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December 23, 2009

Dear Council Member:

I am writing to notify you that we have today posted on the GEF's website at www.TheGEF.org, a medium-sized project proposal from UNDP entitled ***Haiti: Small Scale Hydro Power Development in Haiti***, to be funded under the GEF Trust Fund (GEFTF).

The objective of this project is to create an enabling environment for private and public investment in small hydro plants in Haiti.

The project proposal is being posted for your review. We would welcome any comments you may wish to provide by January 6, 2010, in accordance with the new procedures approved by the Council. You may send your comments to gcoordination@TheGEF.org.

If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



Attachment: Project Document

Copy to: Country Operational Focal Point
GEF Agencies
STAP
Trustee



**REQUEST FOR CEO ENDORSEMENT/APPROVAL
PROJECT TYPE: MEDIUM-SIZED PROJECT
THE GEF TRUST FUND**

Submission Date: September 29, 2009
Re Submission Date: December 10, 2009

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 1904

GEF AGENCY PROJECT ID: 2820

COUNTRY(IES): Haiti

PROJECT TITLE: Small Scale Hydro Power Development in Haiti (SSHP)

GEF AGENCY (IES): UNDP

OTHER EXECUTING PARTNER(S): Ministry of Public Works, Transport, and Communications / Bureau of Mines and Energy (MTPTC/BME)

GEF FOCAL AREA(S): Climate Change

GEF-4 STRATEGIC PROGRAM(S): CC-SP3, Promoting market approaches for renewable energy

NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

Expected Calendar (mm/dd/yy)	
Milestones	Dates
Work Program (for FSPs only)	n/a
Agency Approval date	November 2009
Implementation Start	January 2010
Mid-term Evaluation (if planned)	July 2011
Project Closing Date	January 2013

A. PROJECT FRAMEWORK

Project Objective: To create an enabling environment for private and public investment in small hydro plants in Haiti.								
Project Components	Indicate whether Inv., TA, or STA**	Expected Outcomes	Expected Outputs	GEF Financing*		Co-financing*		Total (\$) c=a+ b
				(\$ a)	(%)	(\$ b)	(%)	
1. Policy and regulation	TA	An effective, market-oriented policy and regulatory framework to enable small hydropower development in the country has been established.	1.1 Small hydro planning and implementation mechanisms established within the Ministry of Public Works, Transport, and Communication and EdH. 1.2 A strategy developed to enable the sustainable, commercial operation of small hydropower plants (SHP) in regional distribution grids. 1.3 Regulation drafted to promote the development and operation of SHP in Haiti. 1.4 Standardized documentation (IPP contract, tender documents, etc) developed for SHP contracting. 1.5 Risk mitigation mechanisms for private and public investors are implemented	160,000	35%	295,000	65%	455,000
2. Information and institutional capacity	TA	Technical and managerial capacities within EdH and other national stakeholders have been created to evaluate, prepare and operate small hydropower developments in Haiti.	2.1 Programme for updating the 30-year old existing hydrological data in Haiti established. 2.2 Training programme implemented within EdH to enhance managerial and technical capacity. 2.3 Small hydropower development institutionalized within EdH by creating a dedicated business unit. 2.4 Local project operators and key stakeholders have acquired appropriate technical, managerial and business skills for SHP development and operation. 2.5 An SHP Project Pipeline is generated	375,000	60%	250,000	40%	625,000
3. Investment and technology implementation	TA	Small hydropower generation facilities are incorporated in regional distribution and are providing electricity to end-users.	3.1 Technical and non-technical losses in regional grids are reduced. 3.2 Feasibility and technical design studies for three SHP executed. 3.3 Contractual arrangements for investment, ownership and electricity delivery under IPP modality of the SHPs under (3.1) drafted, negotiated and signed by involved parties; detailed business plans prepared for the financial exploitation of the SHPs. 3.4 Investment has been leveraged for the implementation of at least three SHPs in Haiti.	297,000	20%	1,200,000	80%	1,497,000

4. Monitoring and evaluation, replication	TA	A project monitoring and evaluation plan implemented, and lessons learnt are disseminated.	4.1 A project monitoring and evaluation plan has been implemented. 4.2 Lessons learnt collected, prepared and disseminated. 4.3 Outreach and promotional activities are conducted targeting donors and investors	55,000	92%	5,000	8%	60,000
5. Project management				88,000	26%	250,000	74%	338,000
Total Project Costs				975,000		2,000,000		2,975,000

B. SOURCES OF CONFIRMED Co-financing FOR THE PROJECT

<i>Name of Co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Project</i>	<i>%*</i>
Government of Haiti (EdH)	government	in-kind	400,000	20%
Government of Haiti (MTPTC)	government	in-kind	400,000	20%
UNDP	GEF Agency	cash	200,000	10%
CIDA	bilateral	cash	1,000,000	50%
Total Co-financing			2,000,000	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

Note: In order to ensure the construction of at least 3 SHPs, the project will leverage an additional amount of at least \$3.2 million for investment during the project duration.

C. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	<i>Project Preparation a</i>	<i>Project b</i>	<i>Total c = a + b</i>	<i>Agency Fee</i>
GEF financing	25,000	975,000	1,000,000	100,000
Co-financing	19,000	2,000,000	2,019,000	
Total	44,000	2,975,000	3,019,000	100,000

D. GEF RESOURCES REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES)¹

<i>GEF Agency</i>	<i>Focal Area</i>	<i>Country Name/ Global</i>	<i>(in \$)</i>		
			<i>Project (a)</i>	<i>Agency Fee (b)²</i>	<i>Total c=a+b</i>
Total GEF Resources					

¹ No need to provide information for this table if it is a single focal area, single country and single GEF Agency project.

² Relates to the project and any previous project preparation funding that have been provided and for which no Agency fee has been requested from Trustee.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

<i>Component</i>	<i>Estimated person weeks</i>	<i>GEF amount(\$)</i>	<i>Co-financing (\$)</i>	<i>Project total (\$)</i>
Local consultants*	245.5	\$145,500	\$100,000	\$245,500
International consultants*	59	\$147,500	\$0	\$147,500
Total	304.5	\$293,000	\$100,000	\$393,000

* Details provided in Annex C.

F. PROJECT MANAGEMENT BUDGET/COST

<i>Cost Items</i>	<i>Total Estimated person weeks</i>	<i>GEF amount (\$)</i>	<i>Co-financing (\$)</i>	<i>Project total (\$)</i>
Local consultants*	509	81,900	140,000	221,900
International consultants*	0	0	0	0
Office facilities, equipment, vehicles and communications*		3,100	100,000	103,100
Travel*		3,000	10,000	13,000
Others		-	-	-
Total	509	88,000	250,000	338,000

* Details provided in Annex C

G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? yes no NO

H. DESCRIBE THE BUDGETED M & E PLAN:

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNDP and GEF procedures and be led by the project team and the UNDP Country Office (UNDP-CO) with support from the UNDP Regional Office in Panama. The Strategic Results Framework provides performance and impact indicators with their corresponding means of verification. The SRF will be the reference for monitoring the project's implementation and for (independent) evaluation of performance and impact. The project management unit will prepare a detailed M&E plan to be presented at the Inception Workshop. The Budget for M&E (Outcome #4) is US\$ 60,000 (US\$ 55,000 GEF grant and US\$ 5,000 co-financing). This is for activities above and beyond UNDP's responsibilities as implementing agency covered by the IA fee. The following table gives a tentative allocation of the budget over the main items:

Budget allocation M&E		
<i>Item</i>	<i>GEF funding</i>	<i>Cofinancing (GoC)</i>
Inception Workshop	US\$ 7,000	US\$ 5,000
Mid-term External Evaluation	US\$ 16,000	US\$ 0
Final External Evaluation	US\$ 25,000	US\$ 0
Dissemination of Lessons Learned	US\$ 7,000	US\$ 0
TOTAL BUDGET	US\$ 55,000	US\$ 5,000

More details can be found in the MSP Project Document (Section I, Part IV).

PART II: PROJECT JUSTIFICATION:

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

Haiti has the lowest electrification coverage and electricity consumption in Latin America and the Caribbean. Only 10 % of the population is connected and supplied by the state-owned utility EdH (Electricité d'Haiti); the annual electricity consumption per capita in Haiti has been estimated at 75 kWh. Service to grid connected households is provided, at best, for a few hours daily, given that much of Haiti's generation capacity is out of service and high fuel costs do not allow EdH to operate its thermal plans on a continuous basis. People not served by the grid either own individual diesel or gasoline

generators to meet their electricity needs (for example, to run a business) while households most commonly rely on candles and kerosene and, at times, even firewood for lighting. Likewise, institutions that require reliable 24-hour electricity supply rely on stand-alone diesel generators.

In this context, both the Government of Haiti and the international community supporting development activities in the country recognize that the provision of reliable electricity to an increased share of the population is essential to boost Haiti's economy and to improve human development. However, Haiti cannot afford itself to rely on thermal generation based on imported fossil fuels. Subsidies from the Ministry of Finance to EdH amount to approx. 1% of GDP to cover fuel costs and to purchase electricity from IPPs, and it is clear that this development path is unsustainable. Decentralized electricity generation with small hydro plants is an attractive alternative to power regional electricity grids. Technical studies have demonstrated the economic rationale for such hydro development; however, this has not resulted in on-the-ground investment.

The project will work with the Government of Haiti, including EdH and the Ministry of Public Works, Transport, and Communication (MTPTC), the international donor community, and the private sector in developing the required capacity in the country to identify, develop, finance and operate small hydro facilities in Haiti. The institutional, policy and technical capacity conditions necessary to enable a successful regional electricity generation and distribution delivery model will be established in partnership with the Government of Haiti and international development agencies operating in the country (specifically CIDA, IADB, WB, and USAID). The project will assist Haiti in attracting private investment and donor funding to implement small hydro plants and serve the population outside the major cities with a reliable electricity supply. In addition to strengthening the regulatory, institutional, and technical capacities to enable decentralized hydro power development, the project will facilitate the construction of three small hydro projects. As a result, the UNDP/GEF "Small Scale Hydro Power" Project in Haiti will lead to global environmental benefits in the form of directly avoided emissions by approximately 62,000 tons CO₂ and; the indirect emission reductions are estimated at 788,000 tons CO₂.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLAN:

Increasing the level of access to electricity for its population from 10% presently to 50% by 2015, is one the objectives set forth by the national Government in the Haiti Energy Sector Development Plan 2005-2015¹. The UNDP/GEF Small Scale Hydro Power initiative is instrumental for the GoH to pursue this goal. The Sector Development Plan includes measures to support EdH, investments in rehabilitation of existing power plants and the construction of new generating capacity, an extensive electrification programme (both urban and rural) and the creation of a regulatory entity. By promoting small scale hydroelectricity, the GoH aims at long-term economic sustainability and to embark on a low-carbon development path (avoiding GHG emissions compared to the diesel-based business-as-usual scenario).

Haiti has passed a law on the modernisation of public enterprises², which considers capitalisation, concessions and service contracts as the three measures to increase private sector participation in public enterprises. As a result of this law, power generation was opened up for private investors and currently EdH buys electricity from two private companies in Haiti that operate thermal power plants under an IPP scheme.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:

The proposed UNDP/GEF intervention "Small-Scale Hydro Power in Haiti" focuses on the promotion of small hydro power plants as a grid-connected, renewable energy source for electricity generation. It is presented under the GEF-4 Climate Change Strategic Objective 4 "*To promote on-grid renewable energy*" and Strategic Program 3 "*Promoting Market Approaches for Renewable Energy*". The intervention is aimed at a long-term market transformation towards renewable energy (hydropower) outside the urban areas in Haiti and contributes significantly to the GEF indicators under CC, specifically avoided GHG emission (tons CO₂e), renewable-energy based electricity production (kWh/year), and number of households connected. The intervention is further expected to generate direct and verifiable impact concerning the conservation of watershed areas and indirect benefits, including reduced technical and commercial losses through

¹ Presently, the electrification index in Haiti is as low as 10%, which is among the lowest in the world.

² The "*Loi sur la Modernisation des Entreprises Publiques*", 1995.

improved customer approach methods.

D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES.

THE GEF funds are requested as a grant to the Government of Haiti. The project is targeted at removing existing barriers to the implementation of renewable energy-based electricity generators (specifically: small scale hydro power) by providing technical assistance to the Government of Haiti. The identified barriers are specifically related to policy development, regulation, institution an strengthening, and technical capacity building. The project will prepare and facilitate the design and construction of three small hydro power plants and promote the improvement of the electricity services to end-users. The Project aims at demonstrating the economic and commercial viability of hydro power plants feeding into regional grids (delivery model under enhanced regulatory framework) and increasing the share of renewable hydro resources for electric power generation. By building institutional and human capacity and demonstrating successful results in the field, the current barriers for replication are reduced, including the high risks currently perceived by financiers. The project will further remove the information barrier by updating the existing, 30-year old and obsolete, hydrological database. The requested GEF grant support is needed to create an enabling environment for small hydro development and is expected to act as a catalyst for the international donor community and the private sector.

E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The project will be implemented in close coordination with CIDA, and in collaboration with IADB, USAID, and the World Bank. All donor agencies are working in collaboration with the Government of Haiti to modernize the energy sector in the country. IADB and the WB are working on securing energy supply in Port au Prince, including the refurbishment of the distribution grid, and the rehabilitation of the Peligre large hydro dam as well as existing thermal power plants. Likewise, they are assisting the Government of Haiti in the development of a national energy policy and its associated regulatory instruments through support to the Energy Sector Management Unit within the Ministry of Public Works, Transport, and Communication. Furthermore, IADB is in the early planning phase of a nationwide renewable energy promotion initiative that will support investment in all renewable energy technologies to increase energy access and diversify the country's energy matrix. Likewise, USAID has been active in rehabilitating existing small hydro plants in rural areas, and is in the planning stage of a large intervention in the north region to promote energy access, including renewables, for rural development. CIDA has been working in the south region of the country in establishing self sustained, autonomous regional grids in small cities. This CIDA initiative is tightly linked to the UNDP/GEF project, since the small hydro investments promoted by this project will be feed into the regional grids supported by CIDA.

Overall, the UNDP/GEF project will complement the above donor initiatives by providing technical assistance to the Government of Haiti and EdH and creating an enabling environment supportive of small hydro development. The policy component of the project will be a part of the Energy Sector Management Unit supported by the WB and IADB, building upon these efforts and ensuring the adequate incorporation of policies and regulations supportive of small hydro development. This joint effort by multiple donor agencies and the government to reform the energy regulatory framework is a unique opportunity to establish favourable regulatory conditions for SHP development. The investment promotion component of the project will be directly linked to CIDA's regional grid rehabilitation efforts. The technical strengthening component within EdH will help the Government of Haiti improve the management of all small hydro facilities in the country, thus creating the foundation for the sustainability of all other donor efforts in the country. Furthermore, the technical information, local capacity, and on the ground experience generated by the project will be a substantial input to the larger renewable energy investment efforts currently under development by other donors (most notably IADB and USAID).

Donor organisations and international finance institutions active in Haiti have set up various sector committees to promote coordination. The committee for the electricity sector, TSE³, is chaired by the Ministry of Public Works, Transport, and Communication; participating donors are Canada, the European Union, the French Government, the Inter-American Development Bank, UNDP, the United States and the World Bank. UNDP's participation in the TSE will ensure that the Project's activities and strategy are well coordinated within the context of international donor involvement in the Haitian power sector, promoting collaboration and synergies and avoiding overlaps or duplication of efforts.

Finally, active coordination will also be sought with sustainable land management initiatives in Haiti, in particular the

³ Table Sectorielle Electricité

UNDP/GEF binational initiative in Artibonite and the IADB/GEF watershed management initiative in the southwest. This coordination will help ensure that sustainable watershed management practices are incorporated into the small hydro project development, thus protecting the investments over the long run and reducing the project's vulnerability to Climate Change.

F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH incremental reasoning :

Baseline scenario: Under the baseline scenario, the policy framework supporting the sustainable operation of renewable energy-based power plants embedded into regional electricity grids will hardly develop. Moreover, limited institutional capacity and coordination within EdH and the Government of Haiti represent a major barrier for developing a detailed strategy, to define priorities and to enforce appropriate business models. There is a lack of regulation, methodologies and technical procedures within EdH to develop small hydropower, including cost calculations, quality criteria, management of watershed areas, land tenure, and the approach towards local stakeholders and end-users. The exploitation of Haiti's hydropower potential will not take off due to a lack of available data (mapping and updating of hydrological information). In the absence of a well defined, viable business model, cash flows for SHP investments are uncertain and private investors and (to a lesser extent) donor organisations will require additional guarantees to finance small hydro power plants. The build-up of financial reserves will remain insufficient and technical and managerial capacities for operation and maintenance will be inadequate, jeopardizing the sustainability of present rehabilitation programs. Meanwhile, the majority of Haiti's rural population has no access to electric energy at all.

Without the proposed SSHP initiative, the Government of Haiti and the international community continue to work on rehabilitating power plants and existing grids on an ad-hoc basis. Investments in thermal power drain available resources and prevent the development of alternatives with lower life-cycle costs, including small hydro. Current efforts include repair of existing but abandoned small hydropower plants. Without sustained policy support, adequate institutional structures and viable business models, the opportunity to develop and expand the electricity service outside the urban centres, will not materialize. Thus, the baseline scenario consists of increased fossil fuel-based electricity, continued poor electricity services for end-users and unsustainable business models. The proposed SSHP Project aims at removing the existing barriers for small hydro investments in Haiti and preparing future sector programs by the Government and the donor community by establishing adequate conditions for long-term sustainability.

GEF Alternative scenario: The GEF alternative scenario will address the identified policy and institutional barriers and work directly with EdH and the Government of Haiti to develop a conducive policy and regulatory framework for small hydropower development. The proposed SSHP initiative will be coordinated closely with the international donor community represented in the TSE and establish the basic conditions for long-term sustainability of electricity supply in regional grids. The Project builds forth on ongoing policy development aimed at public sector reform to allow increased private involvement in the energy sector. The project will greatly enhance EdH's managerial and technical capacities to develop and manage SHP plants in Haiti and establish a solid institutional set-up to this purpose. The SSHP project will prepare EdH technical staff to operate and maintain small hydropower plants by targeted training activities. As a result, EdH's capacities to address and benefit SHP technology will be strengthened at all levels. Under the GEF alternative scenario, updated information will be acquired and made public concerning the hydrological resources in Haiti by implementing a comprehensive assessment program, including the effects of climate change and modified soil use. In combination with improved regulation regarding watershed management, land tenure and legal issues, the present information barrier for project development will be greatly reduced.

In close dialogue with the Government of Haiti, the SSHP Project will work towards the establishment of viable business models for electricity generation and distribution in the rural areas, specifically based on SHP. The GEF alternative scenario will generate proposals for acceptance by EdH and the Legislator aimed at enhancing the technical and financial sustainability of the supplied service. The Project's outcomes will establish more solid conditions for investment in new hydro power capacity, which would not take place without this GEF intervention. Under the GEF alternative scenario, hydro power will improve the country's energy mix by reducing the need for imported fossil-fuels to meet rural electricity demand. By replacing fossil-based thermal power (mainly diesel), the Project will assist in avoiding GHG emission, both direct and indirect. To some extent, the increased electricity supply will offset the use of firewood as a primary energy source by rural households.

The financial support requested from GEF for the Project is fully incremental and will provide a platform for future initiatives by the Government of Haiti and the international donor community, in particular by addressing the identified high level institutional and policy barriers. The GEF grant is further targeted at removing technical and information barriers and to demonstrate the viability of SHP in Haiti by preparing and facilitating the construction of three small hydro plants.

G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:

Risks	Likelihood	Remedial actions
1. National political instability jeopardizes policy reform effort	Medium	In collaboration with the international donor community, the Government of Haiti has set up a sectorial committee (TSE) to strengthen the reform process of the national electricity sector and coordinate donor programmes and investment. This set-up provides a significant degree of stability and continuity. However, the pace of policy implementation is modest, due to the limited institutional capacities within BME and EdH and the traditional focus on the urban centres. The project will address this risk by developing national capacity through the institutional strengthening component. Furthermore, this risk is mitigated by close coordination of the UNDP/GEF initiative with the GoH and other donors within the TSE.
2. Delays to draft and approve a conducive regulatory framework for SHP	Low	The UNDP/GEF project will prepare an appropriate regulatory framework to enable regional SHP development based on international best practices and in close dialogue with the partners in the TSE. Even though formal approval may take its time, the joined efforts by UNDP, donor agencies and investors will expectedly generate sufficient impetus to push forward the envisaged three pilot SHPs. Furthermore, the project's efforts are embedded within a broader donor effort (supported by the WB and IADB) of energy regulatory reform, creating a unique opportunity to influence national policy. As such, this risk is considered low.
3. Technical risk during SHP preparation and construction	Low	Although small hydro technology is highly mature, each SHP is unique concerning its civil works and terrain access. UNDP's experience shows that domestic companies usually lack supervising capacity in countries where small hydro technology is to be introduced. This risk is mitigated by providing close technical support, including project supervision, to the domestic companies involved. This approach will add to the transfer of knowledge under this project.
4. Risk of securing investment in SHPs	Medium	Securing investment in Haiti is, by definition, a risky endeavour given the economic and political situation of the country. In this project, securing finance for constructing the committed three SHP projects is critical to demonstrate the viability of the small hydro alternative and serve the involved end-users with a good quality electricity service. In the preparation phase, UNDP has developed strong links with the private sector and other donor agencies, all of which are committed to work in the Haitian context to promote investment in the energy sector. By demonstrating the viability of the proposed small hydro investment through technical and economic feasibility work, as well as promoting favourable policy and regulation, the project aims to steer some of this investment into small hydro rather than thermal generation.
5. Natural disasters jeopardize project implementation	Medium	Haiti is in a hurricane prone area of the world. The high population density and alarming rates of deforestation and land degradation make it particularly vulnerable to the effects of natural disasters. Furthermore, Climate Change is expected to increase the frequency and intensity of hurricanes. As such small hydro investments may be jeopardized. UNDP will mitigate this risk by incorporated state of the art climate proofing in the small hydro feasibility work, thus ensuring that appropriate mitigation measures are considered in the project design. Furthermore, active coordination will be sought with sustainable land management initiatives in the country, including the UNDP/GEF binational initiative in Artibonite and the IADB/GEF watershed management initiative in the southwest.

H. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:

Among various alternatives investigated, UNDP has determined that a focus on policy development, institutional strengthening, capacity building, and closing the information gap would provide the most effective implementation strategy. The effectiveness and achievements of this UNDP/GEF initiative are greatly enhanced by building forth on CIDA's experiences in Jacmel to strengthen regional grid development. The Project will further coordinate closely with strong partners with a long-term presence in Haiti (CIDA, IADB, USAID). Regulatory improvements under the proposed UNDP/GEF initiative will be streamlined with ongoing efforts targeted at sector reforms and complement these with elements specific for small hydro power. High-level policy development will be coordinated through the TSE and by strongly positioning SHP development within EdH.

By pursuing a regional approach, the Project will generate tangible results for end-users, which creates visible impact that can be attributed directly to the Project. This is required to convince national and international stakeholders (including capital providers) that the appropriate business modalities can provide a viable alternative for Haiti to serve users with reliable electricity service and to promote economic development in the rural areas.

The cost-effectiveness of the GEF grant is US\$ 16 per ton directly avoided CO₂ emissions. Based on the indirect emission savings, the cost-effectiveness is of the order of US\$ 1.3 / ton CO₂.

PART III: INSTITUTIONAL COORDINATION AND SUPPORT

A. INSTITUTIONAL ARRANGEMENT:

UNDP is the sole GEF Implementing Agency for this project. There are no other Climate Change Mitigation GEF projects in the country; however, coordination with GEF Natural Resource Management Initiatives will be necessary, since sustainable watershed management is intrinsically linked to SHP development and operations. Furthermore, as discussed in Section E, close collaboration with other donors will be essential for achieving project results, and the project is designed with such coordination in mind. The SSHP project will be closely coordinated with the international donor community in Haiti through the sector committee TSE.

B. PROJECT IMPLEMENTATION ARRANGEMENT:

The project will be implemented under UNDP's National Execution modality (NEX), implying that a Government entity will assume responsibility for executing the project. This modality assists in developing ownership and institutional capacity within the host country and helps creating conditions for sustainability. The Ministry of Public Works, Transport and Communications (MTPTC) will be the Executing Agency and will provide the National Project Director, but will defer the responsibility for daily management and project activities to the national electricity company Electricité d' Haiti (EdH). The project will create a Project Management Unit (PMU) and a core working group within EdH. The UNDP Country Office will be responsible to the GEF Council as the GEF Implementing Agency in charge of the financial administration and for obtaining the envisaged project outcomes. For details, please refer to the Project Document, Section I, Part III.

PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

The MSP final design is slightly modified from the original PIF submission, although the project objective remains the same and the contemplated components are similar to the original proposal. During project development, it became evident that the limited resources of the Medium Sized Project would be best used in three main components, which are (i) policy development, (ii) technical assistance to EdH, and (iii) promotion of on the ground investment. Furthermore, institutional strengthening of EdH was assessed as a significant value added of the project, especially in view of other donors' activity in the energy sector. Strengthening EDH's managerial and technical capacities will allow EdH to promote the development of small hydro resources, thus encourage additional investment in small hydro which would otherwise be

invested in thermal generation.

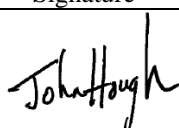
The MSP project proposal has therefore been adjusted to reflect these findings, and differs from the original PIF submission as summarized below.

Original structure (PIF)	Final design (Project Document)	Observations
1. Policy and regulation	1. Policy and regulation	No major changes from original PIF.
2. Economic and Financial	2. Information and Institutional Capacity	Components 2 and 3 of the original PIF have been combined into one strengthened institutional capacity building programme within EdH. The new component comprehensively addresses EdH's need to strengthen its business and technical skills for SHP development and operations.
3. Technical Capacity Building	--	--
4. Small Hydro Investment	3. Small hydro investment and technology implementation	No major changes from original PIF.
5. Monitoring , Evaluation, Replication	4. Monitoring, Evaluation, Replication	No major changes from original PIF.

It must be noted that, upon discussion with the GEF and in order to more accurately reflect the current situation, co-financing for the project has been reduced to \$2 million, with an additional \$3.2 million for investment in SHPs to be leveraged during the course of the project. Securing these funds for investment will be one of the main targets of the project, hence, the project objectives and outcome are not significantly affected by this modification.

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.

Agency Coordinator, Agency name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
John Hough UNDP/ GEF Officer-in-Charge	 Error! Not a valid bookmark self-reference.	December 10, 2009	Oliver Page Regional Technical Advisor	507-3024500	oliver.page@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcomes as defined in CPAP or CPD:					
Outcome 4.: Capacity development and governance reform related to sustainable management of the environment and natural resources					
Country Programme Outcome Indicators:					
Capacity development and governance reform related to sustainable management of the environment and natural resources. Promotion of inclusive growth, based on the MDGs					
Indicator 1: Adoption/Creation/Enactment/ of Policy for On-grid Renewables					
Indicator 2: Electricity production during the project period from grid-connected renewable energy installations installed under the influence of the project (MWh / year)					
Primary applicable Key Environment and Sustainable Development Key Result Area : 4. Expanding access to environmental and energy services for the poor.					
Applicable GEF Strategic Objective and Program: Objective CC-4 “To promote on-grid renewable energy”, Strategic Program “Promoting market approaches for renewable energy”					
Applicable GEF Expected Outcomes: “Growth in markets for renewable power in participating program countries”					
Applicable GEF Outcome Indicators: “tons CO2eq avoided; adoption of policy frameworks allowing renewable generators equitable access to the grid; kWh generated from renewable sources”					
	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective ⁴ To create an enabling environment for private and public investment in small hydro plants in Haiti.	(A) Number of new SHP projects under construction; (B) Capital secured for SHP investment. (C) SHP Project Pipeline (D) SHP Policy Framework	(A) No SHP currently under development; B) Private sector and donors demonstrate interest in investing in SHPs); (C) Outdated and unreliable project pipeline; (D) No appropriate energy policy framework	(A) Three (3) SHP projects under construction; (B) US\$ 3.2 mln leveraged for SHP construction; (C) Updated project pipeline; at least 8 new SHPs under consideration for development; (D) Energy regulation in place, including support for SHP development.	Project evaluation, visual inspection	Risks (1) Political instability in Haiti worsens; (2) Natural disasters impact project implementation; Assumption: Government of Haiti continues to be aligned with international community’s (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.
Outcome 1 ⁵ An effective, market-oriented policy and regulatory framework to enable small hydropower development in the country has been established.	(A) Methodology to define reference cost and tariff SHP approved; (B) Proposal approved legal/commercial status of SHP operator; (C) Resolutions approved defining (i) quality of service; (ii) land tenure, (iii) water rights and environmental issues.	(A) No SHP reference cost and tariff defined; (B) No proposal SHP approved; (C) No resolutions (a) drafted nor (b) approved.	(A) SHP reference cost and tariff defined; (B) Proposal status SHP operator approved; (C) Resolutions (a) drafted and (b) approved.	Proposals and official publications	Risks (1) Political instability in Haiti worsens; Assumption: Government of Haiti continues to be aligned with international community’s (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.

⁴ Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

⁵ All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

<p>Outcome 2 Technical and managerial capacities within EdH and other national stakeholders have been created to evaluate, prepare and operate small hydropower developments in Haiti.</p>	<p>(A) Measuring equipment procured and installed; (B) Mapping of relevant regions carried out; (C) Creation of SHP business unit in EdH; (D) Internal capacities in EDH enhanced. (E) Project Pipeline generated</p>	<p>(A) No measuring equipment identified; (B) Data from 1979, no mapping using modern technologies; (C) No SHP business unit in EdH; (D) Low EdH Capacity for SHP management, no training material in place. (E) No SHP project pipeline in place</p>	<p>(A) Measuring equipment procured and installed; (B) Mapping hydro potential relevant regions carried out; (C) SHP business unit established; (D) At least 30 EDH staff members are fully trained on SHP development, operation and maintenance; training material in place. (E) At least 8 SHPs included in EDH's project pipeline and with preliminary financing agreements in place</p>	<p>reports, evaluation, audits</p>	<p>Risks (1) Political instability in Haiti worsens; Assumption: Government of Haiti continues to be aligned with international community's (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.</p>
<p>Outcome 3 Small hydropower generation facilities are incorporated in regional distribution constructed and are providing electricity to end-users.</p>	<p>(A) Feasibility studies for SHP projects; (B) Financing secured for SHPs (C) SHP plants procured and under construction; (D) Regional grids upgraded and fully operational (E) Business plans for SHP operator.</p>	<p>(A) No feasibility studies; (B) Private sector and donors demonstrate interest in investing in SHPs (C) No new SHP plants constructed in past 20 years; (D) Jacmel grid restored, Les Cayes grid in poor conditions; (E) No SHP business plans defined.</p>	<p>(A) 3 Feasibility studies completed; (B) Financing secured for construction of 3 SHPs (C) 3 SHP plants in construction; (D) Jacmel and Les Cayes grids fully restored and SHP interconnection underway. (E) 3 business plans approved.</p>	<p>reports, technical studies and drawings, visual inspection</p>	<p>Risks (1) Political instability in Haiti worsens; (2) Natural disasters impact project implementation; Assumption: Government of Haiti continues to be aligned with international community's (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.</p>
<p>Outcome 4 A project monitoring and evaluation plan implemented, and lessons learnt are disseminated.</p>	<p>(A) Mid-term Evaluation Report; (B) Final Evaluation Report; (C) Documentation of project Experiences; (D) Sharing of project results.</p>	<p>(A) No MTE; (B) No FEV; (C) No systematization of SHP experience in Haiti; (D) No sharing of SHP development experience in Haiti.</p>	<p>(A) MTE completed; (B) FEV completed; (C) Lessons learnt publication; (D) Seminar to present project results.</p>	<p>Evaluation reports</p>	

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)

Small Scale Hydro Power Development in Haiti, PIMS 2820
IA's RESPONSE TO GEF SECRETARIAT COMMENTS AT PIF INCLUSION – RESPONSE TO REVIEW DATED
9/25/2008

Country/Region: Haiti
Project Title: Small Scale Hydro Power Development in Haiti
GEFSEC Project ID: 1904
UNDP Project ID: 2820

GEFSEC comments at CEO Approval	UNDP's Response
Project Design	
<p><u>Question 8⁶</u> Is the project design sounds, its framework consistent sufficiently clear?</p> <p>The project design is consistent with the general framework guidelines for technical assistance and capacity building projects. Nevertheless, the description of outputs should be refined in order to correspond to the resources allocated.</p>	<p>Please refer to Section A of the PIF, Project Framework, for a revised set of outcomes.</p>
<p><u>Question 14</u> Does the project take into account potential major risks, including the consequences of climate change and includes sufficient risk mitigation measures?</p> <p>Implementation, regulatory, technical and replication risks indicated. However there are no additional risk mitigation measures clearly described, except the fact that the collaboration with other international donors and the other undergoing programs can mitigate the implementation and technical risks. Also, considering that EDH holds critical authority on the electricity sectors, it is questionable how other than legislative reforms can take place in order to mitigate potential default by EDH. Finally, the replication risk demands for a more active approach (regulatory reforms, preparation of future Calls for Tender, etc.)</p>	<p>Please refer to section F of the PIF for a revised set of risk description and mitigation strategies. Please note that regulatory reform, as suggested by this review, is a key component of the project strategy. Additional emphasis has been placed on the regulatory section of the proposal as a result of this review. The replication activities have also been strengthened.</p>
Justification for GEF Grant	
<p><u>Question 15</u> Is the value-added of GEF involvement in the project clearly demonstrated through incremental reasoning?</p> <p>The GEF project will result to the diversification of the energy matrix by the inclusion of small hydro. Nevertheless, it should be noted that the GEF grant is mainly directed to TA activities which are those to produce a long-term impact while its contribution to investment (construction of 2 installations and refurbishment of another one) is low and less critical. Under these conditions, the incremental reasoning should be more detailed and analytical in order to</p>	<p>Please refer to section E of the PIF for a revised incremental reasoning discussion. Please note that, given the size of the GEF contribution of \$1 million, it is considered more cost effective for this funding to be used to create an enabling environment for investment rather than to invest directly in hardware.</p>

⁶ Questions are numbered as per GEFSEC Review Sheet.

<p>justify the relation between the funds provided and the outputs of the project.</p>	
<p><u>Question 17</u> Is the GEF funding level of project management budget appropriate? GEF funding for PM is equal to 100kUSD, which exceeds the 10% limit of the ratio of PM to Activities GEF financing.</p>	<p>The funding for Project Management has been reduced to \$88,000 to meet the GEF requirement.</p>
<p><u>Question 19</u> Is the indicative co-financing adequate for the project?</p> <p>The Co-financing by the private sector should be clarified. It should be clarified what condition are set by one of the private investors, SCP Hydro Intl. Inc, as well as the other private investors should be recognized and confirmed.</p> <p>Also, it should be clarified the exact kind of governmental resources (nationals, public servants, etc) that will be allocated for the project implementation.</p>	<p>Co-financing for this project consist of 3 main components:</p> <ol style="list-style-type: none"> a) In kind contribution from the government to implement the project. This refers to the contribution of existing personnel and office space to execute the project within the Bureau of Mines and Energy. Furthermore, the BME will contribute with all the technical expertise, documentation, and research conducted to date in the hydro field. Other ministries and institutions will also contribute with personnel and expertise as necessary to achieve project results. b) Agency technical support. UNDP and CIDA will be the main international cooperation agencies co financing this project providing technical assistance. CIDA has a large program to support all electricity development activities, and during project development UNDP has successfully negotiated the inclusion of a strong hydro component within this program. CIDA will therefore work hand in hand with the UNDP/GEF project to provide technical assistance, ensure the necessary regulatory reforms, and leverage investment from the private sector c) Private sector investment. The ultimate objective of the project is to create the conditions that will allow for third party investment in small hydro. Clearly these conditions are not in place at this time, so it is not possible to secure confirmed financing at this project stage. However, negotiations have taken place with the private sector with clear expressions of interest that investment is possible within an adequate operational framework.
Secretariat Decisions	
<p><u>Question 22</u> <u>Is PIF clearance being recommended?</u> Not in present form. Revisions required in response to the above points:</p> <ol style="list-style-type: none"> 1. The operational characteristics of the facilities to be installed and their respective environmental benefits should be reported, followed by detailed calculations. 2. Resources allocation (person-weeks and budget) to each activity should be justified in detail. 3. Outputs description should be refined in order to correspond to the resources allocated. 4. More detailed and analytical incremental reasoning is required. 5. PM funding should be astricted within regulatory limits. 6. Risk mitigation measure should be clearly described. 7. Private sector co-financing should be clarified. 	<ol style="list-style-type: none"> 1. At this stage only pre-feasibility analyses are available since one of the main activities of the project is to develop detailed feasibility studies. Based on the analyses conducted to date, the Ti L'Etang, Petit Riviere, and Gaillard projects are the most likely projects to go ahead. Total installed capacity is expected to be 450kW for Petit Reiviere, 450 kW for Gaillard, and 1,500 hW for TiLetang. Our estimated GHG emission reduction has been adjusted to follow the GEF methodology issued in April 2008. Direct CO₂ emission reductions are calculated as follows: Total expected annual electricity generation is approximately 12,800 MWh/yr. This is a direct replacement of diesel generation, resulting in an annual CO₂ emission reduction of 10,880 tons CO₂/year (using an emission factor of 0.85 tons CO₂/MWh). Over a 20 year lifetime this will result in a direct reduction of

<p>8. The exact nature of governmental resources allocated for the project implementation should be presented.</p> <p>9. Detailed and budgeted monitoring plan is required.</p>	<p>217,600 tons CO₂.</p> <p>Indirect emission reductions are calculated as follows: Total estimated potential small hydro development in 10 years is 14 MW, or 75,000 MWh/yr . Over 20 years this will result in the avoidance of 1,275,000 tons of CO₂ Using a conservative GEF causality factor of “level 2” (40%), total indirect GHG emission reductions will be 510,000 tons of CO₂.</p> <ol style="list-style-type: none"> 2. The PIF template requires budgets to be allocated at the Outcome level, hence an activity budget is not provided at this stage. Upon approval of the PIF, a detailed activity budget will be provided with the MSP proposal. 3. Please refer to section A of the PIF for a refined output description. 4. Please refer to section E of the PIF for a revised incremental reasoning of the project. 5. The project management budget has been reduced to the required amount. 6. Please refer to section F of the PIF for a revised risk section. 7. Please refer to the response to question 19, above. 8. Please refer to the response to question 19, above. 9. A detailed and budgeted monitoring plan will be presented with the MSP project proposal as there is no section in the PIF template where this information may be included.
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ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES

Position Titles	\$/ person week*	Estimated person weeks**	Total	Tasks to be performed
For Project Management				
Local				
Project Coordinator	625	93	58,125	Conform ToR in ProDoc
Project Administrator	250	95.1	23,775	Conform ToR in ProDoc
International				
None				
TOTAL PM Positions		188.1	81,900	
Justification for Travel, if any: Limited travel budget to cover visits to project installations and for promotion (visit seminars, liaison, etc).				
For Technical Assistance				
Local	\$/ person week	Estimated person weeks	Total	Tasks to be performed
output 1.1 (US\$20k) (one energy sector specialist)	1,000	20	20,000	policy drafting and liaison with MP
output 1.2 (US\$15k) (one SHP or electricity sector expert)	1,000	15	15,000	advisory tasks to EdH and GoH on SHP implementation; drafting of proposals
output 1.3 (US\$10k) (one electricity sector expert)	1,000	10	10,000	advisory tasks to EdH and GoH on SHP implementation; supervision of subcontractors
output 2.1 (US\$7.5k) (one hydrologist or meteorologist)	1,000	7.5	7,500	supervision of subcontractors
output 2.2 (US\$7.5k) (one technical / communication expert)	1,000	7.5	7,500	training and support
output 2.3 (US\$35k) (one technical and one social or economic SHP expert)	1,000	35	35,000	establishment SHP business unit in EdH and project pipeline development
output 2.4 (US\$7.5k) (one technical/social expert)	1,000	7.5	7,500	technical and business training local stakeholders
output 3.1	1,000	10	10,000	support and supervision of subcontractors

(US\$10k) one civil or mechanical engineer				
output 3.2 (US\$12.5k) (one technical and one legal SHP expert)	1,000	12.5	12,500	technical / legal advice to SHP project partners
output 3.3 (US\$10k) (one technical SHP expert, civil engineer)	1,000	10	10,000	technical support and liaison
output 4.1 (US\$7.5k) (two SHP experts)	1,000	7.5	7,500	support to MTE and FEV
output 4.2 (US\$3k) (one communication expert)	1,000	3	3,000	preparation and dissemination of lessons learnt
Total		145.5	145,500	
International	\$/ person week	Estimated person weeks		
output 1.1 (US\$25k) (one RE planning specialist)	2,500	10	25,000	advice on RE energy planning to EdH and GoH; preparation ToR for subcontractors
output 1.2 (US\$22.5k) (one renewable energy expert)	2,500	9	22,500	advice and technical backstopping on SHP development and operation to EdH
output 1.3 (US\$7.5k) (one electricity sector expert)	2,500	3	7,500	expert input on regulatory issues for SHP
output 2.1 (US\$7.5k) (one hydrological expert)	2,500	3	7,500	technical backstopping on hydrological measurement programme, including methodology, selection of equipment, and drafting of ToR subcontractors
output 2.2 (US\$27.5k) (one technical and one social SHP expert)	2,500	11	27,500	technical experts on relevant SHP themes to provide training in Haiti (training course)
output 2.3 (US\$0k)	-	-	-	-
output 2.4 (US\$2.5k) (one technical or social SHP expert)	2,500	1	2,500	technical backstopping for capacity building
output 3.1	2,500	4	10,000	technical backstopping and guidance for SHP

(US\$10k) (one technical SHP expert)				feasibility / engineering work; drafting of ToR for subcontractors; reviewing
output 3.2 (US\$5k) (one SHP legal expert)	2,500	2	5,000	guidance on legal aspects arrangements
output 3.3 (US\$5k) (one SHP technical expert)	2,500	2	5,000	technical backstopping for SHP implementation
output 4.1 (US\$35k)	2,500	14	35,000	two external, independent consultants to perform mid-term and final project evaluation conform UNDP/GEF guidelines
		59	147,500	
Contracted services	Budget (\$)	Tasks to be performed		
output 1.3 (US\$30k)	30,000	assessment of policy options for small hydro promotion in the Haitian context		
output 2.1 (US\$85k)	85,000	supply, installation and maintenance of hydrological equipment and data collection		
output 2.2 (US\$15k)	15,000	organisation and hosting for training event		
output 2.3 (US\$10k)	10,000	budget for outsourced activities and project development, including small pre-feasibility studies		
output 2.4 (US\$17.5k)	17,500	organisation and hosting of capacity building events with local stakeholders		
output 3.1 (US\$105k)	105,000	elaboration of three SHP feasibility studies; completion of final engineering of three SHP projects (plans, drawings, calculations)		
output 3.2 (US\$20k)	20,000	elaboration of contracts and specialist advice on legal and technical issues for three SHPs		
output 3.3 (US\$35k)	35,000	contribution to grid extension activities in conjunction with other donors (UNDP committed), possibly under a performance contract		
Total	\$ 317,500			

* Provide dollar rate per person week. ** Total person weeks needed to carry out the tasks.

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

A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN.

Detailed information to produce the project documentation has been collected. Documentation has been prepared and presented to the GEF. Stakeholder consultations have been taken place and co-financing has been reconfirmed.

B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY: N/A

C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:

<i>Project Preparation Activities Approved</i>	<i>Implementation Status</i>	<i>GEF Amount (\$)</i>				<i>Co-financing (\$)</i>
		<i>Amount Approved</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>	<i>Uncommitted Amount*</i>	
Identification/verification of barriers preventing the use of hydroelectricity	completed	5,000	5,000			5,000
Development of technical and financial grounding for medium size project	completed	7,000	7,000			5,000
Identification of potential partners for hydroelectricity project development	completed	4,000	4,000			4,000
Analysis of incremental costs and CO2 reductions	completed	3,000	3,000			3,000
Formulation of project brief/project document	completed	6,000	6,000			2,000
Total		25,000	25,000			19,000

* Any uncommitted amounts should be returned to the GEF Trust Fund. This is not a physical transfer of money, but achieved through reporting and netting out from disbursement request to Trustee. Please indicate expected date of refund transaction to Trustee.

ANNEX E: CALENDAR OF EXPECTED REFLOWS Provide a calendar of expected reflows to the GEF Trust Fund or to your Agency (and/or revolving fund that will be set up).

No expected reflows to the GEF Trust Fund to report as of this date.



United Nations Development Programme

Country: HAITI
PROJECT DOCUMENT¹

Project Title: “Small Scale Hydro Power Development in Haiti”

UNDAF Outcome(s): National institutions effectively manage natural hazards, respond effectively to natural disasters and ensure sustainable management of the environment and natural resources with the participation of the population

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Mainstreaming Environment and Energy

UNDP Strategic Plan Secondary Outcome: Expanding access to environment and energy services for the poor

Expected CP Outcome(s):

Capacity development and governance reform related to sustainable management of the environment and natural resources. Promotion of inclusive growth, based on the MDGs

Expected CPAP Output (s)

Strategic frameworks on desertification, water resources management and climate change are formulated. Planning and management capacities are strengthened at local level.

Executing Entity/Implementing Partner: MTPTC Ministere de Travaux Publics, Transport et Communications

Implementing Entity/Responsible Partners: n/a

Brief Description

The Project aims at the development of small scale hydro power (SHP) in Haiti by removing current institutional, regulatory and information barriers. Delivery of the electricity service will be organized through the embedding of SHPs into regional grids, which has demonstrated positive results in terms of technical and financial sustainability. The Project will be implemented in close collaboration with other donor organizations in operating in Haiti. Under the Project, three small hydro plant projects will be prepared for investment by project partners. The transfer of technical and managerial skills to local operators – as well as improving national regulation – is a key element in the project design. The SSHP initiative will result in the direct reduction of approximately 62,000 tons of CO₂e and an indirect emissions reduction of 788.000 tons of CO₂.

Programme Period:	2009-2014	Total resources required	2,975,000
Atlas Award ID:		o GEF	975,000
Project ID:		o Government	800,000
PIMS #	2820	o UNDP	200,000
Start date:	Feb 2010	o Donor (CIDA)	1,000,000
End Date	Feb 2013		
Management Arrangements	NEX		

Agreed by (Government):

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

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Acronyms

BME	Bureau d'Énergie et Mines
CIDA	Canadian International Development Agency
CO2	Carbon Dioxide
EdH	Electricité d'Haiti
GEF	Global Environment Facility
GHG	Greenhouse Gases
GWh	Gigawatthour
IADB	Inter-American Development Bank
IW	Inception Workshop
kWh	kilowatt hour
M&E	Monitoring & Evaluation
MTPTC	Ministère de Travaux Publics, Transport et Communications
MW	Megawatt
PIR	Project Implementation Review
PIF	Project Identification Form
PMU	Project Management Unit
PSC	Project Steering Committee
RF	Replication Factor
TPR	Tripartite Review
SHP	Small Hydropower
SSHP	Small-Scale Hydro Power
TSE	Table Sectorielle Electricité (Electricity Sector Coordinating Platform)
UNDP	United Nations Development Programme
UNDP-CO	UNDP Country Office
USAID	United States Foreign Assistance Agency

1. SITUATION ANALYSIS

With an electrification coverage of 10% and an electricity consumption per capita of 75 kWh per year, access to electricity in Haiti figures among the lowest levels in the world. The primary source of energy for the majority of the population is fuelwood (directly or processed into charcoal)². The Ministry of Public Works, Transport, and Communications (Ministère de Travaux Publics, Transport et Communications - MTPTC), is responsible for energy Management through the Bureau of Energy and Mines (Bureau d' Mines et Energie – BME). The state-owned utility Electricité d' Haiti (EdH) is responsible for transmission and distribution of electricity in Haiti. EdH is also responsible for the majority of electricity generation, although privately owned thermal generation also exists under an IPP scheme. In practice, the electricity provided by EdH is unreliable and provided, at best, for a few hours daily. People not served by the grid either own individual diesel or gasoline generators to meet their electricity needs (for example, to run a business) or most commonly rely on candles and kerosene or even firewood for lighting. Institutions that require 24-hour electricity supply rely on stand-alone diesel generators.

Due to a number of political, social and managerial factors, EdH has not been in a position to recover its operating costs over a length of years. This has gradually undermined the company's capabilities to maintain the quality of its service, to expand its infrastructure in response to growing demand and to invest in new generating capacity³. Under the pressing need to satisfy electricity demand in the major cities, Port-au-Prince and Cap Haitien, EdH's service has been rationed to a few hours of supply per day on a rotating basis.

While the tariffs have historically been inadequate to recover costs, recent modifications to the tariff structure have been approved to reduce EdH's losses. However, full cost recovery will require significant investment in generation and distribution facilities to reduce technical losses. Haiti still does not have a high-voltage transmission network, which greatly limits the options to create redundancy in the electricity transport and to incorporate backup power in case of a breakdown. It further inhibits dispatch of existing generating capacity in terms of efficiency and marginal costs. Technical losses in the distribution grid and widespread pilferage further add to the high economic losses and people become unwilling to pay for the low-quality service provided⁴. As a result, the electricity sector is caught in a vicious circle of a lack of investment and a deteriorating service.

The weak financial position and the uncertain revenues of EdH create a high risk profile for investments in new generating capacity. Notwithstanding, in 1999 the Government agreed to purchase electricity from independent power producers (IPPs), but the cost price per kWh is well above the retail tariff, meaning that EdH loses money on each kWh purchased under the PPA⁵. Effectively, EdH's operational losses are absorbed by the State. Subsidies from the Ministry of Finance to EdH amount to approx. 1% of GDP to cover fuel costs and to purchase electricity from the IPPs. Rising costs of fossil fuels accelerate this drain of national resources highly needed for long-term development.

² Annual fuelwood consumption is estimated between 4.5 and 6 million m³, with widespread deforestation and a major decline in the availability of fuelwood as a result; as a corollary, deforestation has led to serious soil erosion and reduced annual river flows. It is estimated that 1,500 hectares of arable land and 37 million tons of topsoil are lost each year due to soil erosion.

³ In the whole of Haiti, EdH has a total installed capacity of 216 MW (thermal 154 MW and hydro 62 MW). The power stations near Port-au-Prince are Varreux, 68 MW and Carrefour, 50 MW (both thermal) and Péligré, 54 MW (hydro). However, Varreux and Carrefour are running at lower capacity due to lack of maintenance, while Péligré's output is declining due to sedimentation of the reservoir. Power plants in other regions of Haiti are: 10.6 MW (North), 16.1 MW (Artibonite), 8.3 MW (South), 4.9 MW (Centre-West); all of these are out of service due to a lack of maintenance. In the semi-autonomous centre of Jacmel, EdH operates a 4.3 MW plant which is still in operation and part of a rehabilitation programme led by CIDA.

⁴ Experience in many places worldwide (urban and non-urban) indicates that people are willing to pay a commercial price for electricity, on the condition that the service provided is reliable and high-quality. Otherwise, they tend to consider the service as "worthless" and suspend payment. Also in Haiti (Jacmel), CIDA found that the low quality of the electricity service was the main reason behind the commercial losses due to non-payment and pilferage.

⁵ The average tariff in Haiti in 2006 was US\$ 0.176 per kWh, among the highest in the LAC region. PPA's with Alstom and Sogener are US\$ 0.20-0.21/kWh. Source: http://en.wikipedia.org/wiki/Electricity_sector_in_Haiti.

In the Energy Sector Development Plan 2005-2015, Haiti has set a goal to increase the level of access to electricity for its population from 10% now to 50% by the year 2015. The plan lays out a programme involving over US\$ 400M in needed funding and includes management support for EdH, major investments in rehabilitation of existing power plants and new generation capacity, a far-reaching electrification programme (both urban and rural) and the creation of a regulatory entity. All feasible technologies would be encouraged, including hydro-electricity and other renewable energy sources and the promotion of energy efficiency at the supply and demand sides. The implementation of this plan is currently underway, with substantial donor contributions provided by the Canadian International Development Agency (CIDA), the Inter-American Development Bank (IADB), the World Bank (WB), and USAID.

CIDA has a long-term presence in the power sector in Haiti. After working in the Jacmel region on the concept of regional, commercially autonomous distribution grids, it has now extended work to Les Cayes⁶. CIDA also participates in the coordinating platform of international donors and the Government of Haiti for the sector, the “Table Sectorielle d’ Electricité” (TSE). This platform opens good opportunities to discuss innovative, more sustainable business models in Haiti and to coordinate sector development programs and investments. While CIDA’s achievements in Jacmel with regard to operation, maintenance, quality of the electricity service, and collection of payments, is positive⁷, it has proved unable to establish a commercially autonomous distribution company. By consequence, financial resources still drain away from the region to compensate for deficits in the cities. Social pressure, a lack of political support, the lack of a proper legal framework and institutional weaknesses within EdH are the main factors impeding such an important move.

USAID and the Inter-American Development Bank (IADB) are preparing programs to support regional distribution grids based on renewable energy generation. USAID has a long-term presence in the country and has refurbished several small plants in recent years⁸. The organization now envisages a larger development program based on (renewable) rural energy supply in the north-eastern part of the country. IADB is in the process of preparing a proposal for investment in the electricity infrastructure including renewable energy generation. IADB and the World Bank are also supporting the upgrade of distribution infrastructure within Port au Prince, as well as working with the Ministry of Public Works, Transport, and Communications on developing national energy policies and regulations.

The UNDP/GEF project strategy is to collaborate closely with these initiatives in order to support the development of small hydro plants (SHPs). Electricity generation with SHPs is an attractive option to supply electricity to regional distribution grids. Small hydropower assists in reducing Haiti’s dependence on imported fossil fuels. Moreover, unit energy costs over the lifetime of the investment are lower for small hydro than for diesel generators. By promoting the use of small hydro-electricity, the Government of Haiti wants to develop a long-term, sustainable option to meet energy demands and reduce greenhouse gas emissions. Presently, hydropower makes up approx. one-third of total electricity production, but there is significant additional potential to be exploited. The largest hydropower plant in the country is Péligre, with a rated capacity of 54 MW⁹; however, it currently generates a fraction of this amount due to poor maintenance and sedimentation of the reservoir. SHPs can provide a much more sustainable and manageable generation solution for Haiti, especially in the context where electricity is distributed in regional grids.

⁶ CIDA Technical Assistance (Jacmel) - Phase III (Project Number A032087-001, 2005-2009). CIDA's approach is to work with the Government and EdH to operate the regional grids as isolated utilities, in which generated revenues be retained for operating and maintaining the local grid and not channeled back to Port-au-Prince.

⁷ CIDA’s positive results in Jacmel motivated IADB to join the World Bank PREPSEL program (2006-2010) aiming at improving business approaches and reducing technical commercial losses in Port-au-Prince. Total budget for this project is a US\$ 6 mln grant from the World Bank plus US\$ 18 mln loan from IADB. It is reported that technical losses in Port-au-Prince are 57% of the energy generated, while 38% of the billed electricity is collected. Source: <http://www.iadb.org/NEWS/detail.cfm?artid=3506&language=En&id=3506&CFID=2293094&CFTOKEN=74933676>.

⁸ Communication with USAID personnel in Haiti, August 2009. See also: <http://www.usaid.gov/ht/partners.html>.

⁹ Total electricity generation in Haiti during the fiscal year 2001-2002 was 548 GWh, with the contribution of thermal power plants being 67 % and Hydro 33 %. CO2 emissions from the thermal power plants during the same period amounted to approx. 97,000 tons.



Figure 1 Map with the electricity generating and transport infrastructure in Haiti.

However, due to a number of barriers and the higher upfront investment compared to fossil-based generation, such SHP development has not taken place over the past 20 years. The main barriers presently impeding the introduction of grid-connected SHP in Haiti are as follows:

- policy barrier;
- business skills and models;
- information, and;
- finance.

It must be noted that other high-level barriers exist that are closely related to the overall degree of development of the country, in particular: (i) general lack of strong institutions; (ii) political instability; (iii) inadequate education; and (iv) lack of investment capital. These cannot be addressed directly within the scope of a GEF medium-sized project, however, coordination and communication between the international donor community efforts has been an effective mechanism to mitigate these external risks.

Policy barrier

A first step towards revitalization of the energy sector was made in 1995 when Haiti passed a law on the modernization of public enterprises¹⁰. Capitalisation, a system of concessions, and service contracts constituted the three lines of action along which private participation in public enterprises was encouraged. A National Commission for Public Sector Modernization (CMEP) and a National Energy Commission were set up under the direct responsibility of the Prime Minister. Under this law, two IPPs emerged operating two thermal plants in Haiti.

¹⁰ Loi sur la Modernisation des Entreprises Publiques, 1995.

However, the definition and implementation of policy measures to regulate the energy sector and enable EdH to operate under commercially viable conditions has not been completed. The company loses money on every kWh produced and the quality of service in the whole territory is adversely affected by the situation in the major cities. Under these conditions, EdH is unable to accumulate financial reserves to invest in new generating capacity and to expand the service. Private investors will not enter the market unless the contract risks are fully assumed by the State, as is the case of the existing IPP projects mentioned before.

The lack of a stable and consistent policy framework represents an important barrier for sector development based on cost and quality principles. As long as the need to satisfy immediate energy demands in the major cities prevails above a long-term vision on sector development and investments, EdH will have few options to control and lower the marginal costs of each kWh generated and delivered to the end-user. The lack of a consistent policy framework includes institutional aspects such as overlapping responsibilities among ministries, the lack of an appropriate business mandate for EdH; regulation concerning land and water use; licenses and concessions; quality standards for the service provided; arbitrage; and incentives.

The geographical lay-out of the grid in Haiti suggests that a restructuring of the electricity services into decentralized, regional service areas would be more successful than a nation-wide approach. The experiences in Jacmel point into this direction. Cost recovery per region would then become a realistic objective, with interesting possibilities to enhance ownership, responsibility and productivity in the rural areas. In the existing political context however, such an approach will probably only be accepted if the situation in the main cities is addressed simultaneously.

Business skills and models barrier

In the present situation, EdH is not able to provide adequate service for end-users. The absence of a sound and transparent business model is a primary barrier which has eroded EdH's financial position; without financial resources to perform proper maintenance and interact with its customers, the company's technical, commercial and managerial skills have become degraded over time as well. During the project preparation phase, EdH has indicated that it has technical staff available that can be trained, but that the company lacks the institutional capacity to manage the available resources effectively and to safeguard the integrity of the individual business units. Training at all levels is therefore needed to improve management capacities and to enhance the knowledge and skills of technical staff. Further, the institutional structure of the company needs to be strengthened. Sustained, high-level support will be crucial for EdH to restore the confidence - hence motivation - among its personnel and to make people believe that set targets and objectives can actually be attained.

The current political, financial and technical situation around EdH does not allow the immediate implementation of a commercial business model in the country as a whole. A first step into this direction must be to improve the abilities of EdH to provide adequate electricity services to end-users, implying: repair, upgrade and expansion of the service, albeit on a local scale. Customers receiving proper service are generally willing to pay for it. Technical and commercial training of local EdH staff and efficient recollection procedures will be instrumental to maintain the service and to generate revenues. The efforts of the international cooperation in Haiti follow this approach by addressing the technical infrastructure and providing investment capital. Once the technical conditions are in place and EdH staff has been trained properly, the business conditions can be improved by implementing a tariff level allowing for cost recovery.

CIDA's experiences in Jacmel show that, on a regional scale, very significant progress can be obtained regarding enhancing EdH's business skills. Providing electricity service 24 hours per day, the technical and commercial losses were drastically reduced (from 55% to 21%); 86% of the electricity produced is invoiced and of this, 92% is collected. It has proven difficult to maintain the envisaged autonomous status of the regional grid and revenues are drained from the region to cover EdH deficits generated elsewhere, in spite of agreements made before. This demonstrates the strong social and political pressure on the sector. The model in Jacmel is not based on hydropower; however, it is acknowledged by all donors and the Government, that small hydropower constitutes a clean and indigenous energy source to provide electricity to regional distribution grids.

Information barrier

Mapping of Haiti's significant hydropower potential is outdated, with the most recent survey dating from 1979. In view of the changes in land use and demography, new hydrological measurements are needed as well as reassessments of potential sites¹¹. As a result of long-term negligence of the technology, the available technical skills in Haiti to perform a large assessment program, including hydro-meteorological observations, management of measuring equipment and data analysis, are limited. Therefore, addressing the information barrier must include a technical training component involving Haitian staff.

In the absence of detailed site information, the development of small hydropower plants in Haiti will remain limited to upgrading the existing power plants. Mapping of a number of high-potential watershed areas, updating of socio-economic information to determine energy demand, payment capacities and productive uses of the energy will assist project developers¹² to move forward more quickly.

With ongoing plans to expand Haiti's fossil-based capacity¹³, there is also a need for information input at the national policy level, including the sector committee TSE. Creating awareness among high-level stakeholders and coordination of support programme strategies will assist in identifying the opportunities for SHP investment.

Finance barrier

In the context of Haiti's general development level, private capital is scarce and the country largely relies on financial support by the international donor community and development banks for investment in infrastructure. On the longer term, only sustained economic growth can create a situation in which the country generates sufficient income to finance basic services, including infrastructural works.

In relation to the development of small hydro plants (and the associated regional grids), the present financing barrier is related to the high risk profile for the investment. The lack of a successful precedent of private investment in SHP in Haiti adds to the perceived risk while, more generally, investors are unaware of the opportunities of SHP. Compared to diesel-based generation, the higher initial cost and the longer time horizon (both lifetime and payback time) add to the investment risk. Meanwhile, the experiences in Haiti's electricity sector over the last decades make revenues uncertain. Notwithstanding, the SHP alternative offers lower life-cycle costs and is not subject to fluctuating prices of imported fuel. If properly maintained and administered, operational revenues can be reinvested to expand the service to new end-users.

The approach in Jacmel demonstrates that under appropriate circumstances, project risks can be quantified and limited, which is a basic condition for attracting investment capital under an IPP scheme and to retain revenues for expanding the service. The proposed UNDP/GEF initiative is aimed at creating enabling conditions for including small hydro technology into a regional approach. It must be noted, however, that the finance and risk barrier can only be fully addressed if the regional delivery model is supported by an enforced national institutional and policy framework.

2. STRATEGY

Given the extent of the problems the Haitian energy sector faces, it is not feasible to address all the necessary actions through one single project. However, the international community is working with the Government of Haiti to

¹¹ It is expected that large-scale clearing of rainforest over the last decades will lead to significant changes in flow rates and availability of water. Actualized measurements may also provide insight in the effect of global climate change on precipitation rates in Haiti.

¹² For example under the envisaged CIDA, USAID and IADB initiatives.

¹³ As an example may serve the capacity being installed in Port-au-Prince (30MW), Gonaives (15MW) and Cap Haitien (15MW) under the tripartite initiative between Venezuela, Cuba, and Haiti.

rehabilitate the national electricity infrastructure and to implement a more effective institutional framework. The UNDP/GEF intervention is embedded in this broader framework and focuses explicitly on SHP development within this context. The UNDP/GEF project will create important enabling conditions necessary for the subsequent implementation of SHP programs by the international donor community and the Government of Haiti, as well as by private investors.

Based on the presented barrier analysis, the UNDP/GEF “Small Scale Hydro Power” initiative will focus on addressing the policy/regulatory barriers, strengthening EdH’s capacity, and generating updated hydro-meteorological and project information to accelerate new SHP developments in the country. The SSHP project will create an improved institutional and regulatory framework to promote small-scale hydropower development in Haiti and create the necessary human technical and managerial capacity for the sustainable management of SHPs. Furthermore, the project will focus on small hydropower development embedded in regional grids¹⁴, collaborating with CIDA in the south east region to promote small hydro investment in the regional grids supported by their intervention. The project will demonstrate the technical and economic rationale for small-scale hydro development within regional grids and consolidate the investment in three SHPs during the lifetime of the Project.

2.2 Project objectives, outcomes and outputs

Project goal and objective

The project has the following goal and objective:

The project goal is: “To reduce greenhouse gas emissions from fossil-based electricity generation in Haiti by promoting the development of small hydropower plants.”

The project objective is: “To create an enabling environment for private and public investment in small hydro plants in Haiti.”

Environmental benefits

The SSHP Project generates environmental benefits in the form of avoided CO2 emissions from diesel generation by the electricity sector in Haiti. The avoided emissions are both direct and indirect:

Direct benefits are associated with the construction of two new SHP plants and the upgrading of an existing one. The total new generating capacity brought online will be 700 kW. Indirect environmental benefits will occur due to the impact of barrier removal activities and the demonstration of a sustainable delivery model.

The direct benefits are estimated at 62,000 tons CO2 over the economic lifetime of the investment (20 years). The indirect benefits as a result of market transformation are estimated at approximately 788,000 tons CO2. These environmental benefits of the Project contribute to the objectives of GEF Climate Change Strategic Priority SP3. Annex 2 provides a more detailed GHG emission reduction analysis.

Outcome #1 An effective, market-oriented policy and regulatory framework to enable small hydropower development in the country has been established.

Output #1.1 *Small hydro planning and implementation mechanisms established within the Ministry of Public Works, Transport, and Communications and EdH.* This output encompasses sustained support to the Government of Haiti and EdH, enabling them to integrate renewable energy-based electricity generation into future sector development. This component covers two main activities; (i) the preparation of detailed proposals targeted at including small hydropower generation into the national power sector; (ii) and the establishment of a policy dialogue

¹⁴ Each of which providing service to approximately 50,000-100,000 people.

with national stakeholders according to a working agenda agreed upon with partner donor organisations and the TSE.

Output #1.2 *A strategy developed to enable the sustainable, commercial operation of small hydropower plants (SHP) in regional distribution grids.* This project output builds upon CIDA's experience in the south east by pursuing the establishment of the technical and financial conditions for SHP investments that allow long-term sustainability on a project (or regional) basis. Without such conditions in place, investment capital will remain very limited. Specifically, this project component envisages: (i) generating proposals for formal approval of regulation enabling SHP development in regional grids; and (ii) modalities for the introduction of competition and quality criteria concerning the electricity service provided, in the award of SHP sites and concessions.

Output #1.3 *Regulation drafted to promote the development and operation of SHP in Haiti.* This component covers the drafting of technical regulation on the following issues: (i) the establishment of a methodology to calculate a reference cost for SHP; (ii) the identification of financial incentives and options for risk mitigation related to SHP investments; (iii) a proposal regarding the legal status of a private SHP operator in the modality of IPP; (iv) a resolution regarding land tenure and water use rights for SHP projects; and (v) regulation concerning environmental constraints and management of watershed areas. This output is embedded in a broader effort by the Ministry of Public Works, Transport, and Communications to generate a national energy policy and appropriate regulatory instruments. This effort is supported by the IADB and the WB, and the UNDP/GEF project will focus on the specific regulation required for SHP development.

Output #1.4 *Standardized documentation (IPP contracts, tender documents, etc) developed for SHP contracting.* This output envisages the creation of a streamlined procedure for permits and concessions for regional electricity generation and distribution, including (i) the preparation of calls for tender and (ii) a comprehensive outreach campaign among potential developers, investors, suppliers and local stakeholders.

Output #1.5 *Risk mitigation mechanisms for private and public investors are implemented.* This output envisages the design and implementation of measures intended to reduce the perceived risks for private and public investors in SHPs. This will include assessing the feasibility of implementing sovereign guarantees, development clear liability responsibilities in case of default, and security of property rights and concessions, amongst other potential measures.

Outcome #2 **Technical and managerial capacities within EdH and other national stakeholders have been created to evaluate, prepare and operate small hydropower developments in Haiti.**

Output #2.1 *Programme for updating the 30-year old existing hydrological data in Haiti established.* This activity will focus on the procurement and installation of hydro-meteorological measuring equipment at selected sites in the country according to a pre-established mapping methodology and program. Data will be collected during the time span of the project, processed and made accessible to third parties, and provide quantitative insight in the potential for SHP development. The mapped areas will be selected according to the priorities of the Government of Haiti and coordinated with electrification programs implemented by partner organizations, including CIDA, USAID and IADB. This component will further include the provision of tailored training on the use and maintenance of equipment and data collection and processing to a limited group of national professionals.

Output #2.2 *Training programme implemented within EdH to enhance managerial and technical capacity.* As the national entity in charge of supplying electricity services to the population, EdH needs to become acquainted with all aspects of small hydropower technology, including technical characteristics, economic aspects, maintenance and scoping and evaluation of new projects. Especially in decentralized grids, expansion of the service to a sufficiently large number of end-users is critical for economic feasibility, hence distribution and generation must be viewed together. Also, organizational aspects must be included, as SHP development will typically occur away from

the major cities. This output will prepare a human resources development plan in collaboration with EdH and local stakeholders and implement a training programme for selected professionals.

Output #2.3 *Small hydropower development institutionalized within EdH by creating a dedicated business unit.* This project component envisages strengthening the institutional context within EdH to define roles, responsibilities and procedures relevant for the development, operation and management of small hydropower plants in Haiti. If possible and appropriate, the project will create a dedicated business unit within EdH to this purpose, which can act as the direct counterpart for stakeholders in the future. This component will further design and formalise protocols and technical procedures to guide the process of site selection, construction and management of SHPs. Methodologies and procedures for project development are required to keep projects on track prior and during the construction stage, and to include local stakeholders in the process.

Output #2.4 *Local project operators and key stakeholders have acquired appropriate technical, managerial and business skills for SHP development and operation.* The technical, and by consequence, financial sustainability of SHP plants depends on the reliability of the energy service provided and the accumulation of financial reserves to reinvest (major maintenance work, spare parts, service expansion). Proper training and organization of local personnel is a prerequisite for technical sustainability. This output will prepare local project operators to acquire the necessary skills for sustainable SHP operation.

Output #2.5 *An SHP Project Pipeline is generated.* This output will focus on ensuring that EDH can develop an SHP project pipeline, based on updated data and realistic technical and financial modelling. This pipeline will be marketed to potential private and public investors to leverage additional investment in SHPs.

Outcome #3 **Small hydropower generation facilities are incorporated in regional distribution constructed and are providing electricity to end-users.**

Output #3.1 *Technical and non-technical losses in regional grids are reduced.* This is a necessary prerequisite for successful implementation of SHPs and will be addressed jointly with CIDA in the Jacmel and Les Cayes region. This includes technical improvements as well as capacity building within EDH and for end users to create a sustainable electricity delivery model at the regional level.

Output #3.2 *Feasibility and technical design studies for three SHP executed.* This output envisages the preparation of detailed feasibility studies and the technical design of the three SHP projects that will be put into operation by the project partners. Three potential SHP sites have been identified during the project preparation stage, but may change in function of Government priorities and available funding capital. The identified SHP plants are in geographical proximity to CIDA's initiative in the Jacmel and the Les Cayes regions; hence the plants will supply electricity to the regional grids participating in the CIDA programme. It is envisaged to carry out this activity as a contractual service with a specialized consultancy firm under the supervision of a national expert with technical backstopping from an international expert. Given the expected impacts of climate change in the country, and in particular the potential damage caused by hurricanes, it will be necessary to ensure a climate proof design for the SHPs.

Output #3.3 *Contractual arrangements for investment, ownership and electricity delivery under IPP modality of the SHPs under (3.1) drafted, negotiated and signed by involved parties; detailed business plans prepared for the financial exploitation of the SHPs.* This component includes the preparation and signing of the required contracts and permits required for the construction and operation of the SHPs under (3.1). The Project will provide assistance to draft the legal documents and expertise to guide negotiations. End-user tariffs, maintenance costs and reinvestments feed into a project's cash flow scheme and establish the financial boundary conditions thereof. This component will assist in drafting the business plans providing the framework for operation and exploitation of the SHPs.

Output #3.4 *Investment has been leveraged for the implementation of at least three SHPs in Haiti.* The project will leverage financing from investors and the international donor community for the implementation of three SHPs in Haiti. Tentatively, these are two new small hydropower plants and the upgrading of an existing SHP. GEF resources will be used to support the implementation of these projects given the fact that experience with SHP technology in Haiti is limited. Furthermore, GEF resources under this component will be used to co-finance local supervision efforts with EdH and to cover costs related to logistics.

Outcome #4 **A project monitoring and evaluation plan implemented, and lessons learnt are disseminated.**

Output #4.1 *A project monitoring and evaluation plan has been implemented.* This output covers the implementation of the monitoring and evaluation (M&E) plan as detailed in Part (IV) in accomplishment with UNDP and GEF guidelines, and in partnership with the Government of Haiti.

Output #4.2 *Lessons learned collected, prepared and disseminated.* This output will systematize project experiences and will serve as a basis for replicating good practices within the country; as well as providing inputs to UNDP and the GEF for future programming and horizontal learning.

Output #4.3 *Outreach and promotional activities are conducted targeting donors and investors.* This output will ensure that other private and public stakeholders and interested parties are aware of the potential of SHP development in the country.

Consistency with GEF Focal Area Strategies

The proposed UNDP/GEF intervention “Small-Scale Hydro Power in Haiti” focuses on the promotion of small hydro power plants as a grid-connected, renewable energy source for electricity generation. It is presented under the GEF-4 Climate Change Strategic Objective 4 “*To promote on-grid renewable energy*” and Strategic Program 3 “*Promoting Market Approaches for Renewable Energy*”. The intervention is aimed at a long-term market transformation towards renewable energy (hydropower) outside the urban areas in Haiti and contributes significantly to the GEF indicators under CC, specifically avoided GHG emission (tons CO₂e), renewable-energy based electricity production (kWh/year), and number of households connected. The intervention is further expected to generate direct and verifiable impact concerning the conservation of watershed areas and indirect benefits, including reduced technical and commercial losses through improved customer approach methods.

Country Eligibility

Haiti ratified the UNFCCC on 25 September 1996 and is fully eligible for GEF Financing.

Coordination with other related initiatives

The project will be implemented in close coordination with CIDA, and in collaboration with IADB, USAID, and the World Bank. All donor agencies are working in collaboration with the Government of Haiti to modernize the energy sector in the country. IADB and the WB are working on securing energy supply in Port au Prince, including the refurbishment of the distribution grid, and the rehabilitation of the Peligre large hydro dam as well as existing thermal power plants. Likewise, they are assisting the Government of Haiti in the development of a national energy policy and its associated regulatory instruments through support to the Energy Sector Management Unit within the Ministry of Public Works, Transport, and Communication. Furthermore, IADB is in the early planning phase of a nationwide renewable energy promotion initiative that will support investment in all renewable energy technologies to increase energy access and diversify the country’s energy matrix. Likewise, USAID has been active in rehabilitating existing small hydro plants in rural areas, and is in the planning stage of a large intervention in the north region to promote energy access, including renewables, for rural development. CIDA has been working in the south region of the country in establishing self sustained, autonomous regional grids in small cities. This CIDA initiative is tightly linked to the UNDP/GEF project, since the small hydro investments promoted by this project will be feed into the regional grids supported by CIDA.

Overall, the UNDP/GEF project will complement the above donor initiatives by providing technical assistance to the Government of Haiti and EdH and creating an enabling environment supportive of small hydro development. The policy component of the project will be a part of the Energy Sector Management Unit supported by the WB and IADB, building upon these efforts and ensuring the adequate incorporation of policies and regulations supportive of small hydro development. **This joint effort by multiple donor agencies and the government to reform the energy regulatory framework is a unique opportunity to establish favourable regulatory conditions for SHP development.** The investment promotion component of the project will be directly linked to CIDAs regional grid rehabilitation efforts. The technical strengthening component within EdH will help the Government of Haiti improve the management of all small hydro facilities in the country, thus creating the foundation for the sustainability of all other donor efforts in the country. Furthermore, the technical information, local capacity, and on the ground experience generated by the project will be a substantial input to the larger renewable energy investment efforts currently under development by other donors (most notably IADB and USAID).

Donor organisations and international finance institutions active in Haiti have set up various sector committees to promote coordination. The committee for the electricity sector, TSE¹⁵, is chaired by the Ministry of Public Works, Transport, and Communication; participating donors are Canada, the European Union, the French Government, the Inter-American Development Bank, UNDP, the United States and the World Bank. UNDP's participation in the TSE will ensure that the Project's activities and strategy are well coordinated within the context of international donor involvement in the Haitian power sector, promoting collaboration and synergies and avoiding overlaps or duplication of efforts.

Finally, active coordination will also be sought with sustainable land management initiatives in Haiti, in particular the UNDP/GEF binational initiative in Artibonite and the IADB/GEF watershed management initiative in the southwest. This coordination will help ensure that sustainable watershed management practices are incorporated into the small hydro project development, thus protecting the investments over the long run and reducing the project's vulnerability to Climate change.

Incremental Reasoning

Baseline scenario: Under the baseline scenario, the policy framework to support the sustainable operation of renewable energy-based power plants embedded into regional electricity grids will hardly develop. Moreover, limited institutional capacity and coordination within EdH and the Government of Haiti represent a major barrier for developing a detailed strategy, to define priorities and to enforce appropriate business models. There is a lack of regulation, methodologies and technical procedures within EdH to develop small hydropower, including cost calculations, quality criteria, management of watershed areas, land tenure, and the approach towards local stakeholders and end-users. The exploitation of Haiti's hydropower potential will not take off due to a lack of available data (mapping and updating of hydrological information). In the absence of a well defined, viable business model, cash flows for SHP investments are uncertain and private investors and (to a lesser extent) donor organisations will require additional guarantees to finance small hydro power plants. The build-up of financial reserves will remain insufficient and technical and managerial capacities for operation and maintenance will be inadequate, jeopardizing the sustainability of present rehabilitation programs. Meanwhile, the majority of Haiti's rural population has no access to electric energy at all.

Without the proposed SSHP initiative, the Government of Haiti and the international community continue to work on rehabilitating power plants and existing grids on an ad-hoc basis. Investments in thermal power drain available resources and prevent the development of alternatives with lower life-cycle costs, including small hydro. Current efforts include repair of existing but abandoned small hydropower plants. Without sustained policy support, adequate institutional structures and viable business models, the opportunity to develop and expand the electricity service outside the urban centres, will not materialize. Thus, the baseline scenario consists of increased fossil fuel-based electricity, continued poor electricity services for end-users and unsustainable business models. The proposed SSHP Project aims at removing the existing barriers for small hydro investments in Haiti and preparing future sector programs by the Government and the donor community by establishing adequate conditions for long-term sustainability.

¹⁵ Table Sectorielle Electricité

GEF Alternative scenario: The GEF alternative scenario will address the identified policy and institutional barriers and work directly with EdH and the Government of Haiti to develop a conducive policy and regulatory framework for small hydropower development. The proposed SSHP initiative will be coordinated closely with the international donor community represented in the TSE and establish the basic conditions for long-term sustainability of electricity supply in regional grids. The Project builds forth on ongoing policy development aimed at public sector reform to allow increased private involvement in the energy sector. The project will greatly enhance EdH's managerial and technical capacities to develop and manage SHP plants in Haiti and establish a solid institutional set-up to this purpose. The SSHP project will prepare EdH technical staff to operate and maintain small hydropower plants by targeted training activities. As a result, EdH's capacities to address and benefit SHP technology will be strengthened at all levels. Under the GEF alternative scenario, updated information will be acquired and made public concerning the hydrological resources in Haiti by implementing a comprehensive assessment program, including the effects of climate change and modified soil use. In combination with improved regulation regarding watershed management, land tenure and legal issues, the present information barrier for project development will be greatly reduced.

In close dialogue with the Government of Haiti, the SSHP Project will work towards the establishment of viable business models for electricity generation and distribution in the rural areas, specifically based on SHP. The GEF alternative scenario will generate proposals for acceptance by EdH and the Legislator aimed at enhancing the technical and financial sustainability of the supplied service. The Project's outcomes will establish more solid conditions for investment in new hydro power capacity, which would not take place without this GEF intervention. Under the GEF alternative scenario, hydro power will improve the country's energy mix by reducing the need for imported fossil-fuels to meet rural electricity demand. By replacing fossil-based thermal power (mainly diesel), the Project will assist in avoiding GHG emission, both direct and indirect. To some extent, the increased electricity supply will offset the use of firewood as a primary energy source by rural households.

The financial support requested from GEF for the Project is fully incremental and will provide a platform for future initiatives by the Government of Haiti and the international donor community, in particular by addressing the identified high level institutional and policy barriers. The GEF grant is further targeted at removing technical and information barriers and to demonstrate the viability of SHP in Haiti by preparing and facilitating the construction of three small hydro plants.

Sustainability and Replicability

The project is designed to ensure the sustainable development of small hydro resources in Haiti. For this reason, the emphasis of the MSP is on strengthening the capacities of EdH and MTPTC, the national institutions involved in small hydro development. The policy and regulatory aspects of the project will develop a framework supportive of investment in small hydro, while the technical strengthening activities will increase EdH's capacity to manage the development and operation of small hydro facilities. Furthermore, the introduction of private sector actors in small hydro development under an IPP scheme will introduce an alternative modality for investment and operation of SHPs, reducing the burden on EdH to operate the SHP facilities. In contrast to several other donor efforts in the country, in which most of the funding is targeted towards infrastructure, the UNDP/GEF intervention will generate appropriate conditions to catalyze further investment by the private and public sector as well as donor agencies. This approach was selected by UNDP and the national counterparts since it is fully aligned with ensuring the sustainability of small hydro investments in the country. The successful implementation of three small hydro investments during the project lifetime is expected to trigger additional small hydro investment by private investors and by the donor community, both of whom will perceive SHP development as a viable alternative to thermal energy. By creating a favourable policy environment and demonstrating the viability of small hydro investment, the project will be creating the conditions for additional small hydro development and will therefore be fully replicable in Haiti.

External Risks

Risks	Likelihood	Remedial actions
1. National political instability jeopardizes policy reform effort	Medium	In collaboration with the international donor community, the Government of Haiti has set up a sectorial committee (TSE) to strengthen the reform process of the national electricity sector

		and coordinate donor programmes and investment. This set-up provides a significant degree of stability and continuity. However, the pace of policy implementation is modest, due to the limited institutional capacities within BME and EdH and the traditional focus on the urban centres. The project will address this risk by developing national capacity through the institutional strengthening component. Furthermore, this risk is mitigated by close coordination of the UNDP/GEF initiative with the GoH and other donors within the TSE.
2. Delays to draft and approve a conducive regulatory framework for SHP	Low	The UNDP/GEF project will prepare an appropriate regulatory framework to enable regional SHP development based on international best practices and in close dialogue with the partners in the TSE. Even though formal approval may take its time, the joined efforts by UNDP, donor agencies and investors will expectedly generate sufficient impetus to push forward the envisaged three pilot SHPs. Furthermore, the project's efforts are embedded within a broader donor effort (supported by the WB and IADB) of energy regulatory reform, creating a unique opportunity to influence national policy. As such, this risk is considered low.
3. Technical risk during SHP preparation and construction	Low	Although small hydro technology is highly mature, each SHP is unique concerning its civil works and terrain access. UNDP's experience shows that domestic companies usually lack supervising capacity in countries where small hydro technology is to be introduced. This risk is mitigated by providing close technical support, including project supervision, to the domestic companies involved. This approach will add to the transfer of knowledge under this project.
4. Risk of securing investment in SHPs	Medium	Securing investment in Haiti is, by definition, a risky endeavour given the economic and political situation of the country. In this project, securing finance for constructing the committed three SHP projects is critical to demonstrate the viability of the small hydro alternative and serve the involved end-users with a good quality electricity service. In the preparation phase, UNDP has developed strong links with the private sector and other donor agencies, all of which are committed to work in the Haitian context to promote investment in the energy sector. By demonstrating the viability of the proposed small hydro investment through technical and economic feasibility work, as well as promoting favourable policy and regulation, the project aims to steer some of this investment into small hydro rather than thermal generation.
5. Natural disasters jeopardize project implementation	Medium	Haiti is in a hurricane prone area of the world. Furthermore, the high population density and alarming rates of deforestation and land degradation make it particularly vulnerable to the effects of natural disasters. Furthermore, Climate Change is expected to increase the frequency and intensity of hurricanes. As such small hydro investments may be jeopardized. UNDP will mitigate this risk by incorporated state of the art climate proofing in the small hydro feasibility work, thus ensuring that appropriate mitigation measures are considered in the project design. Furthermore, active coordination will be sought with sustainable land management initiatives in the country,

		including the UNDP/GEF binational initiative in Artibonite and the IADB/GEF watershed management initiative in the southwest.
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Cost Effectiveness Error! Not a valid bookmark self-reference.

Among various alternatives investigated, UNDP has determined that a focus on policy development, institutional strengthening, capacity building, and closing the information gap would provide the most effective implementation strategy. The effectiveness and achievements of this UNDP/GEF initiative are greatly enhanced by building forth on CIDA's experiences in Jacmel to strengthen regional grid development. The Project will further coordinate closely with strong partners with a long-term presence in Haiti (CIDA, IADB, USAID). Regulatory improvements under the proposed UNDP/GEF initiative will be streamlined with ongoing efforts targeted at sector reforms and complement these with elements specific for small hydro power. High-level policy development will be coordinated through the TSE and by strongly positioning SHP development within EdH.

By pursuing a regional approach, the Project will generate tangible results for end-users, which creates visible impact that can be attributed directly to the Project. This is required to convince national and international stakeholders (including capital providers) that the appropriate business modalities can provide a viable alternative for Haiti to serve users with reliable electricity service and to promote economic development in the rural areas.

The cost-effectiveness of the GEF grant is US\$ 16 per ton directly avoided CO2 emissions. Based on the indirect emission savings, the cost-effectiveness is of the order of US\$ 1.3 / ton CO2.

3. PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcomes as defined in CPAP or CPD:					
Outcome 4.: Capacity development and governance reform related to sustainable management of the environment and natural resources					
Country Programme Outcome Indicators:					
Capacity development and governance reform related to sustainable management of the environment and natural resources. Promotion of inclusive growth, based on the MDGs					
Indicator 1: Adoption/Creation/Enactment/ of Policy for On-grid Renewables					
Indicator 2: Electricity production during the project period from grid-connected renewable energy installations installed under the influence of the project (MWh / year)					
Primary applicable Key Environment and Sustainable Development Key Result Area : 4. Expanding access to environmental and energy services for the poor.					
Applicable GEF Strategic Objective and Program: Objective CC-4 “To promote on-grid renewable energy”, Strategic Program “Promoting market approaches for renewable energy”					
Applicable GEF Expected Outcomes: “Growth in markets for renewable power in participating program countries”					
Applicable GEF Outcome Indicators: “tons CO2eq avoided; adoption of policy frameworks allowing renewable generators equitable access to the grid; kWh generated from renewable sources”					
	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective¹⁶ To create an enabling environment for private and public investment in small hydro plants in Haiti.	(A) Number of new SHP projects under construction; (B) Capital secured for SHP investment. (C) SHP Project Pipeline (D) SHP Policy Framework	(A) No SHP currently under development; (B) Private sector and donors demonstrate interest in investing in SHPs (C) Outdated and unreliable project pipeline; (D) No appropriate energy policy framework	(A) Three (3) SHP projects under construction; (B) US\$ 3.2 mln leveraged for SHP construction; (C) Updated project pipeline; at least 8 new SHPs under consideration for development; (D) Energy regulation in place, including support for SHP development.	Project evaluation, visual inspection	Risks (1) Political instability in Haiti worsens; (2) Natural disasters impact project implementation; Assumption: Government of Haiti continues to be aligned with international community’s (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.
Outcome 1¹⁷ An effective, market-oriented policy and regulatory framework to enable small hydropower development in the country has been established.	(A) Methodology to define reference cost and tariff SHP approved; (B) Proposal approved legal/commercial status of SHP operator; (C) Resolutions approved defining (i) quality of service; (ii) land tenure, (iii) water rights and environmental issues.	(A) No SHP reference cost and tariff defined; (B) No proposal SHP approved; (C) No resolutions (a) drafted nor (b) approved.	(A) SHP reference cost and tariff defined; (B) Proposal status SHP operator approved; (C) Resolutions (a) drafted and (b) approved.	Proposals and official publications	Risks (1) Political instability in Haiti worsens; Assumption: Government of Haiti continues to be aligned with international community’s (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.
Outcome 2 Technical and managerial capacities within EdH and other national stakeholders have been created to evaluate, prepare and operate small hydropower developments	(A) Measuring equipment procured and installed; (B) Mapping of relevant regions carried out; (C) Creation of SHP business unit in EdH; (D) Internal capacities in EdH enhanced.	(A) No measuring equipment identified; (B) Data from 1979, no mapping using modern technologies; (C) No SHP business unit in EdH; (D) Low EdH Capacity for SHP management, no	(A) Measuring equipment procured and installed; (B) Mapping hydro potential relevant regions carried out; (C) SHP business unit established; (D) At least 30 EDH staff members are fully trained on SHP development, operation and maintenance; training	reports, evaluation, audits	Risks (1) Political instability in Haiti worsens; Assumption: Government of Haiti continues to be aligned with international community’s (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.

¹⁶ Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

¹⁷ All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

in Haiti.	(E) Project Pipeline generated	training material in place. (E) No SHP project pipeline in place	material in place. (E) At least 8 SHPs included in EDH's project pipeline and with preliminary financing agreements in place		
Outcome 3 Small hydropower generation facilities are incorporated in regional distribution constructed and are providing electricity to end-users.	(A) Feasibility studies for SHP projects; (B) Financing secured for SHPs (C) SHP plants procured and under construction; (D) Regional grids upgraded and fully operational (E) Business plans for SHP operator.	(A) No feasibility studies; (B) Private sector and donors demonstrate interest in investing in SHPs (C) No new SHP plants constructed in past 20 years; (D) Jacmel grid restored, Les Cayes grid in poor conditions; (E) No SHP business plans defined.	(A) 3 Feasibility studies completed; (B) Financing secured for construction of 3 SHPs (C) 3 SHP plants in construction; (D) Jacmel and Les Cayes grids fully restored and SHP interconnection underway. (E) 3 business plans approved.	reports, technical studies and drawings, visual inspection	Risks (1) Political instability in Haiti worsens; (2) Natural disasters impact project implementation; Assumption: Government of Haiti continues to be aligned with international community's (WB, IADB, USAID, CIDA, UNDP) energy policy recommendations and reform projects.
Outcome 4 A project monitoring and evaluation plan implemented, and lessons learnt are disseminated.	(A) Mid-term Evaluation Report; (B) Final Evaluation Report; (C) Documentation of project Experiences; (D) Sharing of project results.	(A) No MTE; (B) No FEV; (C) No systematization of SHP experience in Haiti; (D) No sharing of SHP development experience in Haiti.	(A) MTE completed; (B) FEV completed; (C) Lessons learnt publication; (D) Seminar to present project results.	Evaluation reports	

4. TOTAL BUDGET AND WORKPLAN

Award ID:		Project ID(s):	
Award Title:	PIMS 2820 CC MSP Haiti Small Hydro Power Development		
Business Unit:			
Project Title:	<i>"Small Scale Hydro Power Development in Haiti"</i>		
PIMS no	2820		
Implementing Partner (Executing Agency)	Ministry of Public Works, Transport and Communication (MTPTC)		

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Total (USD)
Outcome #1 An effective, market-oriented policy and regulatory framework to enable small hydropower development in the country has been established.	MTPTC	62000	GEF	71200	International Consultants	\$20,000	\$25,000	\$10,000	\$55,000
				71300	Local Consultants	\$12,500	\$17,500	\$15,000	\$45,000
				71600	Travel	\$3,500	\$6,000	\$3,000	\$12,500
				72100	Contractual Services	\$7,500	\$15,000	\$7,500	\$30,000
				72200	Equipment and Furniture	\$5,000	\$0	\$0	\$5,000
				74200	Audio Visual & Print Prod Cost	\$500	\$1,000	\$1,000	\$2,500
				74500	Miscellaneous	\$2,500	\$4,000	\$3,500	\$10,000
					sub-total GEF	\$51,500	\$68,500	\$40,000	\$160,000
Outcome #2 Technical and managerial capacities within EdH and other national stakeholders have been created to evaluate, prepare and operate small hydropower developments in Haiti.	MTPTC	62000	GEF	71200	International Consultants	\$7,500	\$22,500	\$7,500	\$37,500
				71300	Local Consultants	\$10,000	\$20,000	\$27,500	\$57,500
				71600	Travel	\$4,000	\$10,000	\$8,500	\$22,500
				72100	Contractual Services-Companies	\$42,500	\$50,000	\$35,000	\$127,500
				72200	Equipment and Furniture	\$67,500	\$40,000	\$0	\$107,500
				74200	Audio Visual & Print Prod Cost	\$3,000	\$3,500	\$3,500	\$10,000
				74500	Miscellaneous	\$4,000	\$4,500	\$4,000	\$12,500
					sub-total GEF	\$138,500	\$150,500	\$86,000	\$375,000

Outcome #3 Small hydropower generation facilities are incorporated in regional distribution and are providing electricity to end-users.	MTPTC	62000	GEF	71200	International Consultants	7,500	5,000	7,500	20,000
				71300	Local Consultants	12,500	10,000	10,000	32,500
				71600	Travel	5,000	5,000	5,000	15,000
				72100	Contractual Services	78,000	35,000	58,000	171,000
				72200	Equipment and Furniture	16,000	10,000	5,000	31,000
				74200	Audio Visual & Print Prod cost	3,500	4,000	2,500	10,000
				74500	Miscellaneous	8,000	4,000	5,500	17,500
					sub-total GEF	\$127,500	\$72,000	\$90,500	\$297,000
Outcome #4 A project monitoring and evaluation plan implemented, and lessons learnt are disseminated.	MTPTC	62000	GEF	71200	International Consultants	\$7,500	\$10,000	\$17,500	\$35,000
				71300	Local Consultants	\$0	\$4,000	\$6,500	\$10,500
				71600	Travel	\$500	\$3,500	\$3,500	\$7,500
				74500	Miscellaneous	\$ 500	\$500	\$1,000	\$2,000
					sub-total GEF	8,500	\$18,000	\$28,500	\$55,000
	Total Management	\$30,000	\$28,000	\$30,000	\$88,000				
PROJECT TOTAL						363,000	337,000	275,000	\$975,000

Summary of Funds:¹⁸

	Total
GEF	\$975,000
UNDP	\$200,000
Government of Haiti (EDH, MPWTC)	800,000
CIDA	1,000,000
TOTAL	\$2,975,000

¹⁸ Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc...

5. MANAGEMENT ARRANGEMENTS

The project will be implemented under UNDP's National Execution modality (NEX), implying that a Government entity will assume responsibility for executing the project. This modality assists in developing ownership within the host country and helps creating the conditions for sustainability. UNDP is responsible to the GEF as the Implementing Agency in charge of the financial administration and for obtaining the envisaged project outcomes. The Ministry of Public Works, Transport, and Communications will be the Executing Agency for the Project and responsible for the overall implementation of the project and the advances towards meeting the pursued objectives. The Ministry of Public Works, Transport, and Communications will defer the responsibility for the day-by-day implementation and monitoring to Electricité d'Haiti (EdH). The Government of Haiti will appoint a national Project Director within the Ministry of Public Works, Transport, and Communications. Please refer to the Organigram in Section IV, which explains the division between the institutional, project and activity levels.

Project level

The Project will establish a Project Management Unit (PMU) consisting of the Project Coordinator and an Administrator. The PMU will be hosted by EdH. The Project Coordinator will be responsible for the daily project operations, financial accounts, periodic reporting to UNDP-CO and for allocation of the GEF grant according to the quarterly work plans and budgets in coordination with UNDP-CO. The Project Coordinator will be the primary contact person for the Project for external communication and will act as the convener for meetings between EdH, MTPTC and UNDP. The Project Coordinator and Administrator will be recruited by the Project and preferably be nationals of Haiti. The PMU will be dedicated to the planning, supervision and administrative tasks of the project. The Project Team (see next paragraph) will work in-depth on the technical issues addressed by the Project.

Activity level

The Project will recruit consultancies to conduct project activities in Port Au Prince and in the field. To the extent possible, qualified national consultants will be recruited for this purpose; however, international expertise will be incorporated as necessary in key technical areas. All international expertise contracted by the project will be required to participate in the project's capacity building programme in order to ensure an adequate transfer of skills at the national level. The project's exit strategy aims at the incorporation of the project consultancy team within the Ministry of Public Works, Transport, and Communications and EdH, as necessary.

Institutional level

The Project Steering Committee will be comprised of the National Project Director, representing the Ministry of Public Works, Transport, and Communications, the Director of EdH or his/her appointed representative, and the UNDP Country Director or his/her appointed representative. Additional stakeholders may be invited to PSC meetings as necessary, but will not have decision making authority. The PSC will meet bi-annually to review progress and obstacles and to decide upon strategic or critical issues. The PSC is the highest decision-making authority of the SSHP initiative. The PSC meetings will be called by the Project Coordinator and extraordinary meetings will be held if deemed necessary by one of the PSC members. UNDP Regional Office and Headquarters staff may assist and, if appropriate, the PSC can invite external consultants to assist in the monitoring process.

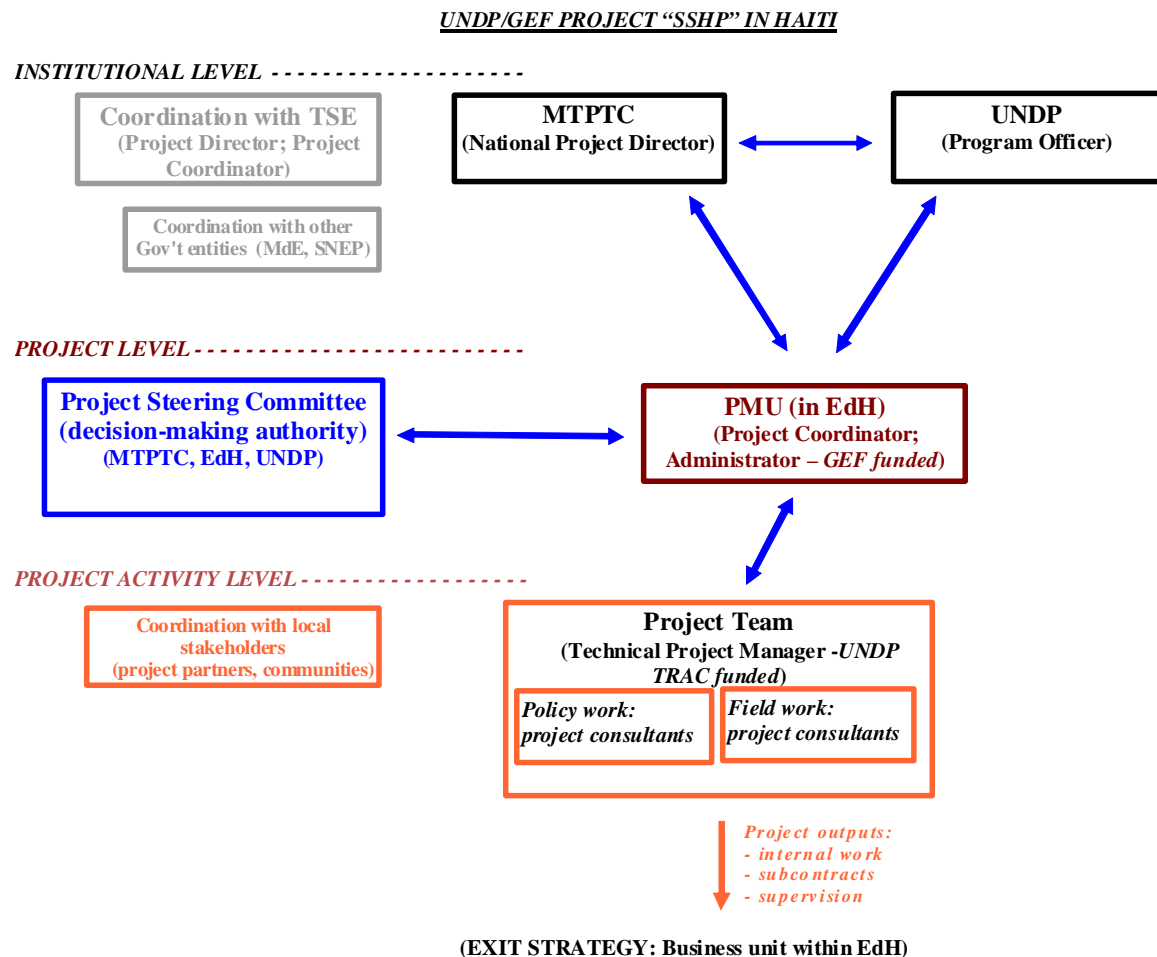
To interact with stakeholders at the institutional level, the Ministry of Public Works, Transport, and Communications and UNDP will advocate the representation of the Project in the sector committee TSE, which is already a well-established entity. Cross-sector coordination will be needed concerning environmental and water issues. MTPTC will maintain close contacts with the Ministry of Environment (MdE) and the national water agency (SNEP). Relevant issues will first be discussed and agreed upon within the PSC, as and if appropriate.

Acknowledgement of UNDP and the GEF

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation of publications regarding projects funded by GEF should also accord proper acknowledgement to the GEF.

Since UN visibility is important for security purposes, the UNDP logo should possibly appear more prominently - and separated - from the GEF logo on hardware items (in particular on vehicles).

The following diagram presents the formal institutional arrangements defined for the implementation of the UNDP/GEF initiative “Small Scale Hydro Power” in Haiti. Project partners will abide to this institutional set-up. Modifications to this structure agreed upon by the Project Steering Committee must be submitted to the UNDP Regional Center in LAC and will only enter into force after written consent by the Regional Technical Adviser.



6. MONITORING FRAMEWORK AND EVALUATION

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNDP and GEF procedures and be led by the project team and the UNDP Country Office (UNDP-CO) with support from the UNDP Regional Service Center in Panama. The Strategic Results Framework (SRF, see Section II) provides performance and impact indicators with their corresponding means of verification. The SRF will be the reference for monitoring the project's implementation and for (independent) evaluation of performance and impact. The project management unit will prepare a detailed M&E plan to be presented at the Inception Workshop. This Workshop (see below)

provides a platform for reviewing and fine-tuning of indicators and means of verification, in a manner consistent with the expected outcomes for the project.

Monitoring and reporting

Project monitoring consists of a number of day-to-day and periodic activities, including: (i) day to day monitoring by the PMU (Project Coordinator); (ii) periodic monitoring by UNDP-CO (Programme Officer) on a quarterly basis or more frequent if appropriate; and (iii) annual monitoring through Tripartite Reviews (MTPTC, UNDP-CO, UNDP/GEF). UNDP-CO and the UNDP Regional Service Center in Panama will conduct visits to the project and field sites on a yearly basis or more often if agreed upon in the Annual Work Plan.

Project monitoring reporting consists of the periodical submission of standard report by the PMU to UNDP-CO: (i) project Inception Report, to be prepared immediately after the Inception Workshop; (ii) harmonized Annual Progress Report/Project Implementation Review, which is used by UNDP-CO, and UNDP Regional Service Center for review of project progress and as input for reporting at an aggregate level; (iii) quarterly progress reports, outlining main updates in project progress; (iv) project mid term and final evaluations.

Inception Workshop and Report

The key objective of the Inception Workshop is to assist the project team to understand and take ownership of the Project's goals and objectives and to finalize the first Annual Work Plan (AWP). The Inception Workshop will be convoked by the PMU (Project Coordinator) within two months after project start-up and be assisted by the host Government (Executing Agency and other counterparts), co-financing partners, UNDP-CO and UNDP Regional Service Center. Representatives from UNDP headquarters can assist as appropriate. UNDP-CO will provide assistance to the Executing Agency during the inception phase.

The Inception Workshop provides an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and mechanisms for conflict resolution. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed.

The Inception Report will be prepared immediately following the Inception Workshop and will include the detailed Annual Work Plan for the first year, divided in quarterly periods, specifying: (i) the activities and progress indicators that will guide implementation; (ii) the project budget for the first full year of implementation; and (iii) monitoring and evaluation requirements to effectively measure project performance during the first year. The AWP will include a calendar of specific field visits, support missions from the UNDP-CO and RCU or consultants, as well for meetings of the Project's decision-making structures.

The Inception Report will further include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. When finalized the report will be circulated to project counterparts who will be given a period of one month to respond. Prior to this, UNDP-CO and UNDP Regional Service Center will review the document.

Annual Project Report (APR) / Project Implementation Review (PIR)

The Annual Project Report is a UNDP requirement, providing input for the CO reporting process and for the Project's Tripartite Project Review (TPR). The APR will be prepared on an annual basis prior to the TPR to reflect progress achieved in meeting the project's Annual Work Plan and assess project performance towards the outcomes set forth.

The Project Implementation Review (PIR) is an annual monitoring process mandated by the GEF. A Project Implementation Report must be completed by the CO together with the project team. The PIR is ideally prepared

prior to the Tripartite Review, where it can be discussed and agreed upon by the project team, the Executing Agency, UNDP CO. The GEF M&E Unit provides instructions concerning the scope and content of the yearly PIRs. The PIR is reviewed by the UNDP Regional Service Center and UNDP headquarters, and is then formally presented to the GEF. In light of the similarities between UNDP's Annual Project Review and GEF's PIR, UNDP has prepared a harmonized format

Quarterly Progress Reports (QPR)

Quarterly Progress Reports are short reports outlining updates on project progress on key issues that are to be provided to UNDP CO and the UNDP-GEF regional office by the project team. A standard format will be made available by UNDP.

Mid-Term Evaluation (MTE)

The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify corrective actions if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the second half of the project's term. The MTE will take place after approx. 50% of the project execution time (after 18 months), unless otherwise agreed with UNDP. The terms of reference for the MTE will be prepared by UNDP CO based on guidance from the UNDP Regional Center in Panama.

Final Evaluation (FEV)

An independent Final Evaluation will take place three months prior to the terminal TPR meeting. The FEV will focus on similar issues as the MTE and further look at impact and sustainability of results, including the Project's contribution to capacity development and to the achievement of global environmental goals. The FEV will also provide recommendations for follow-up activities. The terms of reference will be prepared by UNDP CO based on guidance from the UNDP Regional Center in Panama.

M&E Budget

The Budget for M&E (Outcome #4) is US\$ 60,000 (US\$ 55,000 GEF grant and US\$ 5,000 co-financing). This budget is for M&E activities explicitly beyond the scope of UNDP's responsibilities as a GEF Implementing Agency and covered by the IA fee.

The following table gives a tentative allocation of the budget over the main items:

M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, UNDP GEF 	Indicative cost: 12,000	Within first two months of project start up
Mid-term Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team) 	Indicative cost: 16,000	At the mid-point of project implementation.
Final Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team) 	Indicative cost : 25,000	At least three months before the end of project implementation

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Dissemination	<ul style="list-style-type: none"> ▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives 	Indicative cost: 7,000	
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 60,000 (+/- 5% of total budget)	

7. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Haiti and the United Nations Development Programme. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The UNDP Resident Representative in Haiti is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

8. ANNEXES

Annex 1 Terms of References for key project staff and main sub-contracts

The Project Coordinator will be responsible for the management, planning and coordination of the project activities. He/she will provide supervision of project implementation and be the key contact person for the project. He/she will be responsible for preparing communication with UNDP CO and the host institute (EdH), the National Project Director, the Project Steering Committee (PSC), co-financers and relevant stakeholders. In coordination with UNDP CO, he/she will undertake yearly operational planning, provide guidance on day-to-day implementation and be responsible for the effective and efficient implementation of the project activities in compliance with the overall Project objectives. Further key responsibilities include supervising the team allocated to the project from the relevant Government institutions; preparing Terms of Reference for consultants and contractors hired for specific technical assignments, ensure –in conjunction with the PSC- consistency between the various project elements and activities provided or funded by other donor organizations; develop reports on project progress on the project for Steering Committee and technical meetings. He/she shall report to the National Project Director and to the UNDP Program Officer in charge. This is a full-time position for the duration of the project.

The Project Administrator will be the responsible for the financial and administrative activities of the Project and the tracking and disbursement of project funds in compliance with UNDP rules and procedures. Key tasks include financial aspects of acquisitions, contracts, recruitment and project events once approved by the Project Steering Committee (or delegated to UNDP and the Project Coordinator). Other activities include assistance to the Coordinator to maintain day-to-day correspondence with counterparts, UNDP and EdH, management of a proper project administration, facilitation of externals visiting the project, preparation of invitations for assignments (special services and bidding procedures), preparation of financial information as input for periodic reporting and M&E (including independent evaluations), preparation of payments on request of UNDP-CO; and recommendations for the best usage of resources and execution of budgets. He/she will report to the Project Coordinator.

The Technical Project Manager will be responsible for the implementation and operational management of the technical project activities. He/she will work as a tandem with the Project Coordinator and focus on content rather than the administrative aspects of the Project, which will be handled by the Project Coordinator and Administrator. The Technical Project Manager will prepare project activities, contracts, planning and human resources management in close collaboration with the Project Coordinator. He/she will further use his thematic knowledge and expertise to the benefit of the Project and participate in the direct execution of project activities. He/she will act as the team leader for the local consultants hired by the project and to provide guidance to external, short-term consultancies.

For this intervention, it is envisaged that the Technical Project Manager operates from Port-au-Prince and appoints an assistant to lead the field team. The Technical Project Manager is expected to travel frequently in Haiti and maintain close working relations with colleagues from partner initiatives.

Annex 2 Baseline and Emission Reduction Calculations

Methodology and calculation of the CO2 emission reductions

The methodology to determine the CO2 emission reductions that can be ascribed to the SSHP Project is based on the GEF Manual¹⁹. Both direct and indirect benefits exist:

Direct benefits associated with the investment in three SHP project, with a total installed capacity of 700 kW (0.7 MW);

Indirect benefits: associated to the contribution of the Project to a market transformation inducing other actors to initiate and finance SHP projects within a time span of max. 10 years after project termination.

There are no direct post-project emission reductions in relation to revolving financial resources. The following table (based on the GEF Manual, page 3) summarizes the methodology used:

Type of GHG emission reduction	Direct (A)	Indirect (B)
Example component of a GEF intervention that can cause this type of GHG emission reduction	investment in 3 SHP projects as a zero-carbon alternative to diesel-based electricity generation	market transformation
Logframe (SRF) level	outcome/output #4	medium-term impact (5-10 years)
Quantification method	project evaluation (CDM-like)	top-bottom approach based on technical and commercial SHP potential in rural areas.
Quality of Assessment	based on verifiable technical project parameters (error range within (30%))	based on: (i) assumption that existing surveys of SHP potential is realistic; (ii) down-scaling of commercial SHP potential; (iii) assumed GEF causality factor level 2 (40%); resulting figures are indicative for order of CO2 achievements.

A. Direct GHG benefits

The direct benefits of the Project derive from the investment in 3 SHP projects under this MSP. From an existing list of identified sites / SHP projects, these projects are likely to be:

- Petite Rivière (75 kW);
- Ti l'Etang (300 kW); and

¹⁹ "Manual for calculating GHG benefits of GEF Projects: Energy Efficiency and Renewable Energy projects", GEF/C.33/Inf. 18, April 16, 2008.

- Gaillard (rehabilitation, approx. 325 kW).

To allow for more flexibility, the UNDP/GEF SSHP initiative will commit itself to secure the investment in 3 small hydro plants with a total installed capacity of 700 kW (0.7 MW).

The CO₂-intensity of the baseline alternative (diesel generation) is 0.9 kg CO₂/kWh. The cost of electricity for end-users is estimated at US\$ 0.12 per kWh.

The key figures for the SHP projects are:

Installed capacity:	0.7 (MW)
Lifetime:	20 (years)
Initial load factor:	40 (%)
Annual increase demand (load factor):	3.5 (%)
Technical availability:	> 95 (%) (not considered in the calculation)

Electricity production:

Total electricity production (year 1-20):	69,412 (MWh)
Average electricity production:	3,471 (MWh/yr)
Average load factor:	57 (%)
Total avoided CO ₂ -emissions (year 1-20):	62,471 (tons CO ₂)
Average avoided CO ₂ -emissions:	3,124 (tons CO ₂ /yr)

B. Indirect GHG benefits from market transformation

The indirect GHG benefits from the Project are associated with the contribution of the Project to a market transformation other actors to initiate and finance SHP projects within a time span of max. 10 years after project termination. These benefits will be evaluated using a top-bottom approach, using conservative estimations.

It is assumed that a technical potential of 200 MW exists,²⁰ that 50% of this can be developed commercially (100 MW), and that 25 MW of this potential is developed over the next 10 years. Utilizing a GEF causality factor of 40% (level 2, “modest and substantial”), the installed capacity that can be ascribed to the UNDP/GEF intervention is: 40%*25 MW = 10 MW.

We further assume an average load factor of 50% ; the total indirect electricity production is then: 10 MW * 50% * 20 years * 8760 hours = 876,000 MWh over lifetime and 43,800 MWh per year. With an emission intensity of 0.9 tons CO₂/MWh for the baseline option (diesel) – for which a baseline shift is unlikely to occur – the total, indirectly avoided CO₂ emissions are:

876,000 MWh * 0.9 tons CO₂/MWh = 788,400 tons CO₂ over lifetime (39,420 tons CO₂ per year).

²⁰ This estimate (200 MW) is based on lists of SHP sites available within BME and Canadian donors and private companies.

Annex 3: UNDP Strategic Plan: Key Focal Areas + Key result areas + Provisional Corporate Outcomes

<i>Key Focal Area</i>	<i>Key result area</i>	<i>Provisional Corporate Outcomes</i>
Poverty Reduction and MDG achievement	1. Promoting inclusive growth, gender equality and MDG achievement	1. MDG-based national development strategies promote growth and employment, and reduce economic, gender and social inequalities
		2. Enhanced national and local capacities to plan, monitor, report and evaluate the MDGs and related national development priorities, including within resource frameworks.
		3. Policies, institutions and mechanisms that facilitate the empowerment of women and girls strengthened and implemented.
		4. Macroeconomic policies, debt-sustainability frameworks, and public financing strategies promote inclusive growth and are consistent with achieving the MDGs.
		5. Strengthened capacities of local governments and other stakeholders to foster participatory local development for the MDGs.
		6. Policies, strategies and partnerships established to promote public-private sector collaboration and private-sector and market development that benefits the poor and ensures that low-income households and small enterprises have access to a broad range of financial and legal services.
	2. Fostering inclusive globalization	1. Enhanced capacities of developing countries to compete internationally and to negotiate interpret and implement agreements on trade, intellectual property, and investments in a manner which prioritizes poverty and inequality reduction and human development.
		2. Strengthened national capacities to negotiate and manage development finance, including aid and debt, consistent with the achievement of the MDGs and other internationally agreed development goals.
	3. Mitigating the impact of AIDS on human development	1. AIDS response integrated into poverty reduction strategies, MDG-based national development plans, and macroeconomic processes.
		2. Strengthened national capacity for inclusive governance and coordination of AIDS responses, and increased participation of civil society entities and people living with HIV in the design, implementation and evaluation of AIDS programmes.
		3. Policies and programmes implemented through multi-stakeholder approaches to protect the human rights of people affected by AIDS. Mitigate gender-related vulnerability, and address the impact of AIDS on women and girls.
		4. Accelerated implementation of AIDS funds and programmes financed through multilateral funding initiatives, including the Global Fund to fight AIDS, Tuberculosis, and Malaria.
Democratic governance	1. Fostering inclusive participation	1. Civic engagement, through civil society organizations, voluntary associations, trade unions, political parties, and private sector organization, enables all people to influence public policy processes.
		2. Electoral laws, processes and institutions strengthen inclusive participation and professional electoral administration.
		3. Communication channels support government accountability and transparency through e-governance, independent journalism, and access to information policies.
	2. Strengthening responsive governing institutions	1. National, regional and local levels of governance expand their capacities to manage the equitable delivery of public services and support conflict reduction.
		2. Legislatures, regional elected bodies, and local assemblies have strengthened institutional capacity, enabling them to represent their constituents more effectively.

		3. Effective, responsive, accessible and fair justice systems promote the rule of law, including both formal and informal processes, with due consideration on the rights of the poor, women and vulnerable groups.
	3. Support national partners to implement democratic governance practices grounded in human rights, gender equality and anti-corruption	<p>1. Strengthened national, regional and local level capacity to mainstream human rights in government policies and institutions.</p> <p>2. Strengthened national, regional and local level capacity to mainstream gender equality and women's empowerment in government policies and institutions.</p> <p>3. Strengthened national, regional, and local-level capacity to implement anti-corruption initiatives.</p>
Crisis Prevention	1. Enhancing conflict and disaster risk management capabilities	<p>1. Solutions generated for natural disaster risk management and conflict prevention through common analysis and inclusive dialogue among government, relevant civil society actors and other partners (i.e. UN, other international organizations, bilateral partners).</p> <p>2. Disaster – strengthened national capacities, including the participation of women to prevent, reduce, mitigate and cope with the impact of the systemic shocks from natural hazards.</p> <p>3. Conflict – strengthened national capacities, including the participation of women, to prevent, reduce, mitigate and cope with the impact of violent conflict.</p> <p>4. Other</p>
	2. Strengthening post-crisis governance	<p>1. Early post-crisis resumption of local governance functions to facilitate recovery.</p> <p>2. Disaster – post disaster governance capacity strengthened, including measures to ensure the reduction of future vulnerabilities.</p> <p>3. Conflict – post-conflict governance capacity strengthened, including measures to work towards prevention of resumption of conflict.</p> <p>4. Other</p>
	3. Restoring the foundations for development at local level	<p>1. Gender equality and women's empowerment enhanced in post-disaster and post-conflict situations.</p> <p>2. Conflict – post-crisis community security and social cohesion restored.</p> <p>3. Post-crisis socio-economic infrastructure restored, economy revived and employment generated; crisis affected groups returned and reintegrated.</p> <p>4. other</p>
Environment and sustainable development	1. Mainstreaming environment and energy	<p>1. Strengthened national capacities to mainstream environment and energy concerns into national development plans and implementation systems.</p> <p>2. Other</p>
	2. Catalyzing environmental finance	<p>1. Countries develop and use market mechanisms to support environmental management.</p> <p>2. other</p>
	3. Promote climate change adaptation	<p>1. Strengthened capacity of developing countries to mainstream climate change adaptation policies into national development plans.</p> <p>2. Other</p>
	4. Expanding access to environmental and energy services for the poor.	<p>1. Strengthened capacity of local institutions to manage the environment and expand environment and energy services, especially to the poor.</p> <p>2. Other</p>

