United Nations Development Programme

Terminal Evaluation of UNDP/GEF Project: Montenegro – Power Sector Policy Reform to Support Small Hydropower Development

(Project ID: 3813)

Terminal Evaluation Report

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SYNOPSIS

Title of UNDP supported GEF financed project: Power Sector Reform to Promote Small Hydropower Development in the Republic of Montenegro.

UNDP Project ID: PIMS 3813

GEF Project ID: 3256

Evaluation time frame: April 2008 to June 2013

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Region and Countries included in the project: Montenegro

GEF Focal Area Objective: CCM-3: Renewable Energy: Promote investment in renewable energy technologies

Implementing partner and other strategic partners: Ministry of Economy, Government of Montenegro under DEX modality

Evaluation team members: Mr Roland Wong, International Consultant

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EXECUTIVE SUMMARY

Background

Currently, Montenegro has a total installed capacity of 868 MW, of which over 70% comes from two large hydro generating facilities, and 29% from a single coal fired power generating station. The country also has seven small hydro power plants of that are 10MW and less that contribute just over 1% or almost 9MW of generating capacity to this mix.

Montenegro's power demand, however, has grown from 505 GWh in 1994 to 4,217 GWh in 2011[1]. This increase can be partially attributed to electricity demand growth from the residential sector, and not the industrial sector. Moreover, with the heavily subsidized tariff of 2.65 € cents/kWh and a growth in housing, Montenegrin electricity consumption has been inefficient (in the order of 5,547 kWh annual per capita electricity consumption in 2010[2]). Based on a 2008 study by the national electrical utility, energy deficits totalled 2,112 GWh in 2007 and 1,663 GWh in 2008[3].

To meet the growing demand for electricity, Montenegro has had to import power from Serbia (1,800 GWh in 2005); power imports now comprise 33% of all consumption needs, albeit at a higher cost of 4.2 € cents/kWh[4]. With Montenegro's heavy reliance on hydropower, recent climate extremes have also had an adverse impact on electricity generation from lower reservoir water levels and increasing electricity imports. Net energy imports grew from 789.6 GWh to 1,228 GWh from 2010 to 2011, in part due to a severe regional drought. The warm summer months in 2012 resulted in lower water levels and straining the country's large hydropower plants to meet electricity demand.

The 2007 Energy Development Strategy of Montenegro provides objectives, mechanisms and targets for the development of safe, competitive, and environmentally sustainable energy supplies. The most relevant target of the Strategy was recently established in October 2012 where 33% of energy from renewable sources is to be achieved by 2020, in line with the targets set by the European Energy Community[5]. During the 2006 drafting of the Strategy, one of the options considered to scale-up of renewable energy sources was the development of 3 large hydro power plants at a UNESCO site, a 210 MW extension to an existing coal power plant and a 357 MW hydropower site on the Moraca River. These sites were deemed not likely to be developed in the short-term due to strong public opinion against their development and a slow political process in dealing with trans-border issues with Serbia on some of these projects. As such, the adoption of a small hydro development strategy made political sense for Montenegro considering the strong public opinion against large power projects, and the perception that small hydro power production is more compatible with an economy where the growing tourism sector contributes 15% of the GDP. The hydropower potential of Montenegro is in the order of 3,500 MW of which only 610 MW has been developed; development of this potential could lead to the addition of more than 7,000 GWh of electricity annually to its national grid.

[1] *Annual Report on the Implementation of the Acquis under the Treaty Establishing the Energy Community,* Energy Community Secretariat, Section 4.1.6, 2012
[2] World Bank
[3] New Electric Power Sources, EPCG", Energy Community, April 9, 2008
[4] http://fei.rec.org/presentations/3.5_Boskovic_Small_Hydro_in_Montenegro.pdf
[5] Since 2012, Montenegro has been in negotiations for EU accession, and for entry into the European Energy Community as a Contracting Party. With the Community's 33% RE target by 2020, the GoM has made renewables and sustainable green business a priority area of development.

The UNDP-GEF Project: Montenegro: Power Sector Policy Reform to Support Small Hydropower Development (herein referred to in this document as SHPD or the Project) was designed during the 2006-07 period, coincidentally when the GoM was developing its Energy Development Strategy and small hydro targets of 15 to 20 MW of new generating capacity by 2015. In June 2006, the GoM sought international assistance to guide their SHPP development strategy and initiated discussions with UNDP on the development of the SHPD Project. Prior to SHPD, there were no SHPP investments. During the implementation of SHPD between 2008 to 2013, 9 river concessions were awarded by the MoE that has led to investments for more than 23 SHPPs with 47.31 MW of installed capacity. The promotion of small hydropower in Montenegro has had strong domestic political support for many of the same reasons renewables have seen a global rise in new investment. For Montenegro, small hydropower provides the added energy security and diversification of generation sources against rising energy demand and costly energy imports.

For the GoM to implement their 2007 Energy Development Strategy that reduces the country's reliance on costly energy imports, barriers to the implementation of SHPPs needed to be overcome. In 2008, at the commencement of SHPD, key barriers to implementing SHPP investments and other renewable energy projects in Montenegro were related to c*apacity and institutional constraints:*

- Lack of experience and capacity of the GoM to develop concrete programs and policy measures to promote the development of the country's renewable energy resources (apart from big centralized hydro power plants) and to ensure otherwise that a supportive legal and regulatory framework for leveraging investments for SHPPs is in place;
- Lack of in-country capacity to develop "bankable" investment proposals, feasibility studies and business plans;
- Lack of experience in-country to professionally manage and supervise renewable energy projects through their development, design, construction and commissioning stages.

The development **goal** of the SHPD Project is *to reduce GHG emissions by creating favorable legal, regulatory and market environment and building institutional and administrative capacities to promote development of SHPPs in Montenegro*

Context and Purpose of the Terminal Evaluation

The purpose of the Terminal Evaluation (TE) for this Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The TE is to serve as an agent of change and play a critical role in supporting accountability. As such, the TE will serve to:

- promote accountability and transparency, and to assess and disclose levels of project accomplishments;
- synthesize lessons that may help improve the selection, design and implementation of future GEF activities;
- provide feedback on issues that are recurrent across the portfolio and need attention, and on improvements regarding previously identified issues; and,
- contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

Assessment of Project Outcomes and Sustainability

Table A provides a summary of the terminal evaluation of SHPD.

Table A: Evaluation Ratings[6]

1. Monitoring and Evaluation	***Rating***	**2. IA & EA Execution**	***Rating***
M&E design at entry	5	Quality of UNDP Implementation	6
M&E Plan Implementation	6	Quality of Execution - Executing Agency	6
Overall quality of M&E	6	Overall quality of Implementation / Execution	6
3. Assessment of Outcomes	**Rating**	**4. Sustainability[7]**	**Rating**
Relevance	5.8	Financial resources	4
Effectiveness	5.8	Socio-political	4
Efficiency	5.8	Institutional framework and governance	4
Overall Project Outcome Rating	5.8	Environmental	4
		Overall likelihood of sustainability	4
5. Catalytic role	**yes/no**		
Production of a public good	Yes		
Demonstration	Yes		
Replication	Yes		
Scaling up	Yes		

The overall rating of the project results is highly satisfactory (HS). This is based on the following outcomes:

- The development of a sound but simplified and transparent tendering procedure complete with secondary regulations and by-laws that reduces the risk of potential investors into Montenegro seeking SHPP investment opportunities;
- The approval of collection of hydrological data that provided the necessary catalyst to provide information of the potential for hydropower generation for a number of SHPP sites and induce investment decisions by potential SHPP investors;
- An excellent and informative website that provides potential SHPP investors with the necessary introductory, regulatory, technical and financial information on SHPP development in Montenegro;
- The Project has met and exceeded its target for SHPPs slated for development (15 to 20 MW under concession agreement) by the EOP by a factor of more than 3.0 (currently 47.31 MW under concession agreement);

[6] Evaluation rating indices (except sustainability – see footnote 7): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[7] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

- One SHPP project, Jezerstica SHPP (1.2 MW) will have had its commissioning phase completed by June 30, 2013. No SHPPs were expected to be completed by EOP in the ProDoc;
- The Project delivered outputs over and above the planned outputs in the ProDoc and enhanced delivery of the intended outcomes within the Project budget. These outputs included:
    - Local energy plans (LEPs) which has the impact of attracting investment to stimulate sustainable economic development and provide local strategies to reduce energy consumption and increase RE production at the municipality level;
    - Spatial planning guidelines and procedures to removing bottlenecks in the approval of spatial plans for SHPP construction permits;
    - A guidebook "Roadmap for SHPP Investors" that is available on the MoE RE website;
    - An economic study to gauge the true impacts of the implementation of LEPs that has been posted on the MoE website; and
    - A pilot project setup in the small municipality of Andrijevica involving a mini-HPP using the town's water supply system.

The overall Project sustainability rating is likely (L). This is primarily due to:

- All stakeholders interviewed had positive views of the Project outcomes and the future of SHPP development in Montenegro;
- The Government commitment to support feed-in-tariffs for renewable energy generation sources;
- Investor confidence in SHPP projects to generate good rates of return and that are reflective of the new enabling investment and regulatory environment for SHPP development;
- Indicators that the quality of SHPP implementation is good and low risk to investors; and
- The prospects of higher tariffs in the future from the sale of electricity to Italy through a proposed underground cable.

Conclusions

- The SHPD Project was critical in the significant scale-up of RE development in Montenegro through its focused and structured activities in creating a favorable enabling investment environment and regulatory framework for SHPP development, improving technical and administrative capacity and awareness amongst SHPP stakeholders including MoE personnel in the RE Sources Unit, and achieving efficiencies in awarding concessions for 47.31 MW and the issuance of construction permits for at least 8 SHPPs totaling 38 MW. This focused approach increased the likelihood of achieving intended outcomes from UNDP-GEF funds;

- The improved efficiencies of the Government tendering process for renewable energy concessions were demonstrated in the MoE's preparation of the Concession Act in 2009 that summarized the process for awarding watercourse concessions for SHPPs. The Act included various technical and economic definitions involving the exploitation of watercourses to generate electrical energy and other relevant information and analyses;

- In addition to improvements in the tendering process, the activities of the Project were thorough in removing almost all other barriers to RE development. Project resources were used to draft regulations and energy strategies, complete grid studies to inform IPPs of the

technical rules and regulations for grid connections, prepare local energy plans (LEPs), prepare guidelines for spatial plans, deliver an economic impact study of renewable energy development for Andrijevica and setup a pilot project for a mini-HPP development in Andrijevica. These outputs provided Montenegro with added value by enhancing the outcome of SHPP approvals and facilitating development of other RE sources of electricity beyond SHPPs such as wind, biomass and solar;

- The completed grid study filled in a number of grid-related knowledge gaps including:
    - an assessment of Montenegro's set of energy regulations that were deemed to be relatively modern and functional and the required changes and updates on technical and legal issues to enable distributed source connections to the grid;
    - verification of Montenegro's development plans for the electric power system;
    - a clear and established methodology for conducting network analysis of distributed grid connections to the distribution system and for controlling impacts on the distribution system in terms of line disturbances;
    - the development of technical conditions for distributed source connections and operations for faster and safer connections with minimum disturbances; and
    - training and instructional documents for EPCG to enable them to conduct analyses of distributed source connections to the grid by applying a software package called PSS®SINCAL.

- While more than two years of hydrologic data has been collected with the assistance of the Project, the future of hydrometric data collection is faced with the prospect of reduced government involvement (due to reduced government budgets). The shortfall in government funding for the collection of hydrometric data could be made up through private investors who have been collecting site-specific hydrometric data for their specific SHPP investments;

- The success and positive impact of the power sector reforms in Montenegro are increasing the opportunities for replication in other countries. In particular, the successful engagement of Montenegro's local municipalities in low carbon energy planning is unique and is receiving good media coverage that should lead to replication. The LEPs generated in Andrijevica, Bijelo Polje and Cetinje will serve as models for other LEPs for other Montenegrin municipalities. One example of replication that could be moved forward by a Montenegrin municipality is to secure a political commitment to construct a SHPP, finalize a LEP, identify a site for pilot construction, launch a promotion and awareness campaign, and develop a public-private partnership to share investment risk;

- The commissioning of the Jezerstica SHPP (1.2 MW) is a significant achievement since no SHPPs were expected to be completed by EOP. The grid study was instrumental in the Jezerstica SHPP reaching such an advanced stage during the Project by enabling EPCG to provide technical support for the Jezerstica SHPP to the national grid;

- Assuming that 291 MW of installed SHPP capacity is required to meet the 33% renewable energy target by 2020 at a cost of USD 3.0 million per MW installed[8], the required additional investment after the completion of this Project is estimated to be USD 873 million (€ 672

[8] http://jstrb.bos.rs/znas-kako/uploaded/Hydropower_Essentials-1.pdf

million)[9]. Notwithstanding the outstanding results from this Project, there are some areas where further progress is needed to manage the scale-up phase of SHPPs to meet the 33% target of RE generation sources by 2020:

- A strategy for disseminating Project results both domestically and regionally is required after the EOP. Recently, there have been a few national workshops to raise awareness of the Concessions Act with the most recent application of the Act being in June 2013 and the announcement of a 3rd tender with 8 watercourse concessions containing a potential of 12.3 MW for issue in July 2013. Attendees to these workshops included a wide range of stakeholders from investors to financial institutions who could be beneficial for a scaled up investment phase. In addition, grid management companies would benefit from a success story of distributed generation connections from a nearby area. Similarly, the Andrijevica pilot project is ongoing and has potential to be used as a high-profile demonstration project. An outreach strategy should incorporate the use of multi-media to adequately capture all the Project's results and lessons learned and convey the story of its success to external audiences within and outside Montenegro;
- A capacity building strategy is required to meet the demand for an increased number of semi-skilled and skilled workers as well as plant managers for a scaled-up SHPP program to 2020 that may include more than 290 MW of SHPPs. Currently, there does not appear to be any such program in place that would train Montenegrins for SHPP jobs in Montenegro;
- The feed-in-tariff has not been "fixed", and is currently based on variable market rates which may be an issue with financing SHPPs given that revenues cannot be forecasted with any reasonable certainty. To date, however, this does not appear to be a serious issue;
- IPPs appear to be bearing additional cost of grid connections. Though there is general agreement that EPCG will pay for the connection to the SHPP outside the SHPP facility, most IPPs have had to bear the expense of providing this grid connection to the nearest grid lines or the first point of connection. In some cases, the connection line length has been as high as 5 to 10 km. To date, however, this has not significantly impacted the investment returns;
- Four SHPP concessions were cancelled from the second tender. The reasons for the cancellations are not known other than non-compliance of tender conditions. Continuation of workshops and technical assistance to prepare concession applications with potential SHPP concessionaries is required to ensure that there is not decrease in the quality of SHPP concession applications or responses to tenders.

Lessons Learned

- For grid-connected renewable energy projects that involve the national electricity grid, transmission and distribution issues need to be addressed up front. Often in countries where renewable energy is a new topic, issues regarding the study of the capacity of the grid and the capacity of the grid to offtake renewable energy require time and care to address. Transmission and distribution managers in these countries need time to become familiar with the variability of renewable energy generation from small power facilities, and

[9] This assumes the following: With current capacity of 868 MW, another 434 MW of SHPPs needs to be completed to meet the 33% target of energy from renewable energy sources. Concessions awarded to date include 47.1 MW of SHPPs and 96 MW of wind projects. This leaves a potential of 291 MW of SHPPs to be awarded as concessions.

the capacity of their grid to absorb this type of power source. This is certainly the case with SHPPs where generation from small run-of-river plants can vary considerably throughout the year;

- For projects having objectives in the area of sustainable energy policy changes, high-level government commitment and willingness is a condition for the change to actually happen;

- If there is willingness of government stakeholders to have frequent interaction with project staff, the project will be more able to deliver outcomes regarding institutional and regulatory reform. This Project has fostered such a relationship and has generated benefits of efficient delivery of the simplified tendering procedures; quick adoption of rules and regulations regarding distributed generation into the Montenegrin grid, and the quick adoption of by-laws and regulations to support the Energy Law. In comparison, there are countries where relevant government officials are not available to meet often (or at all) with project staff causing delays and in some cases non-delivery of outcomes involving institutional and regulatory reform work;

- A project that focuses on a single sector will more likely succeed in its objectives of market transformation. In the case of SHPD, GEF resources were mainly focused on the development of one renewable energy source, small hydropower. There are cases in other GEF RE projects where there were efforts to address solar plus biomass and biogas energy sources where there are higher risks that project resources cannot address development of all targeted RE sources;

- The period of time required to complete a successful market transformation project is more than 5 years. For future GEF projects, this allowance of time should be seriously considered as opposed to the standard 4-year period, typical of MSPs with small budgets. This Project has been very successful with at least 5 years required to change the regulatory framework followed by actual implementation of the market transformation with the necessary financing for the SHPP investments.

Recommendations

With the GEF-funded SHPD project terminating on June 30, 2013, and with a bright outlook for the development of SHPPs in Montenegro, the following recommendations are provided to MoE that could assist them in sustaining the growth of SHPPs and RE development in Montenegro, and in meeting the targets of 33% of energy from renewable sources by 2020:

FOR THE GOVERNMENT OF MONTENEGRO:

Recommendation 1: MoE should allocate adequate resources and assistance to maintain momentum of SHPP development after the completion of the SHPD Project. For Montenegro to increase employment opportunities for its citizens during the SHPP scale-up to 2020, it needs a program to upgrade the technical education of engineers and plant managers and to upgrade a large number of semi-skilled and skilled workers to service an anticipated increased demand. A continuation or strengthening of courses and seminars on local energy and SHPP planning, design, construction and operation is required for engineers and plant workers; vocational skills in carpentry, steel construction, masonry and earthworks will be required for semi-skilled and labourer type personnel.

Recommendation 2: Use the lessons learned from this Project to accelerate development of other RE sources in Montenegro. This would include an overall strategic plan for commencing programmes in the development of biomass and solar projects. Wind power development could also be included notwithstanding the current wind power investments of 96 MW in Montenegro using the new concession tendering system from the SHPD Project as well as PPAs and other incentive regulations. The positive experience of this Project could be transferred to develop solar power, geothermal and other renewable energy sources.

Recommendation 3: The Government should continue to remove bottlenecks to the development of SSHP concessions in Montenegro. There are two bottlenecks in the approval process of SHPs that if removed, would improve the pace of concession approvals:

- Confirming land tenure for remote SHPP sites. There are ongoing efforts by the Government of Montenegro to have a fully developed cadastral system throughout the country. The expansion of the modern cadastral system could focus on areas where there are potential SHPP concessions to be awarded. This may reduce the risk of delays in the implementation of an SHPP investment; and
- Reducing the long approval times required for responding to requests for various permits. This would include reviewing and providing comments for SHP projects applications seeking approval. With increasing familiarity of the SHPP approval process, the MoE could experience improvements in approval efficiencies with future concessions; however, the Government should sustain its efforts to continue improving its efficiency in approving SHPP concessions.

Recommendation 4: Plan for private sector investment into hydrometric data collection. With declining government budgets to obtain further hydrometric and precipitation information for other SHPP sites, the IHMS is in a difficult position of having to maintain this data for public safety as well as for investment purposes. With a number of potential SHPP investors expected to setup their own specific hydrometric stations for investment purposes, SHPP investors should be obligated to share their data with IHMS and for posting on the MoE website.

FOR UNDP:

Recommendation 5: With an expected scale-up in SHPP investments excepted during the next 7 years, the Government with assistance from UINDP should address its need for investment into the upgrading of its grid network to secure the safe absorption of power from various renewable energy sources. Although the grid study noted that energy from IPPs can safely and efficiently be incorporated into the grid, the "existing network needs to be reinforced with more than 200 km of 10 kV and 35 kV lines and with the installation of several new substations" to accommodate the projected number of new distributed sources at an estimated cost of USD 26 million (€20 million). EPCG has noted that distributed grid sources are located "mainly in passive grid areas where the grid is less developed," resulting in greater need for rehabilitation.

Recommendation 6: Improve the prospects of financing availability for SHPPs. With a potential of more than USD 800 million of financing required to meet the 33% RE generation target, the Government needs to raise awareness of the financing sources and mechanisms for RE projects and to improve access to RE financing for municipalities and potential concessionaires. Assistance to municipalities may be required for them to apply for the Investment and Development Fund of Montenegro (http://www.irfcg.me) that offers low interest

soft loans[10] to municipalities to support infrastructure and environmental projects, under which new SHPP projects potentially qualify. Other potential sources of RE finance that need more exposure include the Western Balkans Sustainable Energy Direct Financing Facility (WeBSEDFF), developed by the European Bank for Reconstruction and Development (EBRD)[11], Crnogorska komercijalna banka (CKB Bank), and ERSTE Bank. Private firms will also be a source of financing, notably with public-private partnerships that could be formed on the basis of LEPs.

Recommendation 7: To provide additional reassurances that SHPP projects in Montenegro will provide the desired rates of return, the MoE should obligate SHPP concessionaires to monitor and report on construction quality of SHPPs to international standards and to perform MRV functions on power generation. MoE will need to setup guidelines and framework of such monitoring and reporting in collaboration with Technical Expert Group and SHPP concessionaires to ensure the minimal reporting requirements are met. SHPP concessionaires will likely outsource these services to specialized companies who will work within a framework that provides assurances that the SHPP is constructed as per designs. Such actions will provide a level of confidence to both investors and regulators in the MoE on the progress of and quality of the SHPP program.

Recommendation 8: UNDP should approach the Government of Montenegro as soon as possible with regards to assistance in implementing Recommendations 5 to 7. The CO should approach the Ministry of Economy on their current needs for promoting the SHPP program after the end of the Project. UNDP should continue the close working relationship with the Ministry of Economy that was developed during the Project, more specifically to discuss these recommendations and how UNDP can best assist the MoE to implement these recommendations.

[10] Maximum credit is € 750,000 at an attractive interest rate of 5%, and a two-year grace period on repayment
[11] RE/EE loans would be between € 2 and 6 million

ABBREVIATIONS

Acronym	Meaning
ACRES	Association of Concessioners for Renewable Energy Sources
AOM	Association of Municipalities
APR	Annual Progress Report
CDM	Clean Development Mechanism
CDR	Combined Delivery Report
CER	Certified emission reduction
CGES	Crnogorski elektroprenosni system, transmission system operator
CKB	Crnogorska komercijalna banka
CO	Country Office
COTE	Crnogorski operator trzista or Market Operator
DEX	Direct execution
DG	Distributed generation
EBRD	European Bank for Reconstruction and Development
EE	Energy efficiency
EOP	End of project
EPA	Environmental Protection Agency Montenegro (under the Ministry of Sustainable Development and Tourism)
EPCG	Elecktroprivreda Crne Gore AD Niksic (National Electric Power Company of Montenegro)
ERA	Energy Regulatory Agency (under the Ministry of Economy)
EU	European Union
FIT	Feed-in-Tariff
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GoM	Government of Montenegro
GWh	Gigawatt-hour
HPP	Hydropower plant
IHMS	Institute of Hydrometeorology and Seismology
IEA	International Energy Agency
IPPs	Independent Power Producer
KAP	Kombinat Aluminijuma Podgorica (The Aluminium Plant Podgorica)
kWh	Kilowatt-hour
LEP	Local energy plans
log-frame	Project logical framework matrix
M&E	Monitoring and evaluation
MoE	Ministry of Economy
MoF	Ministry of Finance
MoSDT	Ministry of Sustainable Development and Tourism
MHPP	Mini-hydropower plant
MTE	Mid-term evaluation
MW	Megawatt
MWh	Megawatt-hour
NGOs	Non-governmental organizations

Acronym	Meaning
OECD	Organisation for Economic Cooperation and Development
Prodoc	UNDP Project Document for "Montenegro – Power Sector Policy Reform to Promote Small Hydro Power Projects"
PPA	Power purchase agreement
PIR	Project Implementation Reports
PMU	Project Management Unit
PSC	Project Steering Committee
RE	Renewable energy
RES Unit	Renewable Energy Sources Unit (within the MoE)
SHPD	UNDP-GEF Project entitled: Montenegro: Power Sector Policy Reform to Support Small Hydropower Development
SHP	Small Hydropower
SHPP	Small Hydropower Plant
TE	Terminal Evaluation
TEG	Technical Expert Group
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WeBSEDFF	Western Balkans Sustainable Energy Direct Financing Facility

1. INTRODUCTION

This report summarizes the findings of the Terminal Evaluation Mission conducted during June 6 to 13, 2013 for the UNDP-GEF Project entitled: Montenegro: Power Sector Policy Reform to Support Small Hydropower Development (hereby referred to as SHPD or the Project), that received a USD 978,393 million grant from the Global Environmental Facility (GEF).

The project was developed in 2006 by UNDP as a direct executed (DEX) project. The Project Document (Prodoc) provides details to remove key policy barriers to the development of small hydropower projects in Montenegro. Project activities include the creation of an enabling environment to encourage investments into an abundant number of small hydropower projects (SHPPs) as well as other renewable energy projects in Montenegro. The Prodoc was signed in April 2008 with Project activities commencing in June 2008 with the Inception workshop, and an expected Project terminal date of June 30, 2012. A mid-term review of SHPD in July 2011 recommended the extension of this terminal date to June 2013.

1.1 Background

In May 2006, Montenegro became the newest independent state in the world and the newest UN member. Montenegro is also undertaking intensive efforts to accelerate its accession into the EU as a means to consolidate its framework for internal economic development that included strategies to reduce its dependence on energy imports.

Currently, Montenegro has a total installed capacity of 868 MW, of which over 70% comes from two large hydro generating facilities, and 29% from a single coal fired power generating station. The country also has seven small hydro power plants of that are 10MW and less that contribute just over 1% or almost 9MW of generating capacity to this mix.

Montenegro's power demand, however, has grown from 505 GWh in 1994 to 4,217 GWh in 2011[12]. This increase can be partially attributed to electricity demand growth from the residential sector, and not the industrial sector. Moreover, with the heavily subsidized tariff of 2.65 € cents/kWh and a growth in housing, Montenegrin electricity consumption has been inefficient (in the order of 5,547 kWh annual per capita electricity consumption in 2010[13]). Based on a 2008 study by the national electrical utility, energy deficits totalled 2,112 GWh in 2007 and 1,663 GWh in 2008[14].

To meet the growing demand for electricity, Montenegro has had to import power from Serbia (1,800 GWh in 2005); power imports now comprise 33% of all consumption needs, albeit at a higher cost of 4.2 € cents/kWh[15]. With Montenegro's heavy reliance on hydropower, recent climate extremes have also had an adverse impact on electricity generation from lower reservoir water levels and increasing electricity imports. Net energy imports grew from 789.6 GWh to 1,228 GWh from 2010 to 2011, in part due to a

[12] *Annual Report on the Implementation of the Acquis under the Treaty Establishing the Energy Community,* Energy Community Secretariat, Section 4.1.6, 2012
[13] World Bank
[14] New Electric Power Sources, EPCG", Energy Community, April 9, 2008
[15] Ibid 4

severe regional drought. The warm summer months in 2012 resulted in lower water levels and straining the country's large hydropower plants to meet electricity demand.

The 2007 Energy Development Strategy of Montenegro provides objectives, mechanisms and targets for the development of safe, competitive, and environmentally sustainable energy supplies. The most relevant target of the Strategy was recently established in October 2012 where 33% of energy from renewable sources is to be achieved by 2020, in line with the targets set by the European Energy Community[16]. During the 2006 drafting of the Strategy, one of the options considered to scale-up of renewable energy sources was the development of 3 large hydro power plants at a UNESCO site, a 210 MW extension to an existing coal power plant and a 357 MW hydropower site on the Moraca River. These sites were deemed not likely to be developed in the short-term due to strong public opinion against their development and a slow political process in dealing with trans-border issues with Serbia on some of these projects. As such, the adoption of a small hydro development strategy made political sense for Montenegro considering the strong public opinion against large power projects, and the perception that small hydro power production is more compatible with an economy where the growing tourism sector contributes 15% of the GDP. Although the Strategy states that the total hydropower potential of Montenegro is 9,846 GWh, there are two large hydropower plants that produce 1,800 GWh (76% of domestically generated power) for the Montenegrin grid. This leaves more than 8,073 GWh of undeveloped hydropower potential in Montenegro that can be delivered to its national grid.

The SHPD Project was designed during the 2006-07 period, coincidentally when the GoM was developing its Energy Development Strategy and small hydro targets of 15 to 20 MW of new generating capacity by 2015. In June 2006, the GoM sought international assistance to guide their SHPP development strategy and initiated discussions with UNDP on the development of the SHPD Project. Prior to SHPD, there were no SHPP investments. During the implementation of SHPD between 2008 to 2013, 9 river concessions were awarded by the MoE that has led to investments for more than 23 SHPPs with 47.31 MW of installed capacity The promotion of small hydropower in Montenegro has had strong domestic political support for many of the same reasons renewables have seen a global rise in new investment. For Montenegro, small hydropower provides the added energy security and diversification of generation sources against rising energy demand and costly energy imports. Small hydropower plants (SHPPs) also do not emit greenhouse gas emissions that cause climate change, reduce reliance on fossil fuels and energy imports that minimizes vulnerability to fuel price volatility, fossil fuel subsidy rollbacks make RE prices more cost competitive, and SHPP are an environmentally friendly technology.

An important issue in the determination of Montenegro's energy balance is the future of the Aluminium Plant Podgorica (Kombinat Aluminijuma Podgorica or KAP), an aluminium smelting facility located on the outskirts of Podgorica. KAP has been the largest consumer of electricity in Montenegro; past consumption figures of KAP include 1,875 GWh or 50.4% total consumed electricity in 2005, 1,927 GWh or 50.5% in 2006. Consumption decreased to 1,109 GWh and 1,097 GWh in 2005 and 2006, respectively.

[16] Since 2012, Montenegro has been in negotiations for EU accession, and for entry into the European Energy Community as a Contracting Party. With the Community's 33% RE target by 2020, the GoM has made renewables and sustainable green business a priority area of development.

Most recently, consumption was 1,386.9 GWh in 2011 and 1,110.0 GWh in 2012. The main issue of KAP operations has been its purchase of electricity for prices that are fixed below market prices, a source of political contention. The GoM did eliminate subsidies for the KAP plant as of January 1, 2013, and during the last half of 2012, Montenegro did not import electricity due to decreased KAP aluminium plant electricity usage. During the mission, there were rumors of ongoing discussions on the fate of the plant. The outcome of these discussions will lead either to the cutting of the country's electricity consumption in lieu of plant operations, selling the plant, or declaring bankruptcy due to its recent poor financial performance. These discussions have implications for the development of SHPPs in Montenegro; a shutdown of KAP operations could result in Montenegro becoming a net exporter of energy to higher priced energy markets such as Italy and other EU countries.

1.2 Terminal Evaluation

1.2.1 Purpose of the Evaluation

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a Terminal Evaluation (TE) upon completion of implementation of a project to *provide a comprehensive and systematic account of the performance of the completed project by evaluating its design, process of implementation and achievements vis-à-vis GEF project objectives and any agreed changes during project implementation.* As such, the TE for this Project will serve to:

- promote accountability and transparency, and to assess and disclose levels of project accomplishments;
- synthesize lessons that may help improve the selection, design and implementation of future GEF activities;
- provide feedback on recurrent issues across the portfolio, attention needed, and on improvements regarding previously identified issues;
- contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

This TE was prepared to:

⇒ be undertaken independent of project management to ensure independent quality assurance;

⇒ apply UNDP-GEF norms and standards for evaluations;

⇒ assess achievements of outputs and outcomes, likelihood of the sustainability of outcomes; and if the project met the minimum M&E requirements;

⇒ report basic data of the evaluation and the project, as well as provide lessons from the Project on broader applicability.

TE mission was fielded to Podgorica, Montenegro between the 6th and 13th of June 2013. The Terms of Reference (ToRs) for the TE are contained in Appendix A.
Key issues addressed on this TE include:

- Assessing the impact of the Project in the context of catalyzing small hydropower plant (SHPP) investments in Montenegro; and
- The state of the enabling environment for SHPP investments after the completion of the SPHD Project.

Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining SHPP investments in Montenegro.

1.2.2 Evaluation Scope and Methodology

The methodology adopted for this evaluation includes:

- Review of project documentation (i.e. APR/PIRs, meeting minutes of PSC) and pertinent background information;
- Interviews with key project personnel including the Project Manager, technical advisors (domestic and international), project developers, potential investors and relevant UNDP staff;
- Interview with relevant stakeholders from Government;
- Field visits to selected project sites and interviews with beneficiaries.

A full list of documents reviewed and people interviewed is given in Annex B (with the list of questions prepared for various government and private stakeholders). A detailed itinerary of the Mission is shown in Appendix C. The Evaluation Mission for the UNDP-GEF project was comprised of one international expert.

1.2.3 Structure of the Evaluation

This evaluation report is presented as follows:

- An overview of project achievements from the commencement of operations in December 2008;
- An assessment of project results based on project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Lessons learned and recommendations.

This evaluation report is designed to meet GEF's "Guidelines for GEF Agencies in Conducting Terminal Evaluations, Evaluation Document No. 3" of 2008:

http://www.thegef.org/gef/sites/thegef.org/files/documents/Policies-TEguidelines7-31.pdf

The Evaluation also meets conditions set by the UNDP Document entitled "UNDP GEF – Terminal Evaluation Guideline" (http://erc.undp.org/resources/docs/UNDP-GEF-TE-

Guide.pdf) and the UNDP Document entitled "Handbook on Planning, Monitoring and Evaluating for Development Results", 2009:

(http://www.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf)

and the "Addendum June 2011 Evaluation":

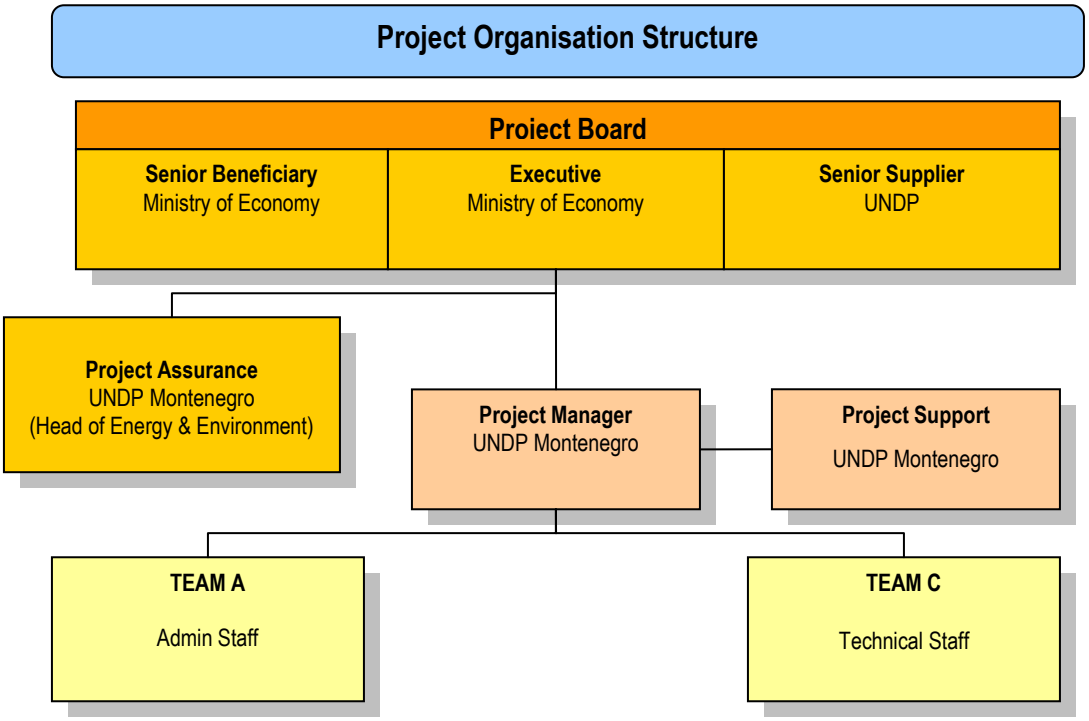
http://www.undp.org/evaluation/documents/HandBook/addendum/Evaluation-Addendum-June-2011.pdf

1.2.4 Project Implementation Arrangements

This Project is direct execution (DEX) by UNDP. The Project Management Unit (PMU) consists of a project manager and assistant who manage the Project's technical assistance and consultants that support the RES Unit efforts within the Ministry of Economy to promote SHPP investments. The Project Steering Committee (PSC) reviews and approves annual work plans and budgets prepared by the project manager. The PSC includes representatives from the MoE, ERA, EPCG, UNDP, and the Union of Municipalities of Montenegro. The PSC is chaired by the MoE and the project manager serves as Secretary to the PSC.

An organogram of SHPD implementation arrangements is provide on Figure 1.

Figure 1: SHPD Project Implementation Arrangements



2. SHPD DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 SHPD Start and Duration

The SHPD project document (ProDoc) was signed on 8th March 2008 with formal Project operations commencing on 1st June 2008. The ProDoc indicated that SHPD was a 3-year project with a Project Terminal date of 1st May 2011. The programme was extended for another 2 years to its current terminal date of June 30, 2013; all project funds will be exhausted by 30th June 2013.

2.2 Problems that SHPD Sought to Address

For the GoM to implement their 2007 Energy Development Strategy that reduces the country's reliance on costly energy imports, barriers to the implementation of SHPPs needed to be overcome. In 2008, at the commencement of SHPD, key barriers to implementing SHPP investments and other renewable energy projects in Montenegro were related to c*apacity and institutional constraints:*

- Lack of experience and capacity of the GoM to develop concrete programs and policy measures to promote the development of the country's renewable energy resources (apart from big centralized hydro power plants) and to ensure otherwise that a supportive legal and regulatory framework for leveraging investments for SHPPs is in place;
- Lack of in-country capacity to develop "bankable" investment proposals, feasibility studies and business plans;
- Lack of experience in-country to professionally manage and supervise renewable energy projects through their development, design, construction and commissioning stages.

With this backdrop, the SHPD Project design of 2006 consisted of the removal of legal, regulatory, and awareness barriers to SHPP development in Montenegro.

2.3 Objectives of SHPD

The development **goal** of the SHPD Project is *to reduce GHG emissions by creating favorable legal, regulatory and market environment and building institutional and administrative capacities to promote development of SHPPs in Montenegro*

2.4 Main Stakeholders

The main stakeholders of the SHPD Project are listed:

- The Ministry of Economy (MoE). The MoE is the ministry responsible for promoting and managing SHPP development. Among other responsibilities, the MoE provides research for the country's energy development strategies, disseminates information to promote SHPP development, prioritizes and prepares specific SHPPs for concession, prepares and invites tenders for new SHPP concessions, executes concession agreements including setting of the feed-in tariff (FIT), and issues licenses for SHPP sites. The Ministry has also established the methodology for

Feed-in-Tariffs and created a Renewable Energy Sources Unit (RES) in 2011 that is dedicated to meeting the Government's targets of 33% energy from RE sources by 2020. RES authorizes and grants permits for new RE generation facilities that includes all hydropower plants, and enforces compliance through inspections of the facilities. RES has been the primary point of contact for UNDP during the SHPD Project;

- The Energy Regulatory Agency (ERA). The ERA was established in 2004 with the overall responsibility of managing the energy market. Amongst other responsibilities, the ERA issues licenses for energy generation activities, issues guarantees of origin to confirm if produced energy is from RE sources, approves the status of and maintains a register of privileged energy producers, establishes methodologies for determining transmission and distribution tariffs, assists MoE in the determination of FITs for RE generation, conducts annual monitoring of RE source generation and publishes the results;
- The Ministry of Sustainable Development and Tourism (MoSDT). MoSDT provides oversight to the Environmental Protection Agency of Montenegro (EPA), responsible for environmental policy and enforcement, and the Department of Spatial Planning, responsible for enforcement of land use regulations;
- Elektroprivreda Crne Gore (EPCG). EPCG is the national electric power company of Montenegro responsible for safe and reliable delivery of electricity to its customers by managing distribution, generation, and supply activities to meet consumer electricity demand. In 2010, EPCG was unbundled to focus solely on the supply of electricity in line with the 2010 Energy Law, and is currently 55% state owned. EPCG regulates connections of new IPPs to the grid on the basis of the capacity of the IPP's generation facility and the risks that the new RE source will jeopardize the provision of public services;
- Crnogorski Elektroprenosni System AD (CGES). CGES is the Montenegro transmission system operator, formed in 2009 as a part of the de-bundling of EPCG. CGES is 55% State owned, and 22% by Terna as part of an agreement to construct an undersea interconnector between Montenegro and Italy. In 2012, a fully State-owned market operator, Crnogorski Operator Trzista (COTE), was spun off from the transmission system operator;
- The Market Operator (Crnogorski operator trzista or COTE) was established in line with the 2003 Energy Law, to establish market rules, track and record energy trade balances, and make monthly payments to IPPs;
- Hidrometeorološki zavod Crne Gore or the Institute of Hydrometeorology and Seismology (IHMS). IHMS are responsible for the collection of hydrological data. IHMS currently maintain a network of 23 water level stations and 32 precipitation stations throughout Montenegro. In addition, they also have responsibilities for managing and monitoring surface and groundwater resources;
- Local municipal governments are responsible for municipal services within their jurisdictions. With respect to SHPP sites, the MoE is responsible for issuing SHPP licenses while municipalities are responsible for issuing concessions for licensed SHPP sites.

2.5 Expected Results

To achieve the development goal, the SHPD Project was designed to achieve a number of outcomes:

To achieve this overall goal and objective, SHPD was designed for the removal of barriers with the following expected **project outcomes:**

Outcome 1: Policies and regulations promoting IPP investment in small hydropower concessions *through the following outputs*:

- Output 1.1: Tendering and authorisation procedures for small hydro-power producers simplified
- Output 1.2: Regulation for connection by small power producers to the power grid developed
- Output 1.3: Financial incentive scheme for small hydro power development elaborated.

Outcome 2: IPP investment decisions in small hydro power supported *through the following outputs:*

- Output 2.1: Hydrological data for additional 15 sites collected;
- Output 2.2: All available small hydro-site data collected and posted on web site.

Outcome 3: Small hydropower IPP concessions operational *through the following outputs:*

- Output 3.1: Design model tendering and contractual documents for SHPPs;
- Output 3.2: Train and organize unit in SHPP tendering and contracting process;
- Output 3.3: Tender and contract out the development 5 selected SHPP sites for power generation;

Outcome 4: Project results and lessons learnt summarized, documented, presented and disseminated *through the following outputs*:

- Output 4.1: Monitor construction and operation of small hydro power plants;
- Output 4.2: Identification, codification and dissemination of lessons learnt and best practices**;**

The expected **outcome** for the Project from the 2008 Prodoc is the development of an additional 15-20 MW of generation capacity from SHPPs prior to the completion of this Project; this was intended to accelerate the goals of the Small Hydro Development Strategy of 2006. Section 3 will provide details on the actual SHPD Project outcomes and outputs.

3. FINDINGS

3.1 Project Design and Formulation

3.1.1 Analysis of LFA / Results Framework

The LFA for the SHPD was clear in terms of the intended outcomes and the outputs to achieve the outcomes.

3.1.2 Risks and Assumptions

The success of the SHPD Project was dependent on the risks and assumptions identified in the 2008 LFA. The risks and assumptions mainly covered the sustained interest and commitment of the Government and IPPs in the continued development of SHPPs in Montenegro, all of which have been proven to be true given the outcomes of SHPD. One assumption not in the LFA was "availability of financing for SHHP development", which has been crucial to the outcomes of this Project.

3.1.3 Lessons from Other Relevant Projects Incorporated into SHPD Design

The SHPD Project design is similar to other GEF Projects in small hydropower and renewable energy development including Georgia ("Promoting the Use of Renewable Energy Resources for Local Energy Supply" commenced in 2004 and concluded in 2012), Kyrgyzstan ("Small Hydropower Development" that is ongoing since 2010), and Haiti ("Small Scale Hydro Power Development in Haiti" ongoing since 2012 but designed in 2004). These countries have similar barriers to Montenegro in the development of small hydropower projects with the need to strengthen its relevant institutions, legal and regulatory framework, investment incentives and implementation of projects to ensure optimal rates of return. The SHPD Project design is similar to the design of these other SHPP projects.

Moreover, the design of SHPD and the aforementioned GEF projects have provided a holistic approach to removing barriers to a renewable investment by focusing on the most important goal: to reduce the commercial risk to incoming investors to the extent that they have confidence in their investment to get an adequate rate of return which will stimulate RE investment in Montenegro. In the case of Montenegro, the primary barrier was the weak concessions system which was a primary Project target for strengthening and barrier removal.

3.1.4 Planned Stakeholder Participation

The stakeholder participation plans for SHPD were to include all levels of stakeholders from regulators to SHPP developers. The Project was to include all agencies listed in Section 2.4 to work in concert to improve their policies and approval mechanisms to support SHPP development. Most importantly, municipalities were to be included in the Project's technical assistance to engage them in planning and implementing SHPP projects since SHPP land clearances were under the jurisdiction of these municipalities.

The Project's involvement with the private sector and NGOs was not intended to be as extensive as other GEF projects given that the focus of this Project was mainly to create the legal, regulatory and market environments conducive towards SHPP development

and to strengthen the institutional and administrative capacities at the local and central levels that promote SHPP development in Montenegro.

3.1.5 Replication Approach

The SHPD design had a sound replication approach based on building of an investor-friendly SHPP environment and the strengthening of institutional and administrative capabilities. This would accelerate government approval of SHPP concessions to the extent that the targets of the 2007 Energy Law can be met, and improve investor confidence in the Montenegrin SHPP development initiatives. Potential SHPP investors would have been supported with the increased availability of SHPP hydrological and site development information, the improved certainties and transparencies in the process for tendering SHPP concessions, the favourable investment conditions provided in the Concession Acts and the workshops and seminars that provide examples and lessons learned on previous SHPP developments in Montenegro since 2008. All these outcomes would contribute towards replication of SHPP developments throughout the duration of the Project.

3.1.6 UNDP Comparative Advantage

The strength of UNDP's involvement on SHPD is its long-term involvement since 1992 in providing technical assistance for over 230 renewable energy development projects in more than 100 developing countries with a focus on poverty alleviation and energy security. UNDP's assistance in this regard has included a number of efforts to establish feed-in-tariffs and related price and market-access instruments. This has had the impact of enhancing the capacity of policymakers to identify an appropriate mix of public instruments to use scarce public funds to catalyse much larger private investment flows for renewable energy development.

Risk reduction has been the core of these UNDP-GEF projects to promote renewable energy. Furthermore, the approaches taken by UNDP-GEF have involved the creation of an enabling environment under which elements such as a national policy framework for energy markets, financing channels, administrative procedures and domestic technical expertise, are strengthened and aligned to support renewable energy deployment. In recognition that all risks cannot be eliminated through policy de-risking measures, UNDP has a track record of partnering with national, regional and multilateral banks to provide complementary financial de-risking such as loan guarantees and insurance. Their efforts have also included advising governments on possible sources of innovative finance to provide additional financial incentives when required to compensate for any above-average residual risks.

3.1.7 Linkages between SHPD and Other Interventions within the Sector

The Project design only links the Norwegian Government as the only other SHPP intervention. They were to provide assistance towards the preparation of two hydrological reports on water measurements and availability on 30 watercourses including the Piva, Lim, Moraca, Tara, Ljubovidje, and Zlorecica Rivers. This information was used as supporting documentation for the first tender in 2007.

3.1.8 Management Arrangements

Montenegro is a new and small country that was formed in 2006. As a result, their civil service has few government officers to assist in the task of governing the country. Due to the paucity of available government personnel, the Project can be justified under a DEX implementation modality.

A Project Management Unit for SHPD was to consist of only a Project Manager and an assistant to oversee the day-to-day management of the Project, and to prepare plans and monitoring reports as per UNDP-GEF requirements. This simple structure was appropriate for the assistance to be provided to the MoE. The SHPD Project Steering Committee (PSC) was setup to review and approve annual work plans and budgets prepared by the Project Manager. The PSC was chaired by the MoE and included appropriate representation from the main stakeholders of the Project including the MoE, the Energy Regulatory Agency, EPCG, UNDP and representatives of local municipalities where hydropower plants were to be located.

3.2 Project Implementation

SHPD was implemented according to the 2008 LFA. The only "deviations" from the LFA were additional outputs to enhance the outcomes of the Project. These are detailed in this section.

3.2.1 Adaptive Management

Opportunities for adaptive management on the Project were facilitated through the excellent open and transparent relationship between all Government partners (as listed in Section 1.2.4) and the UNDP Project team. In this collaborative and cooperative working relationship, the Government and UNDP were able to resolve issues and Project needs in an efficient and effective manner according to the PSC reports and PIRs. This had led to a number of decisions designed to enhance the likelihood of successful Project outcomes:

- The Project focused on strategies to maintain close cooperation with only the most relevant partners from the Government, including the MoE, the RES Unit, IHMS, EPA, the Department of Spatial Planning and the municipalities where hydropower plants were being developed. This would provide efficiencies in the use of Project resources;
- In addition to PSC members named in the Project design, the Project also added the Association of Municipalities (AOM) and the Association of Concessioners for Renewable Energy Sources (ACRES) as a means to solicit a wider cross section of perspectives at an early stage related to the development of renewable energy sources. These additional voices in the PSC resulted in a number of additional but very useful outputs that were produced by the Project including:
    - Local energy plans from municipalities that were to be used as a means to strategically plan their low carbon developments including SHPPs and attract investment (see Box 1);
    - A study on how to present "Urban Technical Conditions" or spatial planning guidelines to remove bottlenecks to obtaining construction permits for RE source projects;

- A guidebook "Roadmap for SHPP Investors" that is available on the MoE RE website;
- An economic study to gauge the true impacts of the implementation of LEPs that has been posted on the MoE website; and
- A pilot project setup in the small municipality of Andrijevica involving a mini-HPP using the town's water supply system.

3.2.2 Partnership Arrangements

Outside of the relevant Government partners listed in Section 1.2.4, SHPD also had strategic partnerships with AoM and ACRES, two associations who were nominated to the PSC as crucial to decision making related to Project implementation.

The partnership with AoM was stronger during 2011-2012, a period during which the Project was developing models for the preparation of Local Energy Plans for all municipalities. With the assistance and close cooperation of AoM, representatives of all municipalities actively participated in development of the LEP model which was proposed to municipalities for adoption in 2012. The partnership with AoM contributed to the preparation of LEPs for three municipalities (Andrijevica, Cetinje and Bijelo Polje) that has provided a template and model for LEP development and the basis for training that was provided to all municipalities to strengthen their capacities for LEP preparation. The involvement of these municipalities on SHPD provides a strong link to the addressing of UNDP's core programming principles, namely poverty eradication and the promotion of good governance.

Other projects where there was close collaboration with SHPD included:

- the EBRD-funded technical assistance project involving the "Development of Small Hydro Cadastre for Northern Montenegro" [17]. This project commenced operations in early 2011 to identify more hydropower sites that are less than 10 MW;
- The UNDP-supported "Climate Change Friendly Economic Settlements" that would direct the development of the SHPPs towards the northern regions of Montenegro where new jobs can be created in a manner that directly affects poverty reduction. This would include the development of environmentally friendly businesses such as: eco-tourism, wood processing, organic agriculture, fisheries that would be fully connected using electricity from the SHPPs; and
- The UNDP-GEF supported "Towards Carbon Neutral Tourism" Project that was commenced in April 2013 and is designed to promote adoption of low-carbon policies and regulation in the tourism sector, implementing flagship investment projects in low-carbon tourism infrastructure, establishing sustainable financing mechanisms, and raising awareness amongst the tourist and industry stakeholders.

These collaborations also support the mainstreaming of UNDP programming principles, namely in the eradication of poverty, and achieving Millennium Development Goals.

[17] http://www.blomasa.com/news/blom-wins-small-hydropower-plant-cadastre-project-in-montenegro-together-with-vodni-zdroje.html

3.2.3 Feedback from M&E Activities Used for Adaptive Management

PIRs provide evidence that M&E activities identified Project issues and follow-up actions to achieve outcomes and outputs in a timely manner. These follow-up actions were subsequently discussed at PSC meetings and used as the primary means of adaptively managing SHPD and justifying additional outputs (as detailed in Section 3.2.1).

3.2.4 Project Finance

SHPD had a GEF budget of USD 978,393 that was utilized over its 63-month duration, managed by UNDP under DEX modality and approval by the PSC for various technical assistance activities, training and workshops, and conducting studies to remove any potential bottlenecks to the SHPP concession approval process.

Table 3 provides an overview of expenditures of the GEF and UNDP Project budget of USD 1,018,393 from June 2008 to June 2013. To date, USD 982,198 or 96.5% of the total UNDP and GEF budget has been expended. This leaves roughly USD 36,195 remaining in the budget to complete the remaining Project activities including the Project Terminal Workshop under Component 4. *The Project is cost effective when considering that the Project will deliver 11.1 million tCO_2 of emission reductions at a cost of less than USD 0.10/tCO_2 (see Table 4)*.

The planned Project co-financing amounts were estimated to be in the order of USD 47.0 million, in comparison to the USD 3.47 million in the ProDoc, and exceeding this figure by a factor of more than 13. Much of this co-financing is from financing of 8 SHPPs as listed on Table 5. This is an excellent outcome considering the value of the SHPD Project of just under USD 1.0 million.

3.2.5 M&E Design at Entry and Implementation

Ratings of the Project's Monitoring and Evaluation system[18] are as follows:

- *M&E design at entry – 5*;
- *M&E plan implementation – 6*.

The implementation of the M&E plan was highly satisfactory based on detailed PIR reports, and follow-up on Project implementation issues being discussed and resolved in an efficient and effective manner at PSC meetings.

[18] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory.

Table 2: GEF Project Budget and Expenditures for 2001-2012 (in USD as of May 31, 2013)

Component	Budget	2008	2009	2010	2011	2012	Jun-13	Remaining
1. Strengthening Institutional and Legal Framework	230,192	31,478	84,586	38,025	25,471	36,025	8,892	5,716
2. Supporting SHP Investment Decisions with Information	402,950	4,835	110,231	109,412	65,122	93,849	14,081	5,420
3. Support to Operationalize IPP Concessions	220,392	0	40,646	120,764	11,372	23,537	17,910	6,163
4. Monitoring and Dissemination of Project Results	102,859	0	0	13,277	27,811	7,717	28,824	25,231
Project Management	62,000	7,900	20,583	12,811	16,420	10,620	0	-6,334
TOTAL	***1,018,393***	***44,213***	***256,045***	***294,289***	***146,196***	***171,749***	***69,707***	***36,195***
GEF	**978,393**	**42,713**	**246,217**	**286,291**	**136,204**	**161,128**	**69,707**	**36,134**
UNDP	**40,000**	**1,500**	**9,828**	**7,998**	**9,992**	**10,620**	**0**	**61**

Table 3: Co-Financing for SHPD project (as of June 30, 2012)

Co-financing (type/source)	UNDP own financing (million USD)		Government (million USD)		Partner Agency (million USD)		Private Sector (million USD)		Total (million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	0.04	0.04	1.59	1.59					1.63	1.63
Loans/Concessions										
• In-kind support					1.84	0.65[31]			1.84	0.65
• Other								47.00[32]		47.00
Totals	**0.04**		**1.59**		**1.84**			**47.00**	**3.47**	**49.28**

[31] This was contribution from the Norwegian Government for preparation of two hydrological reports addressing water measurements on 30 watercourses on the Piva, Lim, Moraca, Tara, Ljubovidje, Zlorecica River systems. This information was used as supporting documentation for potential investors in the first tender in 2008.

[32] Private sector financing was obtained for 8 SHPPs totaling 38 MW of generation

3.3 Project Results

Assessment of SPHD achievements and shortcomings are provided in this section against the 2008 Project log-frame. Each outcome was evaluated against individual criterion of:

- *Relevance* – the extent to which the outcome is suited to local and national development priorities and organizational policies, including changes over time;
- *Effectiveness* – the extent to which an objective was achieved or how likely it is to be achieved;
- *Efficiency* – the extent to which results were delivered with the least costly resources possible.

The Project outcomes were rated based on the following scale:

- *6: Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives;
- *5: Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives;
- *4: Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives;
- *3: Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives;
- *2: Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives;
- *1: Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

3.3.1 Overall Results

Project Goal: To reduce GHG emissions by creating favorable legal, regulatory and market environment and building institutional and administrative capacities to promote development of Montenegro's abundant small hydropower potential for grid-connected electricity generation.

Project Objective: An increase in 15MW to 20MW of new power generating capacity in Montenegro by the close of the project.

Intended EOP Outcome: ⇒ 5% or additional 15-20 MW of new MW of power generated from small hydro sources but with zero tonnes of direct CO_{2eq} of emission reductions by the Project; ⇒ Annual emission reductions of 20,118 to 26,824 CO_{2eq}/year expected as indirect emission reductions from SHPP investments supported by mechanisms that continue operating after the end of the project
Actual EOP Outcome: ⇒ *A highly satisfactory outcome has been achieved with SHPP concessions issued by the MoE totalling 47.31 MW[33]. One of these plants, Jezerstica SHPP (1.2 MW) near to Berane Municipality will have been commissioned for operations by July 2013.* ⇒ *A highly satisfactory outcome of annual emission reductions of 60,697 tonnes CO_{2eq}*

[33] This includes the 97.33 MW listed in Table 5 minus the concessions cancelled by MoE (50.02 MW)

per year assuming that hydropower is generated from the 47.31 MW of SHPP concessions that were awarded during the Project. This figure would have been higher if four concessions totalling 50.02 MW had not been cancelled in June 2013 (see Table 5).

Rating: *relevance: 6*
effectiveness: 6
efficiency: 6
overall rating: 6

Table 4 summarizes the GHG reduction estimates (using GEF guidelines) that are forecast from SHPD outcomes.

Table 4: Summary of CO_2 Reductions from the Project
(cumulative over a 10-year period after the EOP)

Direct emission reduction[34] due to SHPP, t CO_2	0
Direct post-project emission reduction[35] due to SHPP, t CO_2	511,983
Indirect emission reduction due to SHPP, t CO_2	
Top-down[36]	10,640,000
Bottom-up[37]	0
TOTAL EMISSION REDUCTIONS DUE TO UNDP-GEF PROJECT, t CO_2	**11,151,983**

Emission reductions were based on the following assumptions:

- Emission reductions follow the GEF method for calculating GHG emission reductions[38];
- No direct emissions;
- No post-project direct emissions since no revolving funds were setup by the Project;
- Indirect emission reductions were based on:
  - no "direct" emission reductions achieved during the course of the Project;
  - a grid emissions factor of 0.38 tCO_2/MWh[39] (in the absence of any such figure from a Montenegrin DNA);
  - assuming a top-down causality factor of 0.4 or "modest" based on the possible shortages of capital for building SHPPs over the next 10 years; and

34 Direct impacts can be considered, for example, if SHPP financing would have been established on this Project. This is clearly not the case.

35 Due to the investments supported by Project mechanisms that continue operating after for 10 years after the end of the project.

36 Top-down emission reductions are calculated from the SHPP market potential over 10 years times a causality factor. The annual potential of the remaining undeveloped Montengrin SHPP sites was assumed to be 7,000 GWh from the May 2013 Project report "Summary of Achievements and Lessons Learned Report"; this is in comparison to the 8,073 GWh from the 2007 Energy Development Strategy for Montenegro.

37 With no direct emission reductions assumed, there are no bottom-up emission reductions.

38 "Manual for Calculating GHG Benefits of GEF Projects: Energy Efficiency and Renewable Energy Projects, April 16, 2008 (GEF/C.33/Inf.18)"

39 http://www.co2benchmark.com/co2-per-MWH-per-country

- conducting a "sense check" of this indirect emission reduction with an assumed indirect emission reduction scenario where the MoE would issue SHPP concession tenders for 10 MW annually for 10 years after the EOP.

Table 5: Concessions Issued by MoE from the First Two SHPP Tenders

No.	Water Body	Confluence	Municipality	No. of SHPPs	Installed Capacity (MW)/ Planned Generation (GWH)
First Tender					
1	Bistrica, desna pritoka Lima	Lim	Bijelo Polje	2	17.0*
2	Bistrica	Lim	Berane	8	10.0
3	Šekularska	Lim	Berane	5	5.0
4	Grlja	Lim	Plav	1	1.7
5	Babinopoljska	Lim	Plav	2	9.45
6	Zaslapnica	Zaslapnica	Nikšić	2	1.0
7	Bjelojevićka	Tara	Mojkovac	2	15.0*
8	Crnja	Tara	Kolašin	1	5.5
			TOTAL	**23**	**64.65**
Second Tender					
9	Vrbnica	Lim	Plužine	2	12**
10	Tušina	Komarnica	Šavnik	4	6.02*
11	Trepačka rijeka	Lim	Andrijevica	1	8.3
12	Murinska rijeka	Lim	Plav	2	2.36
13	Komarača	Lim	Plav	1	4.0
			TOTAL	**10**	**32.68**
			CUMULATIVE TOTAL	**33**	**97.33**

* Concession cancelled by MoE in June 2013
** Concession cancelled by MoE in June 2013 but placed on third tender to be issued in July 2013, after the Project

3.3.2 Outcome 1: Policies and regulations that promote IPP investment in small hydropower concessions

Intended Outcome 1*:*
⇒ Simplified tendering procedures that includes SHPP tendering and concession granting procedures
⇒ Simplified procedures for authorization, licensing, permitting including special rules for SHPP connection to the grid
⇒ Financial incentive scheme for small hydro power development elaborated

Actual Outcome 1:
⇒ *A highly satisfactory outcome has been achieved in the formulation and adoption of streamlined and simplified tendering and authorization procedures. This included pre-qualification and qualification phases followed by a process to execute a concession agreement. This has resulted in the new and improved second concession tender in 2009, and a third tender that was being issued in 2013 using lessons learned from the second tender. Close cooperation between MoE and UNDP has resulted in faster adoption of by-laws on the status of privileged energy producers and the consolidation*

of fees for water usage and the site concession into one fee. This output is largely responsible for the awarding of 13 SHPP concessions with a proposed installed capacity of 97.33 MW (which has been scaled back to 59.31 MW due to cancellation of 3 SHPPs as detailed on Table 5). Construction permits have been issued for 8 SHPPs with a capacity of 38 MW, and 2 wind farms totaling 96 MW;

⇒ *Supporting the highly satisfactory outcome is an additional Project activity to prepare local energy plans (LEPs) for municipalities to plan low carbon development within their jurisdictions through renewable energy projects as well as energy efficiency projects. A guidebook on preparing LEPs and a handbook on developing renewable energy sources were significant outputs to raise RE awareness within Montenegro's municipalities. Details are provided in Box 1;*

⇒ *A highly satisfactory outcome has been achieved in the completion of regulations and conditions under which their SHPP can connect to the Montenegrin national grid. SHPP developers now have clarity in the context of their project planning and connection to the national grid. Outputs included:*

- *a detailed study of the Montenegrin national grid and the conditions under which it can absorb the variable inputs of RE sources; and*
- *regulations for the connection of SHPPs to the national grid along including connection rules, fees and points of contact;*

⇒ *A highly satisfactory outcome has been achieved in the development of financial incentives for the development of SHPPs resulting in high interest in the concession tenders. Incentives included:*

- *a methodology for drafting of the feed-In-tariff (FIT) for SHPPs;*
- *regulations for the obligatory purchase of electricity from SHPPs that included specific FITs for each type of renewable energy source;*
- *new by-laws and regulations to support the Energy Law including bylaws that define privileged energy producers, methodologies for calculating FITs from various RE sources, definition of RE sources, and procedures for qualifying for incentives for various RE projects;*

⇒ *Supporting these highly satisfactory outcomes has been the delivery of two additional outputs that were not identified in the ProDoc including:*

- *guidelines to reduce costs to SHPP developers in the preparation of spatial plans that comply with plans and documents of the local municipalities and;*
- *a roadmap for developing potential investors to reduce developmental costs and encourage development of small hydropower projects.*

Rating: *relevance:* *6*
effectiveness: *6*
efficiency: *6*
overall rating: *6*

To generate any interest in SHPP investments in Montenegro, the Project created a supportive and enabling investment environment for SHPP developers as the first significant barrier removal activity. With the formation of the Renewable Energy Sources Unit (RES) in 2010 (formerly the RE/EE Unit in 2008) within the MoE to in part implement the SHPP Strategy, the Project was instrumental in assisting the MoE in building this enabling environment and the capacity of the MoE to manage SHPP development within this new supportive regulatory framework. As a result of the Project's technical assistance, simplified tendering and authorization procedures for small hydropower were adopted, clear regulations for connection by small power

producers to the grid were developed for SHPP investors, and a system of incentive-based tariffs for small hydropower producers was completed to attract SHPP investment. In addition, the Project went beyond its mandate to provide technical assistance in the preparation of LEPs (see details in Box 1) and to assist in the development of SHPP spatial plans that harmonizes the municipality's spatial plans and those of the SHPP developer, thus removing a bottleneck in the planning process of SHPPs.

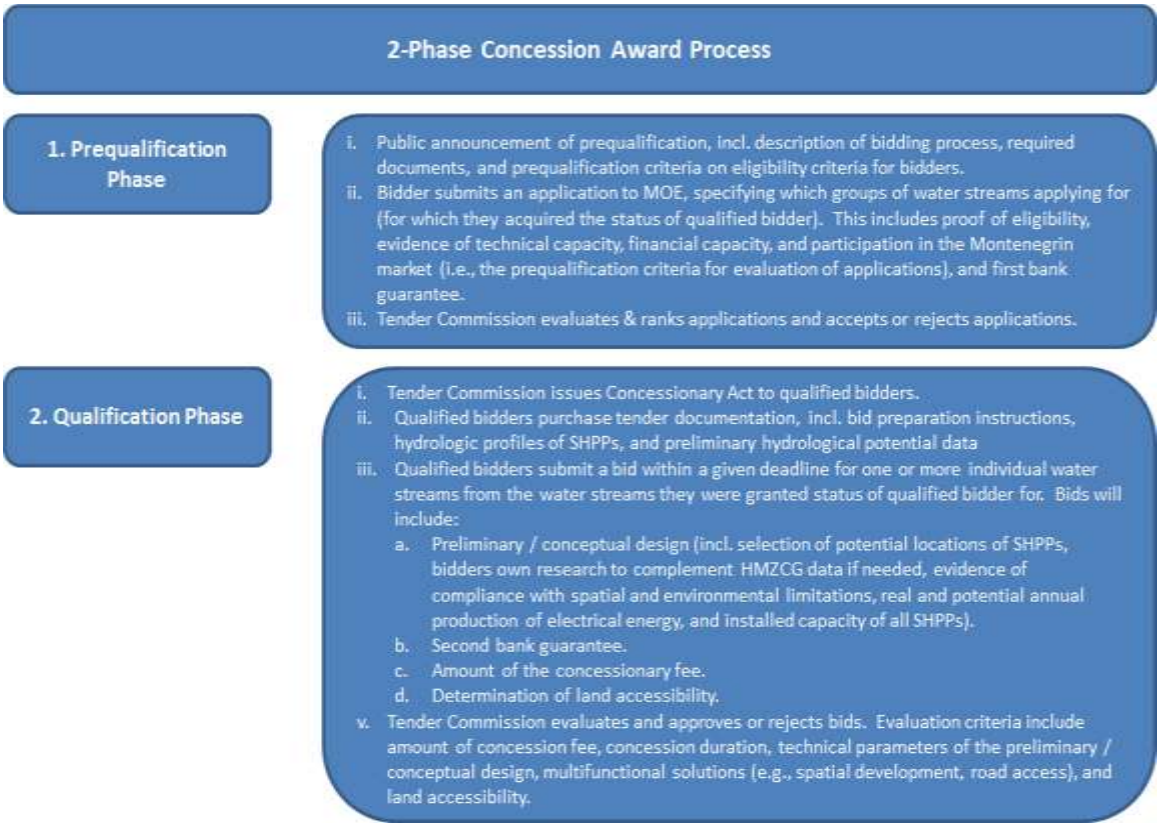
Lessons were learned from the tendering process of 2008, and incorporated into the second SHPP concession tender in 2009. A "Concessionary Act for Concession Award to Exploit Water Streams for Construction of SHPP" was drafted by the Project for the second tender in 2009, and provides a structure consistent with other international tenders for concessions including Prequalification and Qualification phases as illustrated on the flowchart of Figure 5. The Concession Act under Section 6 also provides a process for the award of the concession, as illustrated in Figure 6. The process was simplified and more transparent resulting in a substantial improvement in the quality of concession applications, and the efficiency under which they were approved. A technical review committee that included local hydropower experts was created to evaluate and select winning SHPP concession proposals. The Project has provided significant assistance in the development of the streamlined SHPP tendering procedure that now takes less than one year to complete.

To ensure the new concession tendering procedures and requirements were clearly understood by key concessionaires and stakeholders, a number of workshops were organized on tenders, concessions, LEP preparations, and technical and financial considerations of building and maintaining a SHPP. The Project also coordinated a study visit to Slovenia and Austria for key MoE officers, selected local government officials, and business sector representatives to observe examples of how RE sources can catalyze economic development in rural areas.

This Project also provided a complete the set of regulations for connection of IPPs to the national grid, and defined grid connection rules and fees. This required close collaboration and inputs from both the MoE and EPCG. The Project financed a grid study[40] in 2012 to provide a reference for EPCG, SHPP concessionaires and other relevant stakeholders on conditions and opportunities for connecting different types of RE distributed power sources to the Montenegrin national grid. The study also provided the utilities information to pass onto IPPs requisite conditions for technical grid connections; an analysis of these conditions in relation to future distributed source connections to the grid from SHPP concessions on upcoming tenders; and training and instructional documents for the PSS®SINCAL software to enable EPCG to conduct analyses of distributed source connections to the grid. The Grid Study also notes that the existing network grid needs to be upgraded at an estimated cost of €20 million to accommodate the projected number of new distributed sources; this would include the "reinforcement of more than 200 km of 10 kV and 35 kV lines and the installation of several new substations" notwithstanding the fact that energy from IPPs can be safely and efficiently be incorporated into the existing grid. The need for upgrading has been confirmed by EPCG who note that distributed generation sources are generally located in remote areas where the grid is not well developed; hence, the addition of new distributed generation sources will necessitate reinforcement of the grid in these areas.

[40] "Distributed Source Connection and Operation in the Electric Power System of Montenegro", Milan Vidmar Electro Institute, 2012

Figure 5: SHPP Concession Award Process

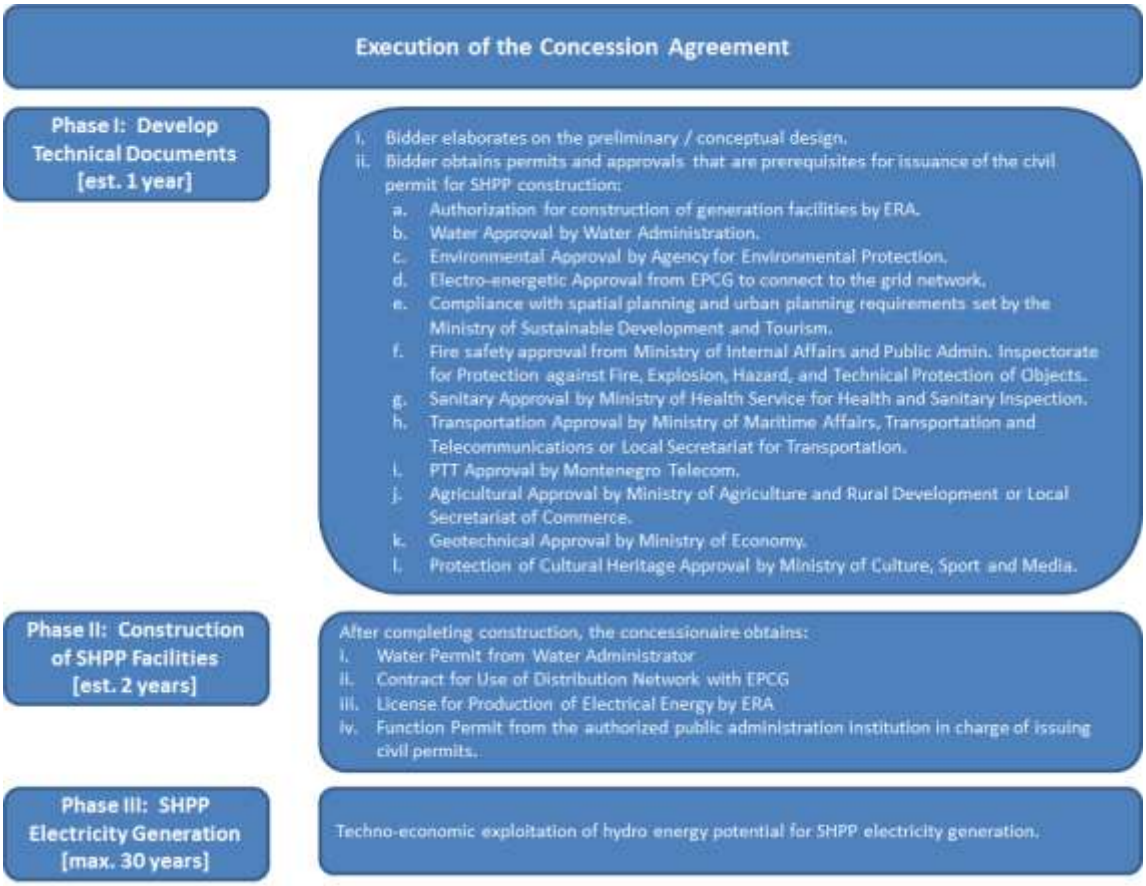


Box 1: Preparation of Local Energy Plans for Municipalities

The Project responded to the needs of local municipalities to comply with the legal obligation of Article 11 of the 2010 Energy Law whereby each Montenegrin municipality must develop a Local Energy Plan (LEP). Project assistance to prepare LEPs was provided to the municipalities in Montenegro as additional technical assistance over and above outputs planned in the ProDoc. The Project was justified to provide technical assistance to municipalities in preparing these plans since the municipalities had no experience or background in the preparation of LEPs. Furthermore, the LEPs could serve as a municipality's strategy for energy consumption and production, attract energy-related investments, and stimulate sustainable economic development. More related to SHPD, the LEPs would promote SHPPs as a means of local energy production.

The main elements of LEPs were determined by MoE and the Project Team with inputs from the Association of Municipalities (AoM) and included: (1) overviews of current energy supply, production, and distribution capacity; (2) analysis of current energy consumption; (3) GHG emissions; (4) estimates of future energy use and future energy supplies; (5) analyses of RE/EE potential; (6) definition of energy goals in terms of supply, production, and distribution; (7) analysis of measures to achieve these objectives; and (8) financial resources for implementation of the LEP. The Project prepared the LEP template that included guidelines, methodologies and instructions, and posted them on the MoE RE website (*www.oie-res.me*). In addition, the Project has worked closely with three municipalities (Bijelo Polje, Cetinje, and Andrijevica) to finalize their LEPs by the end of the Project on June 30, 2013.

Figure 6: SHPP Concession Agreement Execution



Lastly, the Project provided technical assistance towards appropriate financial incentives that could catalyze private investment flows for renewable energy development. In addition to its support to streamline the concession bidding and negotiation process, the Project also worked with the government to determine FITs for various RE technologies; the outcome of this collaboration has been the inclusion of FIT incentives in the September 2011 "Decree on the Tariff System for Determining the Incentive Prices for Electricity Produced from RE Sources and High-Efficiency Cogeneration" for electricity generated from RE sources and cogeneration. Table 6 provides a summary of the feed-in-tariffs declared by this Decree for various RE sources.

The Project also expended resources to determine the potential in Montenegro for generating Certified Emission Reductions (CERs) from CDM. The conclusion of this assessment was that CERs was not a feasible source of carbon revenue due to the downward trend of depressed CER prices, the high cost of developing such a project, and the likely decline of the grid emissions factor. The development of CDM revenue for Montenegrin RE sources should not be developed until there are sustained and positive upward trends in the carbon price, which is not likely to occur until new legally binding GHG reduction commitments are agreed upon under global climate change negotiations.

Table 6: Feed-in-Tariffs established by the "Decree on the Tariff System for Determining the Incentive Prices for Electricity Produced from RE Sources and High-Efficiency Cogeneration" (September 2011)[41]

Renewable Energy Source	Feed-in-Tariff [€/kWh]
Small Hydropower Plants:	
< 3 GWh/year	0.1044
3-15 GWh/year	0.0744
> 15 GWh/year	0.0504
Wind farms	0.0961
Biomass:	
Power plants using biomass from forestry and agriculture	0.1371
Power plants using biomass from forestry and agriculture	0.1231
Power plants using solar energy on buildings/ engineering construction	0.1500
Power plants using solid waste	0.0900
Power plants using waste gas	0.0800
Power plants using biogas	0.1500

3.3.3 Outcome 2: IPP investment decisions in small hydro power supported

Intended Outcome 2*:*

⇒ Hydrological data for additional 15 sites collected

⇒ All available small hydro-site data collected and posted on web site

Actual Outcome 2:

⇒ *A highly satisfactory outcome was achieved in the collection of hydrological data for 15 sites over a 2-year period. Project assistance was provided for the procurement of the equipment for the 15 hydrological stations that were to be used by the Institute for Hydrometeorology and Seismology or IHMS (formerly the Hydrometeological Institute) for the generation of hydrometric data. The location of the 15 hydrometric stations were along the Lim, Piva, and Komarnica Rivers; this augmented data collected at these locations by the GoM in 2000 and by the GoM in partnership with the Government of Norway in 2006 to collect 2 additional years of hydrologic data for potential sites for hydropower generation.*

⇒ *A highly satisfactory outcome has been achieved in the collection of small hydro data that has been collected and posted on the www.oie-res.me website.*

⇒ *In support of the highly satisfactory outcome, the MoE and the Project conducted an additional activity consisting of an economic study with Andrijevica Municipality in collaboration with another UNDP programme entitled "Climate-Change Friendly Economic Settlements". This holistic study enhanced the attractiveness of SHPP investments, by identifying uses for the electricity, the impact on the economy of the municipality, supporting the attractiveness of SHPP and mini-hydropower plant investments, and providing the basis for business plan for mini-HPP construction. The data and information for this study was also posted on the www.oie-res.me website*

[41] From "Official Gazette of MN", no 52/11 that can be found on Government Renewable Energy website: www.oie-res.me

Rating: *relevance:* *6*
effectiveness: *6*
efficiency: *6*
overall rating: *6*

At the onset of the Project, there was insufficient hydrological data to support IPP investment decisions for SHPPs. The intervention of the Project to provide the equipment to continue site-specific hydrologic data at the GoM's most promising SHPP sites served as a key contribution to the improvement of the enabling environment for SHPPs. The collection of this data between 2010 and 2012 essentially served notice to SHPP investors of the intent of the Government's intent to facilitate SHPP investments and to improve the confidence SHPP developers of the potential energy generation of these sites and their rates of return.

This hydrological data was added to the hydrological measurements financed by the Government of Norway in 2006 and those from the GoM in 2000, and were posted online along with summary document for potential SHPP investors at www.oie-res.me. The summary reports also contain specific information with detailed GIS maps of the catchment areas. For example, catchments coded in red and water bodies in blue indicate where active measurements and water sampling are being conducted. IHMS conducted all data collection and processing and presented the data in a manner that assists SHPP developers to assess the resource and facilitate SHPP investment decisions. The Project has not been involved with any hydrometric data interpretations as this was left to developers for their own investment decisions. In some cases, investors setup their own hydrometric data collection as a means to add confidence to their SHPP investment decisions, and have shared this information with IHMS.

An additional Project activity also focused on an economic study for Andrijevica for a concession issued in the municipality in the second tender on the Trepačka Rijeka River. The pilot mini-HPP has been proposed along the main water supply system with a rated capacity of 80 kW. This economic study provided a holistic view of the potential impact of the mini-HPP development and provided an excellent overview of investment opportunities in Andrijevica. The study results and the LEP for Andrijevica and other municipalities were also posted on the Ministry of Economy RES Unit website (www.oie-res.me) that is regularly maintained, frequently updated and provides transparent reports on SHPP developments nationally. It more than adequately serves as a "one-stop-shop" location for SHPP-related information and documentation to support investment decision-making.

3.3.4 Outcome 3: Small hydropower IPP concessions operational

Intended Outcome 3*:* ⇒ Design model tendering and contractual documents for SHPPs ⇒ Train and organize unit in SHPP tendering and contracting process ⇒ Tender and contract out the development 5 selected SHPP sites for power generation
Actual Outcome 3: ⇒ *A highly satisfactory outcome has been achieved in the issuance of model tendering documents for SHPPs that has led to the issuance of construction permits and signed PPAs for 8 SHPPs (38 MW) and 2 wind farms (96 MW). Moreover, a third tender containing 10 SHPPs that has been released in June 2013 for proposals using lessons*

learned from the second tender;

⇒ *A highly satisfactory outcome has been achieved in the building of the capacity of MoE to manage the SHPP tendering and contracting process. The MoE has setup a Renewable Energy Sources Department that manages the concession tendering process which to date that has leveraged more than USD 47 million (€38 million) in private investment for SHPPs;*

⇒ *A highly satisfactory outcome has been achieved in the tendering and contracting out for the development of 9 SHPP concessions totaling of 47.31 MW installed capacity, exceeding the Project's target of 15-20 MW*

Rating: *relevance:* *6*
effectiveness: *6*
efficiency: *6*
overall rating: *6*

To facilitate a rapid approval of the concession tenders and finalization of concession contracts finalized, the Project created a streamlined and simplified tendering process with the MoE in Outcome 1. To efficiently implement this process, the Project under this component provided the following:

- a model power purchase agreement (PPA) for the purchase of electricity by EPCG from the SHPP where the generator provides the operator with monthly and annual generation plans and the electricity price is agreed to, and Concession Agreement and bidding documents approved and adopted by the Ministry;
- a Technical Expert Group (TEG) of local and regional RE experts to evaluate submitted proposals for the first and second tender and the technical criteria used for evaluation include design construction and compliance with environmental and hydrological regulations. The Technical Expert Group served as key advisors during planning and implementation stages of the Project and played a critical role in working with the MoE to draft terms of the Feed-in-Tariff financial incentives;
- training for the Ministry of Economy RES Unit to operationalize small hydropower IPP concessions. This included technical assistance to draft RE bylaws and regulations, prepare LEP templates, assess tendering and contractual document options and the bidding process, design of template documents to streamline future agreements and approvals, manage the concession bidding and negotiation process, and developing requirements for IPP reporting of power generation. RE bylaws and regulations were fully established in late 2011, and are now being fully enforced for the third tender set with 10 concessions for issuance in June 2013.

3.3.5 Outcome 4: Project results and lessons learnt summarized, documented, presented and disseminated

Intended Outcome 4*:*

⇒ Monitor construction and operation of small hydro power plants

⇒ Identification, codification and dissemination of lessons learnt and best practices

Actual Outcome 4:

⇒ *A satisfactory outcome has been achieved as one project, Jezerstica SHPP (1.2 MW) near Berane Municipality was monitored by MoE for construction quality (commissioning is scheduled to be completed in June 2013). While no reports on construction quality have been filed, the MoE reports that construction quality is*

adequate;

⇒ *A highly satisfactory outcome has been achieved in the dissemination of lessons learned and best practices for SHPP development in Montenegro on the www.oie-res.me website that is frequently updated. The Project team has also:*

- *shared its project experiences with its Montenegrin partners including the Ministry of Economy, Ministry of Sustainable Development and Tourism, EPCG, Association of Municipalities through seminars and meetings;*
- *attended a number of regional workshops including the 5th Annual Balkan Energy Finance Forum in Belgrade in 2012, the Renewable Energy Investment Forum in Podgorica in 2012, and the Energy Community Task Force Meeting in Vienna in 2010'*
- *hosted a group from Kyrgyzstan in May 2012 sponsored by the UNDP-GEF Small Hydro Project wanting to learn of the Project's best practices in SHPP development;*
- *planned a terminal workshop for the Project for late June 2013 with the proposed agenda being the review of Project progress, best practices and follow-up to sustain progress of SHPP concession developments.*

Rating: *relevance:* *5*
effectiveness: *5*
efficiency: *5*
overall rating: *5*

Only the 1.2 MW Jezerstica SHPP has been observed under construction on this Project. While this serves as a satisfactory achievement, it is difficult to conclude if SHPP construction activities in Montenegro will be implemented to meet international standards without government oversight and if the SHPP sites will generate their design rates of return in Montenegro. One strong indicator of construction quality is the selection of quality equipment from Austria at the Jezerstica site. In the evaluator's experience, this indicates the SHPP concessionaire is not tied to the selection of least-cost equipment. Most least-cost equipment does not have adequate technical support from its supplier leading to higher risks of down time and loss of SHPP returns. One can only hope that quality equipment is sourced for all remaining SHPP sites in Montenegro.

3.3.6 Overall Evaluation of Project

The overall rating of the project results is highly satisfactory (HS). This is based on the following outcomes:

- The development of a sound but simplified and transparent tendering procedure complete with secondary regulations and by-laws that reduces the risk of potential investors into Montenegro seeking SHPP investment opportunities;
- The approval of collection of hydrological data that provided the necessary catalyst to provide information of the potential for hydropower generation for a number of SHPP sites and induce investment decisions by potential SHPP investors;
- An excellent and informative website that provides potential SHPP investors with the necessary introductory, regulatory, technical and financial information on SHPP development in Montenegro;

- The Project has met and exceeded its target for SHPPs slated for development (15 to 20 MW under concession agreement) by the EOP by a factor of more than 3.0 (currently 47.31 MW under concession agreement);
- One SHPP project, Jezerstica SHPP (1.2 MW) will have had its commissioning phase completed by June 30, 2013. No SHPPs were expected to be completed by EOP in the ProDoc;
- The Project delivered outputs over and above the planned outputs in the ProDoc and enhanced delivery of the intended outcomes within the Project budget. These outputs included:
    - Local energy plans (LEPs) which has the impact of attracting investment to stimulate sustainable economic development and provide local strategies to reduce energy consumption and increase RE production at the municipality level;
    - Spatial planning guidelines and procedures to removing bottlenecks in the approval of spatial plans for SHPP construction permits;
    - A guidebook "Roadmap for SHPP Investors" that is available on the MoE RE website;
    - An economic study to gauge the true impacts of the implementation of LEPs that has been posted on the MoE website; and
    - A pilot project setup in the small municipality of Andrijevica involving a mini-HPP using the town's water supply system.

Overall project ratings are provided on Table 7.

3.3.7 Country Ownership and Drivenness

There is strong relevance of this Project to the GoM's Small Hydro Development Strategy of 2006, their 2007 Energy Development Strategy, and their most recent updating of the Strategy's target in October 2012 stipulating 33% of energy from renewable sources is to be achieved by 2020, in line with the targets set by the European Energy Community. Moreover, ***the Project is relevant to Montenegro's developmental priorities of secure energy supplies. Country ownership and drivenness for this Project is strong and driven to a large extent by their national objectives for accession to the EU.***

3.3.8 Sustainability of Project Outcomes

In assessing Project sustainability, we asked "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of these objectives was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability.
- *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

Table 7: Ratings for Each Project Outcome[42]

	Relevance	Effective-ness	Efficiency	Overall Rating
Monitoring and Evaluation:				
M&E design at entry	-	-	-	5
M&E plan implementation	-	-	-	6
Overall quality of M&E	-	-	-	6
UNDP and Executing Partner Performance:				
Quality of UNDP implementation	-	-	-	6
Quality of Execution - UNDP	-	-	-	6
Overall quality of implementation/execution	-	-	-	6
Overall Results	6	6	6	6
Outcomes:				
Outcome 1: Policies and regulations that promote IPP investment in small hydropower concessions	6	6	6	6
Outcome 2: IPP investment decisions in small hydro power supported	6	6	6	6
***Outcome 3*:** Small hydropower IPP concessions operational	6	6	6	6
***Outcome 4*:** Project results and lessons learnt summarized, documented, presented and disseminated	5	5	5	5
Overall Rating:	5.8	5.8	5.8	5.8

The overall Project sustainability rating is likely (L). This is primarily due to:

- All stakeholders interviewed had positive views of the Project outcomes and the future of SHPP development in Montenegro;
- The Government commitment to support feed-in-tariffs for renewable energy generation sources;
- Investor confidence in SHPP projects to generate good rates of return and that are reflective of the new enabling investment and regulatory environment for SHPP development;
- Indicators that the quality of SHPP implementation is good and low risk to investors; and
- The prospects of higher tariffs in the future from the sale of electricity to Italy through a proposed underground cable.

Details of sustainability ratings for SHPD are shown on Table 8.

[42] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory.

Table 8: Assessment of Sustainability of Outcomes

Actual Outcomes (as of May 2013)	Assessment of Sustainability	Dimensions of Sustainability
Actual Outcome 1: Attractive institutional, legal and price conditions have been created for SHPP development in Montenegro	• *Financial Resources:* SHPP development as well as development of other RE sources is a priority of the Government of Montenegro; as such, financial resources are available for continuation of MoE oversight into the investment environment created for SHPP development. • *Socio-Political Risks:* The enabling SHPP investment environment created by the Project has strong political support minimizing the risk that this investment will not continue after the Project; • *Institutional Framework and Governance:* The MoE setup a RE Sources Unit dedicated to the management of the concession award system for SHPP and other renewable energy projects. The Unit has good capacity and will continue well after the completion of the Project; • *Environmental Factors:* Small hydropower is considered a green technology and beneficial to the environment and reduction of GHG emissions. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 2: Support has been provided for IPP investment decisions by collecting hydrological data for potential and promising SHPP sites, and by conducting an economic study for a pilot community, Andrijevica, on the benefits it will derive from the development of a mini-hydro plant	• *Financial Resources:* Declining government budgets are reducing the IHMS programmes for collecting and processing hydrological data. This has been somewhat compensated by private SHPP developers who are setting up their own hydrometric data collection stations for specific investment sites; they are obligated to share this data with IHMS who can add these data to their national hydrometric database for public use; • *Socio-Political Risks:* Due to reduced Government budgets, there are political risks in the continued growth of hydrometric data collection and management by IHMS. • *Institutional Framework and Governance:* IHMS staff levels are being reduced that will result in the reduction in the size of hydrometric data collection programs in the future. • *Environmental Factors:* Small hydropower is considered a green technology and beneficial to the environment and reduction of GHG emissions. ***Overall Rating***	4 4 4 4 **4**

Table 8: Assessment of Sustainability of Outcomes

Actual Outcomes (as of May 2013)	Assessment of Sustainability	Dimensions of Sustainability
Actual Outcome 3: SHPP concessions totaling 38 MW are operational with PPAs and construction permits, exceeding original Project targets of 15 to 20 MW. In addition, concessions are also operational for two wind farms (96 MW) that demonstrates that the concession system can be applied for the development of other renewable energy sources	• *Financial Resources:* Financial resources are in place at MoE for the continued execution of SHPP concession agreements. • *Socio-Political Risks:* Given the strong Government support for SHPP development, notably through the 2010 Energy Law, political risks to concession agreements not being executed after the Project are minimal; • *Institutional Framework and Governance:* MoE have setup a RE Sources Unit that is dedicated to promoting SHPP projects as well as executing concession agreements. The RES Unit has also been a beneficiary of the Project technical assistance and is becoming more familiar with the new tendering process as demonstrated by the impending issuance of a third tender in July 2013; • *Environmental Factors:* Small hydropower is considered a green technology and beneficial to the environment and reduction of GHG emissions. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 4: Project results and lessons learnt to date have been summarized, documented and made publicly available through workshops and the MoE website	• *Financial Resources:* Fiscal resources are available under MoE for the continued dissemination of Project results and lessons learned on their website: www.oie-res.me, and at workshops (as demonstrated by the June 2013 public hearing for the proposed third tender(to be issued in July 2013); • *Socio-Political Risks:* Low socio-political risk as energy security through the development of RE sources is a priority in Montenegro; • *Institutional Framework and Governance:* The RES Unit under MoE has the capacity to continue to oversee the tendering and awarding of RE concessions for the next several years; • *Environmental Factors:* Small hydropower is considered a green technology and beneficial to the environment and reduction of GHG emissions. ***Overall Rating***	4 4 4 4 **4**
	Overall Rating of Project Sustainability:	**4**

4. CONCLUSIONS, RECOMMENDATIONS AND LESSONS

4.1 Conclusions

- The SHPD Project was critical in the significant scale-up of RE development in Montenegro through its focused and structured activities in creating a favorable enabling investment environment and regulatory framework for SHPP development, improving technical and administrative capacity and awareness amongst SHPP stakeholders including MoE personnel in the RE Sources Unit, and achieving efficiencies in awarding concessions for 47.31 MW and the issuance of construction permits for at least 8 SHPPs totalling 38 MW. This focused approach increased the likelihood of achieving intended outcomes from UNDP-GEF funds;;

- The improved efficiencies of the Government tendering process for renewable energy concessions were demonstrated in the MoE's preparation of the Concession Act in 2009 that summarized the process for awarding watercourse concessions for SHPPs. The Act included various technical and economic definitions involving the exploitation of watercourses to generate electrical energy and other relevant information and analyses;

- In addition to improvements in the tendering process, the activities of the Project were thorough in removing almost all other barriers to RE development. Project resources were used to draft regulations and energy strategies, complete grid studies to inform IPPs of the technical rules and regulations for grid connections, prepare local energy plans (LEPs), prepare guidelines for spatial plans, deliver an economic impact study of renewable energy development for Andrijevica and setup a pilot project for a mini-HPP development in Andrijevica. These outputs provided Montenegro with added value by enhancing the outcome of SHPP approvals and facilitating development of other RE sources of electricity beyond SHPPs such as wind, biomass and solar;

- The completed grid study filled in a number of grid-related knowledge gaps including:

    - an assessment of Montenegro's set of energy regulations that were deemed to be relatively modern and functional and the required changes and updates on technical and legal issues to enable distributed source connections to the grid;
    - verification of Montenegro's development plans for the electric power system;
    - a clear and established methodology for conducting network analysis of distributed grid connections to the distribution system and for controlling impacts on the distribution system in terms of line disturbances;
    - the development of technical conditions for distributed source connections and operations for faster and safer connections with minimum disturbances; and
    - training and instructional documents for EPCG to enable them to conduct analyses of distributed source connections to the grid by applying a software package called PSS®SINCAL.

- While more than two years of hydrologic data has been collected with the assistance of the Project, the future of hydrometric data collection is faced with the prospect of reduced government involvement (due to reduced government budgets). The shortfall in government funding for the collection of hydrometric data could be made up

through private investors who have been collecting site-specific hydrometric data for their specific SHPP investments;

- The success and positive impact of the power sector reforms in Montenegro are increasing the opportunities for replication in other countries. In particular, the successful engagement of Montenegro's local municipalities in low carbon energy planning is unique and is receiving good media coverage that should lead to replication. The LEPs generated in Andrijevica, Bijelo Polje and Cetinje will serve as models for other LEPs for other Montenegrin municipalities. One example of replication that could be moved forward by a Montenegrin municipality is to secure a political commitment to construct a SHPP, finalize a LEP, identify a site for pilot construction, launch a promotion and awareness campaign, and develop a public-private partnership to share investment risk;

- The commissioning of the Jezerstica SHPP (1.2 MW) is a significant achievement since no SHPPs were expected to be completed by EOP. The grid study was instrumental in the Jezerstica SHPP reaching such an advanced stage during the Project by enabling EPCG to provide technical support for the Jezerstica SHPP to the national grid;

- Assuming that 291 MW of installed SHPP capacity is required to meet the 33% renewable energy target by 2020 at a cost of USD 3.0 million per MW installed[31], the required additional investment after the completion of this Project is estimated to be USD 873 million (€ 672 million)[32]. Notwithstanding the outstanding results from this Project, there are some areas where further progress is needed to manage the scale-up phase of SHPPs to meet the 33% target of RE generation sources by 2020:

    - A strategy for disseminating Project results both domestically and regionally is required after the EOP. Recently, there have been a few national workshops to raise awareness of the Concessions Act with the most recent application of the Act being in June 2013 and the announcement of a 3rd tender with 8 watercourse concessions containing a potential of 12.3 MW for issue in July 2013. Attendees to these workshops included a wide range of stakeholders from investors to financial institutions who could be beneficial for a scaled up investment phase. In addition, grid management companies would benefit from a success story of distributed generation connections from a nearby area. Similarly, the Andrijevica pilot project is ongoing and has potential to be used as a high-profile demonstration project. An outreach strategy should incorporate the use of multi-media to adequately capture all the Project's results and lessons learned and convey the story of its success to external audiences within and outside Montenegro;
    - A capacity building strategy is required to meet the demand for an increased number of semi-skilled and skilled workers as well as plant managers for a scaled-up SHPP program to 2020 that may include more than 290 MW of SHPPs. Currently, there does not appear to be any such program in place that would train Montenegrins for SHPP jobs in Montenegro;

[31] http://jstrb.bos.rs/znas-kako/uploaded/Hydropower_Essentials-1.pdf

[32] This assumes the following: With current capacity of 868 MW, another 434 MW of SHPPs needs to be completed to meet the 33% target of energy from renewable energy sources. Concessions awarded to date include 47.1 MW of SHPPs and 96 MW of wind projects. This leaves a potential of 291 MW of SHPPs to be awarded as concessions.

- The feed-in-tariff has not been "fixed", and is currently based on variable market rates which may be an issue with financing SHPPs given that revenues cannot be forecasted with any reasonable certainty. To date, however, this does not appear to be a serious issue;
- IPPs appear to be bearing additional cost of grid connections. Though there is general agreement that EPCG will pay for the connection to the SHPP outside the SHPP facility, most IPPs have had to bear the expense of providing this grid connection to the nearest grid lines or the first point of connection. In some cases, the connection line length has been as high as 5 to 10 km. To date, however, this has not significantly impacted the investment returns;
- Four SHPP concessions were cancelled from the second tender. The reasons for the cancellations are not known other than non-compliance of tender conditions. Continuation of workshops and technical assistance to prepare concession applications with potential SHPP concessionaries is required to ensure that there is not decrease in the quality of SHPP concession applications or responses to tenders.

4.2 Recommendations

FOR THE GOVERNMENT OF MONTENEGRO:

Recommendation 1: MoE should allocate adequate resources and assistance to maintain momentum of SHPP development after the completion of the SHPD Project. For Montenegro to increase employment opportunities for its citizens during the SHPP scale-up to 2020, it needs a program to upgrade the technical education of engineers and plant managers and to upgrade a large number of semi-skilled and skilled workers to service an anticipated increased demand. A continuation or strengthening of courses and seminars on local energy and SHPP planning, design, construction and operation is required for engineers and plant workers; vocational skills in carpentry, steel construction, masonry and earthworks will be required for semi-skilled and labourer type personnel.

Recommendation 2: Use the lessons learned from this Project to accelerate development of other RE sources in Montenegro. This would include an overall strategic plan for commencing programmes in the development of biomass and solar projects. Wind power development could also be included notwithstanding the current wind power investments of 96 MW in Montenegro using the new concession tendering system from the SHPD Project as well as PPAs and other incentive regulations. The positive experience of this Project could be transferred to develop solar power, geothermal and other renewable energy sources.

Recommendation 3: Continue to remove bottlenecks to the development of SSHP concessions in Montenegro. There are two bottlenecks in the approval process of SHPs that if removed, would improve the pace of concession approvals:

- Confirming land tenure for remote SHPP sites. There are ongoing efforts by the Government of Montenegro to have a fully developed cadastral system throughout the country. The expansion of the modern cadastral system could focus on areas where there are potential SHPP concessions to be awarded. This may reduce the risk of delays in the implementation of an SHPP investment; and

- Reducing the long approval times required for responding to requests for various permits. This would include reviewing and providing comments for SHP projects applications seeking approval. With increasing familiarity of the SHPP approval process, the MoE could experience improvements in approval efficiencies with future concessions; however, the Government should sustain its efforts to continue improving its efficiency in approving SHPP concessions.

Recommendation 4: Plan for private sector investment into hydrometric data collection. With declining government budgets to obtain further hydrometric and precipitation information for other SHPP sites, the IHMS is in a difficult position of having to maintain this data for public safety as well as for investment purposes. With a number of potential SHPP investors expected to setup their own specific hydrometric stations for investment purposes, SHPP investors should be obligated to share their data with IHMS and for posting on the MoE website.

Recommendation 5: With an expected scale-up in SHPP investments excepted during the next 7 years, the Government should address its need for investment into the upgrading of its grid network to secure the safe absorption of power from various renewable energy sources. Although the grid study noted that energy from IPPs can safely and efficiently be incorporated into the grid, the "existing network needs to be reinforced with more than 200 km of 10 kV and 35 kV lines and with the installation of several new substations" to accommodate the projected number of new distributed sources at an estimated cost of USD 26 million (€20 million). EPCG has noted that distributed grid sources are located "mainly in passive grid areas where the grid is less developed," resulting in greater need for rehabilitation.

FOR UNDP:

Recommendation 6: Improve the prospects of financing availability for SHPPs. With a potential of more than USD 800 million of financing required to meet the 33% RE generation target, the Government needs to raise awareness of the financing sources and mechanisms for RE projects and to improve access to RE financing for municipalities and potential concessionaires. Assistance to municipalities may be required for them to apply for the Investment and Development Fund of Montenegro (http://www.irfcg.me) that offers low interest soft loans[33] to municipalities to support infrastructure and environmental projects, under which new SHPP projects potentially qualify. Other potential sources of RE finance that need more exposure include the Western Balkans Sustainable Energy Direct Financing Facility (WeBSEDFF), developed by the European Bank for Reconstruction and Development (EBRD)[34], Crnogorska komercijalna banka (CKB Bank), and ERSTE Bank. Private firms will also be a source of financing, notably with public-private partnerships that could be formed on the basis of LEPs.

Recommendation 7: To provide additional reassurances that SHPP projects in Montenegro will provide the desired rates of return, the MoE should obligate SHPP concessionaires to monitor and report on construction quality of SHPPs to international standards and to perform MRV functions on power generation. MoE will need to setup guidelines and framework of such monitoring and reporting in collaboration with Technical Expert Group and SHPP concessionaires to ensure the

[33] Maximum credit is € 750,000 at an attractive interest rate of 5%, and a two-year grace period on repayment
[34] RE/EE loans would be between € 2 and 6 million

minimal reporting requirements are met. SHPP concessionaires will likely outsource these services to specialized companies who will work within a framework that provides assurances that the SHPP is constructed as per designs. Such actions will provide a level of confidence to both investors and regulators in the MoE on the progress of and quality of the SHPP program.

Recommendation 8: UNDP should approach the Government of Montenegro as soon as possible with regards to assistance in implementing Recommendations 5 to 7. The CO should approach the Ministry of Economy on their current needs for promoting the SHPP program after the end of the Project. UNDP should continue the close working relationship with the Ministry of Economy that was developed during the Project, more specifically to discuss these recommendations and how UNDP can best assist the MoE to implement these recommendations.

4.3 Lessons Learned and Best Practices

Key lessons and best practices from the SHPD Project include:

- For grid-connected renewable energy projects that involve the national electricity grid, transmission and distribution issues need to be addressed up front. Often in countries where renewable energy is a new topic, issues regarding the study of the capacity of the grid and the capacity of the grid to offtake renewable energy require time and care to address. Transmission and distribution managers in these countries need time to become familiar with the variability of renewable energy generation from small power facilities, and the capacity of their grid to absorb this type of power source. This is certainly the case with SHPPs where generation from small run-of-river plants can vary considerably throughout the year;

- For projects having objectives in the area of sustainable energy policy changes, high-level government commitment and willingness is a condition for the change to actually happen;

- If there is willingness of government stakeholders to have frequent interaction with project staff, the project will be more able to deliver outcomes regarding institutional and regulatory reform. This Project has fostered such a relationship and has generated benefits of efficient delivery of the simplified tendering procedures; quick adoption of rules and regulations regarding distributed generation into the Montenegrin grid, and the quick adoption of by-laws and regulations to support the Energy Law. In comparison, there are countries where relevant government officials are not available to meet often (or at all) with project staff causing delays and in some cases non-delivery of outcomes involving institutional and regulatory reform work;

- A project that focuses on a single sector will more likely succeed in its objectives of market transformation. In the case of SHPD, GEF resources were mainly focused on the development of one renewable energy source, small hydropower. There are cases in other GEF RE projects where there were efforts to address solar plus biomass and biogas energy sources or small hydropower plus geothermal where there are higher risks that project resources cannot address development of all targeted RE sources;

- The period of time required to complete a successful market transformation project is more than 5 years. For future GEF projects, this allowance of time should be seriously considered as opposed to the standard 4-year period typical of MSPs with small budgets. This Project has been very successful with at least 5 years required to change the regulatory framework and then implement the actual market transformation with the necessary financing for the investments.

APPENDIX A – MISSION TERMS OF REFERENCE FOR PROJECT FINAL EVALUATION

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Project "Power Sector Policy Reform to promote small hydropower developments in the Republic of Montenegro"* (PIMS 3813.)

The essentials of the project to be evaluated are as follows:

Project Summary Table

Project Title:	Power Sector Policy Reform to promote small hydropower developments in the Republic of Montenegro			
GEF Project ID:	3813		*at endorsement (Million US$)*	*at completion (Million US$)*
UNDP Project ID:	00060829	GEF financing:	0,978393 USD	0,978393 USD
Country:	Montenegro	IA/EA own:	0,04	0,04
Region:	South Eastern Europe	Government:		
Focal Area:	Climate change	Other:		
FA Objectives, (OP/SP):		Total co-financing:		
Executing Agency:	UNDP	Total Project Cost:	1,018400	1,018400
Other Partners involved:	Ministry of Economy	ProDoc Signature (date project began):		31st March 2008
		(Operational) Closing Date:	Proposed: 1st May 2011	Actual: 30th June 2013

Objective and Scope

The project was designed to reduce green house gasses emissions by creating a favorable legal, regulatory and market environment and building institutional and administrative capacities to promote development of Montenegro's abundant small hydropower potential for grid-connected electricity generation. The projects objective is an increase in 15MW to 20MW of new power generating capacity in Montenegro by the close of the project. The project is expected to result in an estimated annual reduction of 20,118-26,824 tons of CO2eq by facilitating development of new small hydropower plants with total production capacity of 15-20 MW. This will be achieved by removing existing legal, regulatory, institutional and market barriers to private investments in small hydropower development in Montenegro.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

Evaluation approach and method

An overall approach and method[35] for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact,** as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence - based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to (*Podgorica, Montenegro),* including the following project sites *(Andrijevica, Bijelo Polje and Cetinje).* Interviews will be held with the following organizations and individuals at a minimum: (*Ministry of Economy, Institute for Hydro-meteorology and Seismology, EPCG-Distribution, Montenegrin Transmission Company, Ministry for Sustainable Development and Tourism, Andrijevica Municipality, Bijelo Polje Municipality, Cetinje Municipality, Project developers and Investor,etc*).

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex B of this Terms of Reference.

Evaluation Criteria & Ratings

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact.** Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

Evaluation Ratings:			
1. Monitoring and Evaluation	***rating***	**2. IA& EA Execution**	***rating***
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	**rating**	**4. Sustainability**	**rating**
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental :	
		Overall likelihood of sustainability:	
5. Catalytic role	**yes/no**		
Production of a public good			
Demonstration			
Replication			
Scaling up			

[35] For additional information on methods, see the Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 7, pg. 163

Project finance / cofinance

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants								
Loans/Concessions								
• In-kind support								
• Other								
Totals								

Mainstreaming

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

Impact

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.[36]

Conclusions, recommendations & lessons

The evaluation report must include a chapter providing a set of **conclusions**, **recommendations** and **lessons**.

Implementation arrangements

The principal responsibility for managing this evaluation resides with the UNDP CO in *Montenegro.* The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

Evaluation timeframe

The total duration of the evaluation will be 15 days according to the following plan:

Activity	Timing	Completion Date
Preparation	*3* days	*Mid April 2013*
Evaluation Mission	*5* days	*End of April 2013*
Draft Evaluation Report	*5* days	*Mid May 2013*
Final Report	*2* days	*End of May 2013(31st May 2013)*

[36] A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: ROTI Handbook 2009

Evaluation deliverables

The evaluator is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission.	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission	To project management, UNDP CO
Draft Final Report	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	Sent to CO, reviewed by RTA, PCU, GEF OFPs
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

Team Composition

The evaluation team will be composed of *1 international consultant.* The consultant shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The evaluator selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.
The International Consultant must present the following qualifications:

- University degree and minimum 10 years of experience with design, implementation and evaluation of renewable energy policies and programmes
- Knowledge of UNDP and GEF
- Technical knowledge in the targeted focal area(s)
- Recent experience with result-based monitoring evaluation methodologies;
- Experience applying participatory monitoring approaches;
- Recent knowledge of the GEF Monitoring and Evaluation Policy is an asset;
- Recent knowledge of UNDP's results-based evaluation policies and procedures an asset;
- Demonstrable analytical skills;
- Experience with multilateral or bilateral supported similar projects;
- English communication skills (oral, aural, written and presentation).

Evaluator Ethics

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluations'

Payment modalities and specifications

%	Milestone
20%	Following desk review and mission to Montenegro completed and interviews conducted
30%	Following submission and approval of the 1ST draft terminal evaluation report
50%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

Application process

Applicants are requested to apply online (indicate the site, such as http://jobs.undp.org, consultancy.me@undp.org.) by (date). Individual consultants are invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English with indication of the e - mail and phone contact. Shortlisted candidates will be requested to submit a price offer indicating the total cost of the assignment (including daily fee, per diem and travel costs).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

Annex A: Project Logical Framework

Project Strategy	Objectively verifiable indicators				
Goal	To reduce emission of greenhouse gases (GHG) by promoting the development of small hydropower resources in the Republic of Montenegro.				
Objectives and outcomes	**Indicator**	Baseline		**Sources of verification**	**Risks and Assumptions**
Objective of the project : An increase in utilization of small hydro potential in Montenegro for power generation	– New MW of power generated from small hydro sources	1.1% or of domestic electricity generation or 9MW	5% or additional 15-20 MW	Data on domestic electricity production	Favorable investment climate and political stability in Montenegro will sustain
Outcome 1 policies and regulations promoting IPP investment in small hydropower concessions	– Simplified tendering procedures – Simplified procedures for authorization, licensing, permitting and – Incentive based feed in tariff used	– No tendering/ authorization procedures for SHPPs; – No rules/tariff for SHPPs connection to the grid – Two fees for SHHP: concession and water; – No financial incentives for investments in SHPP	– SHPP tendering and concession granting procedures – Special rules for SHPP connection to the grid – Single fee for SHPP – Feed in tariff	New and amended legal and regulatory document, including Laws on Energy, Public Works, EIA	Continuous government's commitment to SHHP development and implementation of *EU "acquis communautaire"*
Outcome 2 IPP investment decisions in Small hydro power supported	– Data answers pre-investment questions of investors	- No reliable and up-to-date information on existing/potential SHPP locations	- National cadastre of small hydropower plants;	Min. of Economy investor Query log	Hydrological potential is sufficient to identify at least five potential SHHP location
Outcome 3 Small hydropower IPP concessions operational	– Competitive IPP concessions awarded for 15MW to 20 MW of new generating capacity utilizing incentive based tariffs	– Incentive based tariffs not used	Incentive based tariffs used, and terms/ conditions competitive compared to EU countries	Ministry of Economy and Energy Regulatory Agency (web-site)	Governmental has resources to sustain operation of CHUSHP; Interest of IPPs in SHHP development
Outcome 4 Project results and lessons learnt summarized, documented, presented and disseminated *Note: including project management costs, M&E*	– Procedures and models adapted based on experience – Tenders prepared for second phase of new sites	– No Tender documents for second phase	Tender documents for second phase	Project office	M&E of project activities is carefully planned, covers all project components and is conducted on a continuous basis

Annex B: List of Documents to be reviewed by the evaluators

1. Project document: “Power Sector Policy Reform to promote Small Hydropower Developments in Montenegro”
2. Project reports – including Annual APR/PIR, project budget revisions, progress reports,
3. Mid-Term Evaluation Report: Evaluation of UNDP/GEF Project: Montenegro – Power Sector Policy Reform to Support Small Hydropower Development
4. Project outputs: laws and bylaws, studies, reports, maps, etc
5. National strategic and legal documents,
6. and any other materials that the evaluator considers useful for this evidence-based assessment.

Annex C: Evaluation Questions

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
•	•	•	•
•	•	•	•
•	•	•	•
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
•	•	•	•
•	•	•	•
•		•	•
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
•	•	•	•
•	•	•	•
•	•	•	•
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
•	•	•	•
•	•	•	•
•	•	•	•
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced CO2 emissions and/or improved ecological status?			
•	•	•	•
•	•	•	•

Annex D: Rating Scales

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	***Sustainability ratings:***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML):moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1.. Not relevant (NR) ***Impact Ratings:*** 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A		

Annex E: Evaluation Consultant Code of Conduct and Agreement Form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
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6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[37]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: _____

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *place* on *date*

Signature: _____

[37] www.unevaluation.org/unegcodeofconduct

Annex F: Evaluation Report Outline[38]

i. Opening page:
- Title of UNDP supported GEF financed project
- UNDP and GEF project ID#s.
- Evaluation time frame and date of evaluation report
- Region and countries included in the project
- GEF Operational Program/Strategic Program
- Implementing Partner and other project partners
- Evaluation team members
- Acknowledgements

ii. Executive Summary
- Project Summary Table
- Project Description (brief)
- Evaluation Rating Table
- Summary of conclusions, recommendations and lessons

iii. Acronyms and Abbreviations
(See: UNDP Editorial Manual[39])

1. Introduction
- Purpose of the evaluation
- Scope & Methodology
- Structure of the evaluation report

2. Project description and development context
- Project start and duration
- Problems that the project sought to address
- Immediate and development objectives of the project
- Baseline Indicators established
- Main stakeholders
- Expected Results

3. Findings
(In addition to a descriptive assessment, all criteria marked with (*) must be rated[40])

3.1 Project Design / Formulation
- Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project design
- Planned stakeholder participation
- Replication approach
- UNDP comparative advantage
- Linkages between project and other interventions within the sector
- Management arrangements

3.2 Project Implementation
- Adaptive management (changes to the project design and project outputs during implementation)
- Partnership arrangements (with relevant stakeholders involved in the country/region)
- Feedback from M&E activities used for adaptive management
- Project Finance:
- Monitoring and evaluation: design at entry and implementation (*)
- UNDP and Implementing Partner implementation / execution (*) coordination, and operational issues

3.3 Project Results
- Overall results (attainment of objectives) (*)
- Relevance(*)
- Effectiveness & Efficiency (*)
- Country ownership
- Mainstreaming
- Sustainability (*)

[38] The Report length should not exceed *40* pages in total (not including annexes).
[39] UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008
[40] Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

- Impact

4. Conclusions, Recommendations & Lessons
   - Corrective actions for the design, implementation, monitoring and evaluation of the project
   - Actions to follow up or reinforce initial benefits from the project
   - Proposals for future directions underlining main objectives
   - Best and worst practices in addressing issues relating to relevance, performance and success
5. Annexes
   - ToR
   - Itinerary
   - List of persons interviewed
   - Summary of field visits
   - List of documents reviewed
   - Evaluation Question Matrix
   - Questionnaire used and summary of results
   - Evaluation Consultant Agreement Form

APPENDIX B – MISSION ITINERARY (FOR JUNE 6-13, 2013)

#	Activity	Stakeholder involved	Place
***June 6, 2013** (Thursday)*			
	Arrival of Mr Roland Wong		Podgorica
1	Briefing with SHPD Project Management	UNDP	Podgorica
2	Meeting with UNDP-GEF Project, "Towards Carbon-Neutral Tourism"	UNDP	Podgorica
***June 7, 2013** (Friday)*			
3	Meeting with Institute for Hydrometeorology and Seismology	Hydrometeorological Institute	Podgorica
4	Meeting with UNDP Montenegro Resident Representative	UNDP	Podgorica
5	Meeting with Office of Renewable Energy Sources	Ministry of Economy	Podgorica
***June 8, 2013** (Saturday)*			
	Preparation of the Report		
***June 9, 2013** (Sunday)*			
	Preparation of the Report		
***June 10, 2013** (Monday)*			
6	Meeting with Centinje on Local Energy Plans	Municipality of Centinje	Cetinje
7	Meeting with SHPP concessionaire and PSC Member	Kroling doo	Podgorica
8	Skype call with SHPP Project developer	Private Sector	Podgorica
***June 11, 2013** (Tuesday)*			
9	Mission de-briefing with UNDP	UNDP	Podgorica
***June 12, 2013** (Wednesday)*			
	Preparation of the Report		
***June 13, 2013** (Thursday)*			
	Departure of Roland Wong from Podgorica		

Skype call on May 20, 2013 with Mr. James Vener, SHPD Project Consultant

Total number of meetings conducted: 10

APPENDIX C – LIST OF PERSONS INTERVIEWED

This is a listing of persons contacted in Montenegro (unless otherwise noted) during the Final Evaluation Period only. The Evaluators regret any omissions to this list.

1. Mr. Ratislav Vrbensky, Resident Representative, UNDP Montenegro;
2. Mrs Milica Begovic Radojevic, Economy and Environment Team Leader, UNDP Montenegro;
3. Ms. Snezana Marstijepovic , SHPD Project Manager, UNDP Montenegro;
4. Ms. Jelena Janjusevic, Project Manager and LEP and Conceptual Design for Andrijevica, “Towards Carbon Neutral Tourism”, UNDP Montenegro;
5. Ms. Marina Olshanskaya, Regional Technical Advisor, UNDP-GEF;
6. Mr. James Vener, Independent Consultant for SHPD Project;
7. Mrs Marija Vujadinovic, Office of Renewable Energy Sources (RES), Ministry of Economy;
8. Mr Luka Mitrovic, Institute for Hydrometeorology and Seismology;
9. Ms Ivana Pavicevic, Institute for Hydrometeorology and Seismology;
10. Mr. Ivan Vukmirovic, Secretary of Utilities and Transport, Cetinje Municipality;
11. Mr. Jovo Stojanovic, Secretariat for Utilities and Transport, Cetinje Municipality;
12. Mr. Aleksandar Dajkovic, Secretariat for Spatial Planning and Environmental Protection, Cetinje Municipality;
13. Mr. Sasa Saveljic, Director of Kroling doo, SHPP Project Developer and Concessionaire;
14. Mr. Dusko Rakocevic, Project Designer of SHPP projects;

APPENDIX D – LIST OF DOCUMENTS REVIEWED

1. UNDP-GEF Project document: "Power Sector Policy Reform to Promote Small Hydropower Developments in Montenegro"

2. UNDP-GEF Project reports including APRs and PIRs

3. Mid-Term Evaluation Report: Evaluation of UNDP/GEF Project: Montenegro – Power Sector Policy Reform to Support Small Hydropower Development

4. UNDP, "Stakeholder Consultation Report - Summarizing Project Achievements. Power Sector Policy Reform to Promote Small Hydropower Development in the Republic of Montenegro", 2013

5. UNDP/GEF, "Transforming On-Grid Renewable Energy Markets: A Review of UNDP-GEF Support for Feed-in Tariffs and Related Price and Market-Access Instruments", 2012

6. UNDP, "Fossil Fuel Subsidies in the Western Balkans", December 2011

7. UNDP, "Distributed Source Connection and Operation in the Electric Power System of Montenegro, Study No. 2121" by Elektroinstitut Milan Vidmar, September 2012

8. UNDP, "Model Forme Lokalnog Energetskog Plana (Model Local Energy Plan)" (www.oie-res.me/uploads/Model%20forme%20LEP.pdf), April 4, 2013

9. UNDP, "Republic of Montenegro Detailed Water Sector Assessment and Water Cadastre Proposals, Study 1025" by www.waterconsultant.com, February 2013

10. Morvaj, Zoran, "Preparation of a Pilot Project on Usage of Renewable Energy Sources to Support Green Economic Growth through Construction of Mini HPP at the Main Water Supply System of Andrijevica Municipality", 2012

11. Montenegro Ministry of Economy, "Energy Development Strategy of Montenegro by 2025", 2007

12. Montenegro Ministry of Economy, "Concessionary Act for Concession Award to Exploit Water Streams for Construction of Small Hydropower Plants in Montenegro", June 2013

13. Montenegro Ministry of Economy, "Rulebook on Criteria for Issuance of Energy License, Content of a Request and Registry of Energy Licenses", 2010

14. Montenegro Energy Law, 2010

15. Government of Montenegro, "Decree on the Tariff System for Determining the Incentive Prices for Electricity Produced from Renewable Energy Sources and High Efficient Cogeneration", September 29, 2011

16. Energy Community Secretariat, "Annual Report on the Implementation of the Acquis under the Treaty Establishing the Energy Community", 2012

APPENDIX E – COMPLETED TRACKING TOOL

Tracking Tool for Climate Change Mitigation Projects (For Terminal Evaluation)

Special Notes: reporting on lifetime emissions avoided

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made **during the project's supervised implementation period**, totaled over the respective lifetime of the investments.
Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.
Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.
Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects
Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.

General Data	Results at Terminal Evaluation	Notes
Project Title	Power sector policy reform to promote small hydropower development in the Republic of Montenegro	
GEF ID	3256	
Agency Project ID	3813	
Country	Montenegro	
Region	ECA	
GEF Agency	UNDP Montenegro	
Date of Council/CEO Approval	January 28, 2008	Month DD, YYYY (e.g., May 12, 2010)
GEF Grant (US$)	978,393	
Date of submission of the tracking tool	June 30, 2013	Month DD, YYYY (e.g., May 12, 2010)
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0
Is the project linked to carbon finance?	0	Yes = 1, No = 0
Cumulative cofinancing realized (US$)	3,470,000	
Cumulative additional resources mobilized (US$)	43,530,000	additional resources means beyond the cofinancing committed at CEO endorsement

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production	0	Yes = 1, No = 0
On-grid electricity production	1	Yes = 1, No = 0
Off-grid electricity production	0	Yes = 1, No = 0
Policy and regulatory framework	5	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	5	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind		MW
Biomass		MW el (for electricity production)
Biomass		MW th (for thermal energy production)
Geothermal		MW el (for electricity production)
Geothermal		MW th (for thermal energy production)
Hydro	47.31	MW
Photovoltaic (solar lighting included)		MW
Solar thermal heat (heating, water, cooling, process)		MW th (for thermal energy production, 1m² = 0.7kW)
Solar thermal power		MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)		MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)		
Wind		MWh
Biomass		MWh el (for electricity production)
Biomass		MWh th (for thermal energy production)
Geothermal		MWh el (for electricity production)
Geothermal		MWh th (for thermal energy production)
Hydro	910,450.00	MWh
Photovoltaic (solar lighting included)		MWh
Solar thermal heat (heating, water, cooling, process)		MWh th (for thermal energy production)
Solar thermal power		MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)		MWh
Lifetime direct GHG emissions avoided		tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)	-	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	10,640,000	tonnes CO2eq (see Special Notes above)

APPENDIX F – LOGICAL FRAMEWORK MATRIX

Project Strategy	Objectively verifiable indicators				
Goal	To reduce emission of greenhouse gases (GHG) by promoting the development of small hydropower resources in the Republic of Montenegro.				
Objectives and outcomes	**Indicator**	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Objective of the project : An increase in utilization of small hydro potential in Montenegro for power generation	– New MW of power generated from small hydro sources	1.1% or of domestic electricity generation or 9MW	5% or additional 15-20 MW	Data on domestic electricity production	Favorable investment climate and political stability in Montenegro will sustain
Outcome 1 Policies and regulations promoting IPP investment in small hydropower concessions	– Simplified tendering procedures – Simplified procedures for authorization, licensing, permitting and – Incentive based feed in tariff used	– No tendering/ authorization procedures for SHPPs; – No rules/tariff for SHPPs connection to the grid – Two fees for SHHP: concession and water; – No financial incentives for investments in SHPP	– SHPP tendering and concession granting procedures – Special rules for SHPP connection to the grid – Single fee for SHPP – Feed in tariff	New and amended legal and regulatory document, including Laws on Energy, Public Works, EIA	Continuous government's commitment to SHHP development and implementation of *EU "acquis communautaire"*
Outcome 2 IPP investment decisions in Small hydro power supported	– Data answers pre-investment questions of investors	- No reliable and up-to-date information on existing/potential SHPP locations	- National cadastre of small hydropower plants;	Min. of Economy investor Query log	Hydrological potential is sufficient to identify at least five potential SHHP location
Outcome 3 Small hydropower IPP concessions operational	– Competitive IPP concessions awarded for 15MW to 20 MW of new generating capacity utilizing incentive based tariffs	– Incentive based tariffs not used	Incentive based tariffs used, and terms/ conditions competitive compared to EU countries	Ministry of Economy and Energy Regulatory Agency (web-site)	Governmental has resources to sustain operation of CHUSHP; Interest of IPPs in SHHP development
Outcome 4 Project results and lessons learnt summarized, documented, presented and disseminated *Note: including project management costs, M&E*	– Procedures and models adapted based on experience – Tenders prepared for second phase of new sites	– No Tender documents fro second phase	Tender documents for second phase	Project office	M&E of project activities is carefully planned, covers all project components and is conducted on a continuous basis

KEY PROJECT INDICATORS

INDICATOR	DESCRIPTION	ESTIMATION
1. Tons of CO2 avoided		
1.1. Project Direct	The project is expected to support the development of new small hydropower plants with total production capacity of 15-20 MW. It is unrealistic to expect the new SHPP to be operating by the close of this project, i.e. after 4 years.	0
1.2. Post Project Direct	Investments supported by mechanisms that continue operating after the end of the project. Calculated emissions reductions are based on the following assumptions: a) GHG emissions over the 20 year life b) New small hydro capacity 15MW-20MW c) Operating capacity 2800hr/year (42,000MWh/year to 56,000MWh/year). d) Operating margin 0.479 kg/kWh	CO2eq/year reductions = Operating capacity [MWh/year] x Operating margin [0.479 kg/kWh] Annual emission reductions of **20,118 to 26,824 CO2eq/year.**
1.3. Indirect	The government's SHPP policy is to support 15-20 MW of new SHPP. The project assumes new and additional capacity beyond this will not happen without additional feed in tariff subsidies. The question then becomes to what extent the government will be prepared to extend its small-hydro development target beyond the current target of 15-20MW. Montenegro has 232 MW of potential small-hydro generating capacity. After deducting the 20MW targeted under the current strategy, this leaves 212MW of potential generating capacity. There is not enough data on all sites to know if they are all financially attractive. To be conservative the calculation assumes that the government will add another 42 MW in the 10 years following project closure. Using the top down approach we could say the GEF will have a modest and substantial causality factor (CF) on additional expansion of the potential 42 MW of SHPP.	CO_2e. reductions = GEF causality factor x MW x Operating capacity x Operating margin x years of operation **tCO_2e. reductions** = 0.4 x 42.4 MW x 2800hr/yearx 0.479kg/kWh x 20 years= **454,932 tCO_2e.**
2. Adoption of on-grid renewable policies	Several legal acts (procedures) will be adopted to simplify the procedure for a) tendering b) authorization , licensing and permitting c) incentives based feed-in tariff Legal acts identified in the Action Plan of the Small Hydropower Plant Development Strategy for Montenegro (2006) will be analyzed in the context of the project's objectives.	New and amended legal and regulatory documents adopted, including Laws on Energy, Public works and EIA. **a)** SHPP tendering and concession granting procedures **b)** Special rules for SHPP connection to the grid **c)** Single fee for SHPP **d)** Feed in tariff.
3. Electricity Generation from the renewable sources	Montenegro is currently generating 1.1% (9MW) of electricity from SHPP (Baseline). With realization of the project additional 5% of electricity generation from SHPP or 15-20MW.	Installed capacity of 15-20MW.

APPENDIX G– EVALUATION CONSULTANT AGREEMENT FORM

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1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[53]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Roland Wong

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Surrey, BC , Canada* on *June 28, 2013*

Signature: 

[53] www.unevaluation.org/unegcodeofconduct