEF Agency(ies):	UNIDO	GEF Agency Project ID:	120119
Other Executing Partner(s):	Federal Ministry of Environment (FME), Federal Ministry of Power (FMP), Federal Ministry of Water Resources (FMWR), Energy Commission of Nigeria (ECN), State Governments	Submission Date: Resubmission Date:	04.05.2013 04.12.2013
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48
Name of parent program (if applicable): • For SFM/REDD+ ☐ • For SGP ☐ • For PPP ☐	N/A	Project Agency Fee ($):	255,520

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK[2]:

Focal Area Objectives	Trust Fund	Indicative Grant Amount ($)	Indicative Co-financing ($)
CCM-3 Promote investment in renewable energy technologies	GEFTF	2,689,680	14,870,000
Total Project Cost		2,689,680	14,870,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To promote investments in SHP technology and strengthen local manufacturing of SHP turbines in Nigeria

Project Component	Grant Type[3]	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Cofinancing ($)
1. Human and institutional capacity building	TA	Improved awareness, knowledge and capacity on SHP technology	1.1. Capacity strengthened SHP Technology Centre in Nigeria 1.2. Capacity developed among policy makers 1.3. Capacities developed for project developers and financial institutions	GEFTF	200,000	400,000
2. Upgrading	TA	Capabilities	2.1. Enhanced local	GEFTF	300,000	500,000

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the reference attached on the Focal Area Results and LDCF/SCCF Framework when completing Table A.
[3] TA includes capacity building, and research and development.

the capacity for local fabrication of SHP turbines and control systems in Nigeria		available in the country for fabricating SHP cross flow turbines and control equipment upgraded from 125 to 300 kW capacity	fabrication capacity for cross flow turbines and control equipment from 125 kW to 300 kW 2.2. National standards developed for SHP			
3. Promoting investments in SHP sector	TA	Conducive investment environment for scaling up of the SHP projects available	3.1. Incentives system designed for SHP projects 3.2. Detailed designs prepared for the proposed SHP plants	GEFTF	481,600	2,000,000
	INV	Technical and economic viability of SHP technology established	3.3. SHPs of 3 MW cumulative capacity established	GEFTF	1,500,000	11,000,000
4. Monitoring & evaluation (M&E) and knowledge management	TA	1. Effectiveness of the outputs assessed, corrective actions taken and experience documented 2. Acceptance of the technical and economic viability of SHP plants	4.1. Mid-term M & E report prepared 4.2. End of project M & E report prepared 4.3. Lessons learnt and information widely distributed 4.4. Methodologies and tools developed for use of collated information for better planning and decision making	GEFTF	80,000	370,000
Subtotal					2,561,600	14,270,000
Project Management Cost (PMC)[4]				GEFTF	128,080	600,000
Total Project Cost					2,689,680	14,870,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount ($)
Federal Government of Nigeria	Federal Ministry of Environment	Grant	1,000,000
Federal Government of Nigeria	Federal Ministry of Power	Grant	5,600,000
Federal Government of Nigeria	Federal Ministry of Water Resources	Grant	770,000
Federal Government of Nigeria	Energy Commission of Nigeria	In-kind	300,000
Local Governments	State Governments (different)	Grant	6,500,000
Local Governments	State Governments (different)	In-kind	500,000
GEF Agency	UNIDO	Grant	60,000
GEF Agency	UNIDO	In-kind	140,000
Total Cofinancing			14,870,000

D. INDICATIVE TRUST FUND RESOURCES ($) REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

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

[4] To be calculated as percent of subtotal.

Total Grant Resources				0	0	0

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

[2] Indicate fees related to this project.

PROJECT PREPARATION GRANT (PPG)[5]

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

	Amount Requested ($)	Agency Fee for PPG ($)[6]
• No PPG required.		
• (up to) $50k for projects up to & including $1 million		
• (up to) $100k for projects up to & including $3 million	50,000	4,750
• (up to) $150k for projects up to & including $6 million		
• (up to) $200k for projects up to & including $10 million		
• (up to) $300k for projects above $10 million		

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

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

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

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

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

PART II: PROJECT JUSTIFICATION[7]

A. Project Overview

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

Global environmental problem, root causes and barriers

Owing to the poor investments in electricity sector and poor exploitation of available RE, the overall electrification is very low. The overall rate of electrification in Nigeria is 47%, with 26% rural electrification and 69% urban electrification[8]. Even those who receive electricity experience frequent disruptions. There is a wide gap between the electricity demand (approx. 15,000MW) and supply (installed capacity 6,000 MW) together with lack of reliability in supply. Hence, most of the industries and households rely on inefficient diesel generators to meet their energy needs. As a result, the Nigerian economy has become fossil-fuel dependent leading to high CO_2 emission from the energy sector with serious environmental consequences and increased vulnerability to climate change.

The heavy concentration of GDP generating industries located in areas that are highly sensitive to climate change-induced sea level rise (e.g., Lagos and the Niger Delta), makes the country extremely vulnerable. According to the Nigerian Federal Ministry of Environment, there is a threat of potential submergence of 853 km stretch of coastline along the Atlantic Ocean[9].

Among various RE options, SHP holds greater promise for Nigeria in addressing climate change and providing access to energy for the whole population. Recent government estimates suggests a potential of approximately 14,750 MW of hydropower of which, SHP alone could be around 3,500 MW[10]. However, the sector development is hampered by a number of barriers[11] such as a) lack of capacity in design, fabrication, installation and operation of SHP systems, b) lack of local skills and know-how in developing SHP projects (planning, development and implementation), c) lack of information on potential sites (hydrological and geological data as well as river training), d) lack of awareness, incentives and coordination among various stakeholders, and e) lack of conducive environment for private sector participation in SHP development.

Baseline scenario

In the absence of the project (base case), the Government of Nigeria will be using least cost approach (fossil fuel based electricity generation including usage of diesel generators) to tackle the ever increasing demand-supply gap in electricity. This is similarly the situation with the many private industries.

Under the business as usual scenario, most of the investments in the energy sector will have to come from the government. Given the budgetary constraints and other pressures, public sector investments are unlikely to materialize for substantially funding the increasing energy gap in the country, particularly with regards to using renewable energy (RE) sources. The role of the private sector, which is very crucial in achieving the substantial investments, needed to increase the energy supply in Nigeria while reducing dependence of diesel electricity generation, would have been minimal. Also, the utilization rate of available SHP potential would be less and the initiatives taken in the SHP sector would be minimal. No holistic, country wide efforts to improve the SHP sector would take place. In the absence of the project, only UNIDO would have

[7] Part II should not be longer than 5 pages.

continued with its activities to build the local capacity in Nigeria for SHP development.

Baseline Project:

UNIDO's interventions in the field of SHP in Nigeria includes awareness creation and capacity building of relevant stakeholders as well as establishment of few pilot plants in Ezioha Mgbowo project (30 kW), Enugu State and Waya Dam project (150 kW), Bauchi State and Tunga Dam Small Hydro Power plant (400 kW), Taraba State. It is also assisting the development of a 1,200 kW project in Benue state with donor support. UNIDO facilitated the transfer of technology for manufacturing cross flow turbines up to a capacity of 125 kW to National Agency for Science and Engineering Infrastructure (NASENI), Nigeria. As a result NASENI fabricated 2 x 35 kW turbines locally and currently being installed in Ondo state. All these activities were made possible through one of its recently completed project "Regional Centre for Small Hydro Power in Abuja". Through the activities of Regional Centre project, about 100 more potential SHP sites have been identified. Overall, UNIDO had invested over USD 2.5 million so far in promoting SHP in Nigeria.

All the above activities has created the right environment for scaling up SHP and UNIDO's efforts needs to be complimented and GEF intervention will be timely and appropriate to achieve its goal of utilizing the available potential and rural electrification. GEF intervention will remove all remaining barriers, specifically, technology barrier (through local manufacturing of turbines), lack of institutional capacity (through strengthening of institutional capacity) and barriers in accessing financing.

Proposed alternative scenario

The GEF project will use GEF resources to finance incremental costs for demonstrating and promoting private sector investments in the SHP based mini-grids as a financially viable and effective mechanism for achieving rural electrification, displacing diesel generators. The GEF project will result in removal of the key barriers that currently limit the use of SHP for rural electrification in Nigeria, thereby resulting in a reduction in greenhouse gas emissions.

Project Component1: Human and institutional capacity building

This component will mainly strengthen the capacities of the existing SHP Technology Centre of Nigeria for the provision of a more effective technical support on SHP project development and implementation as well as fabrication of SHP turbines and controls for higher capacity at least up to 300 kW. Policy makers and interested project developers will be educated and efforts will be taken to help them gain confidence in the technology. They will be equipped with necessary technical capacity for supporting, developing and implementing SHP projects. Personnel from bank and financing institutions will be trained in assessing the SHP projects. Local engineering and O&M companies will be trained to facilitate sustainable operation and maintenance of the demonstration and replication projects.

The capacity development at the SHP Technology Centre of Nigeria would be sustained through a

[8] UNDP/WHO 2009 report
[9] http://environment.gov.ng/special-units/climate-change/
[10] National Agency for Science and Engineering Infrastructure (NASENI) http://naseni.org/programme/energy/shp.html
[11] Awogbemi Omojolaa, Ojo Anthony Oladeji, American Journal of Science and Engineering, Vol. 1, No.2, 2012
[12] http://www.son.gov.ng/
[13] Estimates by UNIDO Regional Centre for SHP, Abuja, Nigeria.
[14] Refer to "Table 2: Global environmental benefits and incremental cost" for calculation

[15] Assuming a plant load factor of 57% and a lifetime of 20 years. These initial estimates will be revised during the PPG stage.
[16] Assuming an emission factor of 0.8 t CO_2/MWh for diesel electricity generation

fee for services provided by the centre. This income will be used for leveraging fund mobilization for programming.

The Government institutions like NASENI and Prototype Engineering Development Institute (PEDI) under the Ministry of Science and Technology and ECN will be closely associated in the project. These are the institutions responsible for policy aspects in Nigeria. In addition, supportive to the manufacturing (as explained under project component 2), the standards for small hydro are also achieved through this project, by associating and working with Standards Organisation of Nigeria (SON) [12],. With the collaboration of above institutions, it is possible that the capacity development is entrenched in manufacturing policy of Nigeria later on.

Project component 2: Upgrading the capacity for local fabrication of SHP turbines and control systems in Nigeria

Fabrication of SHP turbines and controls for higher capacity (> 1 MW) in Nigeria needs more time to evolve, since; the existing local capacity is insufficient to absorb the technology for higher capacity. Hence, it is envisaged to increase the capabilities of fabricating SHP turbines and control equipment at least up to 300 kW capacities. This will be an incrementality over the prevailing 125 kW cross flow turbine manufacturing capability. If locally fabricated turbines and control for a higher capacity (at least up to 300 kW) are available, then, it would remove technology barriers significantly in terms difficulties in importation and related cost and can boost replication potential considerably. The technology partner (to be identified during PPG stage) will provide the Nigerian locals with licenses, designs, drawings, tools and jigs for the manufacture of cross-flow turbines with capacities of up to 300 kW. Also technicians from Nigeria will receive hands-on training at their manufacturing facility. Emphasis will be given to transferring know how to the private sector.

As of now, no technical standards exist in Nigeria for SHP turbines and controls. The project will hence work with SON, Federal Ministry of Industry for creating up standards for SHP turbines and controls.

Project component 3: Promoting investment in SHP projects

Through this component, conducive environment for promoting investments in SHP based mini-grids will be created. This include creation of financial incentives for investors taking part in the project and also instruments such as capital subsidies, credit mechanism, loan guarantees, etc. implemented by UNIDO in collaboration with the Ministry of Power and a financial institution. The exact modalities and specific involvement of financial institutions will be established during the PPG stage. These incentives would be used for both demonstrations as well as replication projects.

Table 1 below shows the list of potential sites and their estimated capacities for which various State Governments are looking for assistance[13].

Table 1: Number of identified SHP sites and their potential capacities

No.	Source	No. of potential sites	Estimated capacity (MW)
1.	Federal Government of Nigeria through Federal Ministry of Power	6	39
2.	Kaduna State Government	10	4
3.	Niger State Government	3	33
4.	Cross River State Government	3	3
5.	Ondo State Government	3	3
	Total	**25**	**82**

Under this component, technical assistance will be provided for detailed technical plant design of the demonstration projects up to a cumulative capacity of 3 MW. A portion of GEF grant will be used to

provide subsidy for electromechanical equipment for the selected SHP plants. The selected projects will be developed in partnership with the State Governments and with private sector investment. The lessons learnt will be widely disseminated.

Project component 4: M & E

The project will be subjected to mid-term and final evaluations. After the mid-term M & E, corrective actions will be taken thereafter. An independent final evaluation will be conducted three months prior to the terminal review meeting. The final evaluation will look at the impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefit goals. The final evaluation will also provide recommendations to the follow-up activities.

After completion of the project, the project performance monitoring will be conducted to study the technical, financial, environmental and socio-economic performance of the projects. Full scale project demonstration site visit and seminars will be organized and the project experiences will be disseminated to various interested stake holders in order to increase the replication potential of the project. Various dissemination tools such as leaflets, website, etc., will be used for effective dissemination.
Methodologies / tools will be developed for use of collated information for better planning and decision making. Case studies will be prepared and presented to raise more investment in SHP mini-grids using the trained capacity and created various financing mechanisms.

An annual report and periodical newsletter on best practices, information on country level projects and key indicators of progress made under the project prepared and distributed to key stakeholders and agencies.

Global environmental benefits

The SHP based mini-grids established under this project will result in the avoidance of approximately 239,673 t CO_2e[14] emissions directly.

Leveraging investments in any renewable energy technology needs an conducive financial environment, technology and strong human and institutional capacity.

This project aims at all the above by way of setting up a financial incentive system for attracting investments in SHP, strengthening of existing SHP Technology Centre of Nigeria for more effective technology dissemination and human and institutional capacity building, and upgrading the capacity for local fabrication of SHP turbines and control systems in Nigeria.

As a result of the above activities, more investments in SHP power generation is expected to happen. It is expected that as a result of the market transformation at least 12 MW capacity (replication factor of 4) will be developed within a time span of maximum 10 years after the project and lead to an avoidance of 958,694 t CO_2e emissions indirectly. These initial estimates will be refined during the PPG phase.

Incremental reasoning

As of now, the deficit in supply or the supply demand gap in electricity is met through diesel engines. Therefore, the basis of incrementality is diesel replacement. GEF funding will be used for meeting the incremental cost of replacing 3 MW of diesel based systems with equivalent SHP systems.

Table 2: Global environmental benefits and incremental cost

	Baseline	Alternative	Increment
Renewable electricity available for usage (MWh)	0	299,592[15]	299,592

Diesel electricity displaced emission reduction, t CO_2e	0	239,673[16]	239,673
Investment, '000 USD	3,800	9,400	5,600

Out of the above alternative investment cost of USD 9,400,000, GEF bears a cost of USD 2,700,000 only, which is about 30% of the total estimated incremental cost.

With regards to upgrading the capacity for local fabrication of SHP turbines and control systems, GEF funding will be used mainly for the incremental element in enhancing the existing local fabrication capacity from 125 kW to 300 kW, while co-financing resources will be used for arranging the technology partnership. This will enable the local availability of turbine capacities up to 300 kW at ease. The turbines of such capacity need not be imported and hence, this will reflect on the cost economics of the replication projects.

The total GEF resources of around USD 2.7 million, is used to mitigate CO_2 emission at the rate of USD 11.2/t CO_2 directly and around USD 2.8/t CO_2 indirectly.

Innovativeness, sustainability and potential scaling up:

While all of the ongoing GEF and other projects in the country are focusing on removal of barriers to promote private sector investments, this project emphasis market transformation through scaling up leveraging on previous work done in the area of SHP development in Nigeria. This is an innovative approach to take advantage of the 100 MW of SHP potential ready for implementation identified by the UNIDO Regional Centre for SHP project in Nigeria (see Table 1).

Local fabrication of SHP turbines and controls is entirely new to Sub-Saharan Africa. As of now, local fabrication of SHP turbines and controls up to 125 kW exist only in Nigeria, owing to UNIDO's efforts. This project aims to strengthening the fabrication capacity up to 300 kW. Availability of locally made turbines and controls would reduce the cost of SHP projects drastically. This is an innovative approach for expediting the SHP scaling up process.

Unless locally manufactured turbines and controls are of standard quality and certified by a Government agency, project developers would be reluctant in buying them. Hence, the project would work along with Standards Organisation of Nigeria (SON), Federal Ministry of Industry for creating standards for SHP turbines and controls.

If locally fabricated turbines and control for a higher capacity (at least up to 300 kW) are available, then, it would remove technology barriers significantly in terms of difficulties in importation and related cost and would expedite SHP scaling up.

A portion of the GEF grant will be used for creating a financial incentive system together with a suitable financing institution (possibly the Bank of Industry, BOI and the Government, Federal Ministry of Power) for SHP developers. While the GEF grant will be used to provide incentives to the sites developed under the project the cofinancing part of the scheme will continue to provide incentives to the replication projects.

The proposed project will follow the below strategies to ensure that the sustainability of the project after project's closure:

a) Strengthened SHP technology centre for continuous training and technology dissemination activities in SHP sector. The Centre being part of regular national budgetary system and also using the business model of cost recovery for services, sustainability of the SHP centre is assured.

b) The financial incentive scheme will be a long term initiative expected to last beyond the project period. The exact modalities of the financial incentive would be designed during the PPG stage.

c) Upgrading the existing local fabrication of SHP turbines and controls up to 300 kW would ensure

reduced project cost and would hence attract investments and aid in SHP

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

Federal Ministries of Environment (GEF focal point), will oversee the implementation as chair of steering committee. Federal Ministry of Power, Water Resources, River Basin Development Authorities, Energy Commission of Nigeria, State governments, banks/financial institutions are the main stakeholders. Private investors and local fabricators will benefit through capacity building and training activities.

FMP along with a selected financing institution such as the Bank of Industry (BOI) will be responsible for executing and maintaining the incentive mechanism. Selected State Governments will mobilize investments for establishing SHP based mini-grids. The local fabricators will be the recipient of the licenses, designs, drawings, tools and jigs for the manufacture of turbines with capacities of up to 300 kW.

Local community people (including women, young girls and other vulnerable section of the communities) will benefit from access to clean electricity and will be contributing through voluntary participation during construction of the plants. Eligible women candidates will be involved as trainers and technical consultants. TORs will be prepared in such a way so as to mainstream gender in the activities of consultants and experts. Moreover, adequate provisions will be made to ensure participation of women as trainees in the capacity building activities.

A.3.Risk. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

Risk	Proposed Mitigation Measure	Risk Level
Technical risk: The country currently depends upon the import of components and peripherals from other countries.	With UNIDO's prior experience in technology transfer up to 125 kW, the technology for fabrication up to 300 kW SHP turbines and controls can be transformed very effectively to the local manufacturers. Human and institutional capacity will also be built effectively.	Low
Market risks: No off-takers for the generated electricity.	The generated electricity will be supplied to the local communities and industries nearby the power plant. The demand and supply gap is wide and hence there will not be any risk for electricity off-take.	Low
Financial risks: Financial/credit constraints prevent investors from investing in the project.	Financial incentives will be established for supporting SHP investments. UNIDO and the concerned government agencies will mobilize fund to invest in the project.	Moderate
Sustainability risk: Lack of human capacity to operate the demonstration projects.	All the demonstration projects' O&M staffs will be trained by the respective suppliers. In addition, SHP Technology Centre will also be strengthened in its capacity to train the local engineering and O&M companies.	Moderate
Climate Change risk: Drying of water resources	Enough water storage facilities will be provided to take care of the water requirements during the dry season. Hence, this risk can be overcome.	Very low
Climate Change risk: Flooding	Nigeria is vulnerable to low flooding only[17]. Proper spillways and diversions channels will be constructed to overcome this risk in the flood prone sites.	Very low

[17] Harnessing Central Africa's Hydropower potential, Yves Andre Prevost, Lead Environmental Specialist, World Bank, Washington D.C., March 2010

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

The project will build on experiences and achievements of the following projects to ensure that it is complementary to each other.

1. *Local capacity development to design and manufacture MHP at NASENI:* The main objective of the programme was to promote fabrication of turbines and control systems up to 125 kW. The proposed project is complementary to this programme as it aims to increase the local fabrication capacity at least up to 300 kW.

2. *Rural Electrification and Renewable Energy Development:* This is a GEF-World Bank completed project. The objective of the project was to expand and intensify electricity access pilot projects and support the implementation of the National Renewable Energy Master Plan. The proposed project is complementary to this project as it aims at increasing rural electrification by implementing SHPs for a cumulative capacity of 300 kW.

3. *Enabling Activities for the Implementation of United Nations Convention on Climate Change (UNFCCC):* This is a GEF-UNDP completed project. The objective was to make the initial national communication to UNFCCC. The proposed project is complementary to the above project as it aims at increasing the use of renewable sources for energy generation by implementing SHP plants.

4. *Small-scale associated gas utilization in Nigeria:* This is a GEF-World Bank ongoing project. The objective of this project is to pursue a low-carbon development path by using associated gas, which otherwise would have been flared. The proposed project is complementary to the above mentioned project as it increases the use of clean forms of energy in rural electrification by using SHP based mini-grids.

5. *SPWA-CC Mini-grids based on RE Sources to Augment Rural Electrification:* This is a GEF-UNIDO ongoing project. The project focuses on biomass based mini-grid, develops the capacity for replicating biomass mini-grid technologies and improves the capacity on biomass power plant operation and maintenance (O & M). The proposed project is complementary to this project as it promotes SHP based mini-grids for rural electrification and aims at strengthening human and institutional capacity and improving the capacity for SHP plant O&M.

6. *Climate Change Training Phase II - Training Programme to Support the Implementation of the UNFCCC:* This is a completed GEF-UNDP global project. Its objective was to create an informal training network for sharing the training resources developed by other programs and institutions and to enhance the capacity of the participating countries to implement the UNFCCC by facilitating the establishment of a national institution. The proposed project is complementary to this project as it aims at strengthening the SHP technology centre for effective technology dissemination.

7. *SPWA-CC: GEF Strategic Program for West Africa:* Energy Component (PROGRAM): This is a GEF-UNIDO ongoing global project under GEF 4 cycle. It uses a programmatic approach for ensuring greater coherence in the formulation of RE and EE projects developed under GEF 4 cycle and promotes greater synergies in their implementation. The coordination aspect of this project could be complementary to the proposed project.

8. *SPWA-CC: Promoting Coherence, Integration and Knowledge Management under Energy Component of SPWA:* This is a completed GEF-UNDP global project. The objectives were to develop comprehensive knowledge data base on energy resource endowment, key players, institutions and agencies working in the field of EE and RE and to develop appropriate policy and institutional structures for scaling up RE and EE energy projects. The proposed project is complementary to this

project as it aims at strengthening the SHP technology centre. Also, the knowledge data base derived from the GEF-UNDP project would be used for the proposed project and would be channelled and utilised for SHP technology penetration in Nigeria

9. *Efforts of ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE):* This was established by ECOWAS Commission with the support of the Austrian Development Cooperation (ADC), UNIDO and the Government of Cape Verde. The project will complement the efforts and objectives of ECREEE in the way of popularizing RE through demonstration projects, policy initiatives and technology transferred. The proposed project will complement the above mentioned efforts by popularizing SHP projects through demonstration, technology transfer for equipment fabrication, etc.

The proposed project will support the existing and on-going GEF projects in increasing Nigeria's efforts in rural electrification and usage of renewable energy.

Poverty reduction through productive activities is a priority of UNIDO and therefore UNIDO's substantive branches such as Agro Business Development Branch, Business, Investment and Technology Services Branch will be actively involved in developing economic activities in the beneficiary communities.

B. Description of the consistency of the project with:

B.1. National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSAs, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.:

The proposed project will support the following government policies and strategies targeted to increase the percentage of RE in overall energy mix and rural electrification in the country.

National Energy Policy (NEP) (2003): It aims at expanding the electricity access to 75% of the total population by 2020. It also aims at developing and promoting the country's RE resources and promoting the decentralized energy supply based on renewable resources, especially, in rural areas. This policy includes the following objectives:

a) Ensuring the development of the nation's energy resources, with diversified energy resources option,
b) Guaranteeing adequate, reliable and sustainable supply of energy at appropriate costs in an environmentally friendly manner to the various sectors and
c) Promoting the investments for developing the energy sector industries with substantial private sector participation.

One of the major objectives of NEP (2003) is to increase the percentage contribution of hydroelectricity in the total energy mix. It also includes the strategy of ensuring increased indigenous participation in the planning, design and construction of the hydropower plants.

This project is therefore very much aligned with various energy development strategies of Nigeria as well as, National Poverty Eradication Programme (NAPEP) and Millennium Development Goals (MDGs).

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Initial National communication to UNFCCC (2003): In the energy sector, the following options for climate change mitigation are identified:

- Efficiency improvement options in the residential, industrial and commercial sectors
- Increased use of renewable resources, consisting of the introduction of small-scale hydro plants and solar-electric options
- Supply-side options, especially rehabilitation of some existing oil refineries and power plants

- Options for increased use of natural gas

Electricity Power Sector Reform Act (EPSR) (2005): The Act resets the target for increasing the electricity access in rural areas from 40% in 2005 to 75% by 2015.

Nigerian Renewable Electricity Policy (2006)): It supports the construction of independent renewable electricity systems in areas not covered by the electricity grid to provide power service for local economic activities and sustainable living.

Renewable Energy Master Plan (REMP) (2007): It envisages aggregating the electricity demand of 14,000 MW by 2015, of which, RE will constitute about 5% (700 MW).

National Portfolio Formulation Document (NPFD) (2011): It encourages capacity building for legislators and policy makers to sensitize them on the need for the development of policy framework for renewable energy and scaling up small hydro power development in Nigeria.

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

The proposed UNIDO/GEF intervention focuses on creating favorable environment for promoting both public and private sector investments in scaling up SHPs in Nigeria and will aid in enhancing the local fabrication of electro-mechanical equipment (cross flow turbines) and controls up to 300 kW. This area was selected due to rapid scaling up and greenhouse gas (GHG) emission reduction potential in Nigeria. These are in line with *GEF-5 climate change focal area strategic programme CCM-3: Promoting the investment in RE technologies.*

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

The project is a technical assistance/capacity development intervention that fits within the climate change focal area objective CCM-3. The GEF Council paper "Comparative Advantages of the GEF Agencies" (GEF/C.31/5rev.1)[18] recognizes the comparative advantage of UNIDO in these objectives.

UNIDO's previous intervention in SHP sector is clearly described in section A.1, Part II. It has established International Centre for Small Hydro-Power (ICSHP) at Hangzhou in China, Regional Centre for Small Hydro Power in Trivandrum (India) and UNIDO's Regional Centre for Small Hydro Power in Abuja (Nigeria) and is developing SHP projects throughout the world. In Nigeria it has established pilot plants of varying capacities. Also it has facilitated the transfer of technology for manufacturing cross flow turbines up to a capacity of 125 kW.

In addition, UNIDO has a fairly big presence in Nigeria with its Regional Office based in Abuja. UNIDO has been implementing a large country programme in the country where 'Energy' is a major component. It is quite clear that UNIDO has the necessary technical assistance capacity to successfully implement the project.

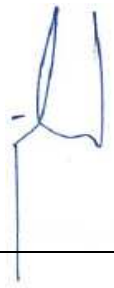
[18] http://www.thegef.org/gef/sites/thegef.org/files/documents/C.31.5%20Comparative%20advantages.pdf

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

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

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Mr. M.T. Abu	GEF Operational Focal Point	Federal Ministry of Environment	02/13/2013

B. GEF AGENCY (IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for project identification and preparation.					
Agency Coordinator, Agency name	**Signature**	**DATE** *(MM/dd/yyyy)*	**Project Contact Person**	**Telephone**	**Email Address**
Mr. Philippe Scholtès, Officer-in-Charge, Programme Development and Technical Cooperation Division (PTC), UNIDO GEF Focal Point.		04/12/2013	Jossy Thomas Project Manager, PTC/ECC/RRE	+43 -1-26026-3727	j.thomas@unido.org