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**United Nations Development Programme**  
**Government of the Republic of Montenegro**

**Evaluation of UNDP/GEF Project: Montenegro – Power Sector  
Policy Reform to Support Small Hydropower Development**  
(Project ID: 3813)

**Mid-Term Evaluation Report**

**Mission Members:**

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## ABBREVIATIONS

CDM	Clean Development Mechanism
CDR	Combined Delivery Reports
CO	Country Office
DNA	Designated National Authority
EBRD	European Bank for Reconstruction and Development
EPA	Environmental Protection Agency Montenegro (under the Ministry of Sustainable Development and Tourism)
EPCG	Elektroprivreda Crne Gore AD Niksic (National Electric Power Company of Montenegro)
ERA	Energy Regulatory Agency (under the Ministry of Economy)
FI	Financial Intermediate
FIT	Feed-in tariff
GEF	Global Environment Facility
GHG	Greenhouse Gas
GoM	Government of Montenegro
HMI	Hydrometeorological Institute in Montenegro
HPP	Hydropower Plant
IPPs	Independent Power Producers
KfW	Kreditanstalt für Wiederaufbau / German Bank for Reconstruction
kWh	Kilowatthour
log-frame	logical framework matrix
M&E	Monitoring and Evaluation
MoE	Ministry of Economy
MoF	Ministry of Finance
MoSDT	Ministry of Sustainable Development and Tourism
MoSP	Ministry of Spatial Planning
MHPP	Mini or Micro Hydropower Plants (<1.0 MW)
MTE	Mid-Term Evaluation
MW	Megawatt
MWh	Megawatt hour
NGO	Non-governmental Organization
Prodoc	UNDP Project Document for “Montenegro – Power Sector Policy Reform to Promote Small Hydro Power Projects”
PAR	Project Annual Report
PIR	Project Implementation Reports
PMU	Project Management Unit
PSC	Project Steering Committee
RE	Renewable Energy
SHPP	Small Hydropower Plant (<10MW)
SME	Small and Medium Size Enterprise
TA	Technical Assistance
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development
UNFCCC	United Nations Framework Convention on Climate Change

## EXECUTIVE SUMMARY

### Brief Description of the Project

In May 2006, Montenegro became the newest independent state in the world and the newest UN member. In an effort to accelerate its accession into the EU, Montenegro needed to consolidate its framework for internal economic development that included strategies to reduce its dependence on energy imports. The design of this GEF project took place between 2006 and 2007 when the Government of Montenegro (GoM) adopted the Small Hydro Development Strategy in April 2006 that sets a target of 15 to 20 MW of new generating capacity from small hydropower plants (SHPPs) by 2015. In June 2006, the Government of Montenegro (GoM) sought international assistance to guide their SHPP development strategy and initiated discussions with UNDP on the development of this project: “Montenegro: Power Sector Reform to Promote Small Hydropower Development”, herein referred to as the “Project”.

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 micro hydropower plants ranging from 5 kw to 55 kW.

For Montenegro, there was no urgency to develop additional power generation capacity until 2005, when the demand for power grew to 2,077 GWh from its 1994 consumption of 505 GWh. Montenegro experienced this growth in electricity demand from the residential sector (instead of the industrial sector) that is in part due to a heavily subsidized tariff of 2.2 € cents/ kWh and a growth in housing. As a consequence, households in Montenegro were using electricity less efficiently for space heating and hot water. With a power deficit of 1,800 GWh in 2005, the country has had to import power from Serbia; over the past few years, these imports have met 33% of all consumption needs, albeit at a higher cost.

The GoM during its 2006 drafting of its energy development strategy examined a number of options for new generating capacity. Their study identified a number of options that included 3 large hydro power plants at a UNESCO site, a 210 MW extension to an existing coal power plant and a 357 MW HP site on the Moraca River. These sites are 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 GDP. SHPP development will also be able to supply power to the many areas of Montenegro that are currently not serviced by the national power grid; these are mainly rural areas where most are living below the poverty line.

To augment its Small Hydro Development Strategy of increasing domestic power generation, the GoM adopted a new Energy Strategy in December 2007 by publishing a tender for the design and construction of small mini hydro power plants at over forty locations.

The key barriers to implementation of SHPP investments in Montenegro are capacity and institutional barriers:

- 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 (aside from big centralized hydro power plants) and to ensure 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 Project development **goal** is to reduce GHG emissions by creating a favorable legal, regulatory and market environment and building institutional and administrative capacities to promote development of SHPPs in Montenegro.

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

- Institutional, legal and price conditions to attract investment in small hydro-power generation;
- IPP investment decisions in small hydro power are supported with the necessary information;
- Small hydropower IPP concessions are operational; and
- SHPP results and lessons learned are summarized and documented and made publicly available.

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 2012 completion of this Project.

This Project is a DEX Project where the primary stakeholder is the Ministry of Economy (MoE), which has the overall responsibility of attracting and managing SHPPs in Montenegro. Key MoE agencies involved with this Project include the National Electric Power Company of Montenegro (EPCG), the Department for Renewable Energy Sources (RES), and the Energy Regulatory Agency (ERA). Other GoM ministries include the Ministry of Sustainable Development and Tourism (MoSDT) (under which there is the the Environmental Protection Agency of Montenegro (EPA) and the Department of Spatial Planning), the Hydrometeorological Institute (HMI), and the 21 local municipal governments that are responsible for various municipal services.

## Context and Purpose of the Evaluation

The purpose of the mid-term evaluation (MTE) for this Project is to evaluate the progress towards attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements. The

MTE is to serve as an agent of change and play a critical role in supporting accountability. As such, the MTE will serve to:

- Strengthen the adaptive management and monitoring functions of the Project;
- Enhance the likelihood of achievement of Project and GEF objectives through analyzing project strengths and weaknesses and suggesting measures for improvement;
- Enhance organizational and development learning;
- Enable informed decision-making;
- Create the basis for replication of successful project outcomes achieved to date;
- Identify and validate proposed changes to the Prodoc to ensure achievement of all project objectives; and
- Assess whether it is possible to achieve the objectives in the given timeframe, taking into consideration the speed, at which the project is proceeding.

### Evaluation of Project

The overall rating of the Project is Satisfactory (S), mainly due to Project achieving most of its targets within a 30-month period of a project design of 48 months. The Project has made significant contributions towards the creation of a favorable regulatory environment for developing SHPP investments. This includes assistance on:

- formulation of a new energy law;
- by-laws on tariffs for renewable energy;
- drafting a methodology for calculating feed-in tariffs (FITs);
- guidelines for SHPP developers on technical and financial aspects.

The Project has assisted the government in providing the necessary infrastructure and an information base to support SHPP investment decisions by:

- providing web-based information for SHPP developers;
- procuring and installing of hydrometric equipment for the Hydrometeorological Institute for collection of data at potential SHPP sites;
- producing electronic maps in the vicinity of SHPP sites; and
- Establishing and coordinating a technical review committee for proper evaluation of SHPP concession proposals.

The Project has also been instrumental in facilitating the operationalization of SHPP concessions through:

- raising awareness on the strong linkages between “climate change friendly settlements” and the positive economic influence of SHPPs in rural areas;
- preparation of a pilot feasibility study for Andrijevic area as a climate change friendly settlement that enhances the SHPP investment opportunity;
- strengthening the tendering process for SHPP concessions in line with international practices;

The main output, however, from the Project thus far is a strengthened tendering process for SHPP concessions in line with international practices, as illustrated in Figure 1.

Delays were encountered during the development of the SHPP tendering process, though many of these delays were beyond the control of the Project. These included:

- difficulties presenting SHPP plans to the Department of Spatial Planning in a format consistent with past project submissions;
- delays in resolving issues related to offtaking of SHPP power to the national grid;
- longer time for processing and public consultation of the first strategic environmental assessments;
- reaching consensus on FIT calculation;
- time required to complete the procurement process of hydrological equipment and the additional time required to collect required hydrological data; and
- additional efforts required for preparing proper documentation for government approval of construction permits.

Prospects for **sustainability** and **replication** are excellent based on:

- Strong government policies supportive of SHPP investments;
- The number of international and domestic investors who are in Montenegro seeking SHPP opportunities; and
- GoM adoption of Project outputs that streamlined approvals for SHPP concessions and the scheduled issuance of construction permits for two SHPP sites, Bistrica A (10 MW) and Bistrica B (7.5 MW) by late 2011 under the new tendering process.

## Recommendations

The remaining resources of the Project should be used to:

- Complete the tendered study on transmission and distribution rules for connecting SHPPs to the grid and integrate the findings with awarded concessions;
- Prepare and post on the Project website an “investor-friendly” guide to developing hydropower projects that includes the flowchart on Figure 1 and linkages to other guidelines and instructions for SHPP developers;
- Monitor designs and construction activities of the 2 SHPPs where construction permits have been issued. This is important to demonstrate that construction of SHPPs can be well managed for quality, SHPP projects can be implemented on time and on budget, and SHPPs concessions can be operationalized to generate power and provide a decent rate of return for its investors and creditors;
- Explore the use of remaining Project resources to develop micro and mini hydropower projects (MHPPs) that are less than 1.0 MW. There are potentially several benefits to this:
  - shorter development time for MHPPs where tenders are not required;



- increase opportunities for the Project to add to its co-financing with EBRD who are funding development of an MHPP registry;
  - increased opportunity for synergies with two other GEF projects in Montenegro<sup>1</sup> where impact of renewable energy projects can reduce demand for biomass in a protected area as a primary energy source;
  - strong linkage of such activities to poverty alleviation in rural areas.
- Should the Project pursue development of MHPPs, the Project will have to identify sufficient resources to resolve critical issues including:
    - identification of suitable mini, micro and pico HPP sites;
    - facilitating collaboration with host and beneficiary communities;
    - assessing local capacity to source equipment or fabricate equipment from the local communities to reduce MHPP costs;
    - formulation of a sustainable business model that includes the sourcing of capital finance for MHPP projects. Based on global experience in micro, mini and pico-HPP development, the Project will need to leverage soft funds and grants that tie into SME development or livelihood development. This may include soft or grant financing from the two other Montenegrin GEF projects on biodiversity, EBRD and climate change funds from promotional banks such as KfW;
    - clear roles and responsibilities of various actors in the proposed MHPP program;
  - If the Project adopts approaches to the development of an MHPP development program, the Project terminal date should be extended to 2013 to provide sufficient time to start-up the MHPP program.

## 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. T&D 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. The Project is realizing the benefits of such a relationship between Montenegrin officials and Project staff. In comparison, there are countries where relevant government officials are not available to meet often with project staff causing delays and in some cases non-delivery of

<sup>1</sup> “Catalysing Financial Sustainability of the Protected Areas System” (GEF Project 3947), and “Strengthening the Sustainability of the Protected Areas System for the republic of Montenegro: (GEF Project 3688).

outcomes with project components involving institutional and regulatory reform work.

## 1. INTRODUCTION

This report summarizes the findings of the Mid-Term Evaluation Mission conducted during June 13-20, 2011 for “Power Sector Reform to Promote Small Hydropower Development in the Republic of Montenegro” (herein referred to as the “Project”) implemented by the United Nations Development Program (UNDP), PIMS 3813 and with financing support provided by the Global Environment Facility (GEF). 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 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 completion date of May 2012.

### 1.1 Background

In May 2006, Montenegro became the newest independent state in the world and the newest UN member. This move was followed with an intense period of establishing multi- and bilateral relations, accelerating the process of EU integration, and consolidating a framework for internal economic development for the young state. This framework also included strategies to reduce the country's dependence on energy imports. The design of this Project took place between 2006 and 2007 when the Government of Montenegro (GoM) adopted a Small Hydro Development Strategy in April 2006 viewed as a politically acceptable way in which to reduce its dependence on energy imports. The Strategy sets a target of 15 to 20 MW of new generating capacity from SHPPs by 2015. The Government of Montenegro (GoM) sought international assistance to guide this SHPP development strategy and initiated discussions with UNDP on the development of this Project in June 2006.

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. These three power plants were built between 1977 and 1981. 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. Since the commencement of this project in 2008, no new power plants have been commissioned in Montenegro.

For Montenegro, there has been no urgency to develop additional power generation capacity until 2005 when the demand for power grew to 2,077 GWh from its 1994 consumption of 505 GWh. Montenegro experienced this growth in electricity demand from the residential sector (instead of the industrial sector) due in part due to a heavily subsidized tariff of 2.2 € cents/kWh and a growth in housing. As a consequence, households in Montenegro were using electricity less efficiently for space heating and hot water.

With the power deficit reaching 1,800 GWh in 2005, the country has had to import power from Serbia; over the past few years, these imports have met 33% of all consumption needs, albeit at a higher cost. In 2006, the average domestic cost of generation was € 2.65 cents/kWh, while the imported price was € 4.2 cents/kWh. To augment its Small Hydro Development Strategy of increasing domestic power generation, the GoM adopted a new Energy Strategy in

December 2007 by publishing a tender for the design and construction of small mini hydro power plants on over forty locations.

### 1.1.1 Rationale for Developing SHPP in Montenegro

GoM during its drafting of its energy development strategy examined a number of options for new generating capacity. An EPGC study<sup>2</sup> identified a number of options that included:

- 3 large hydro power plants at a UNESCO site and upstream of Serbian hydro-power facilities. These sites were not likely to be developed in the short-term due to strong public opinion against any development at a UNESCO site, and the slow political process in dealing with trans-border issues with Serbia;
- a 210 MW extension to the existing coal power plant and a 357 MW site on the Moraca River. The timeline for developing these projects, however, will not provide the energy independence that Montenegro seeks in its strategies;
- development of small hydro projects where there is less political resistance and where small hydro power production is more compatible with an economy where the high-growth tourism industry contributes 15% of GDP. The GoM's "Guidelines for Development and Construction of Small Hydropower Plants in Montenegro" (2000) identifies 70 potential locations for SHPP construction with a total estimated generating capacity of 232 MW, or 644 GWh per year<sup>3</sup>.

Another reason for SHPP development is to supply power to the many areas of Montenegro that are currently not serviced by the national power grid; these are mainly rural areas where most are living below the poverty line. To this day, the GoM has demonstrated that the development of SHPPs is a crucial priority. This Project has provided changes to the policy regime that has raised the interest of various actors to develop the country's renewable energy sector.

The key barriers to implementation of SHPP investments and, correspondingly to the implementation of similar projects nationwide are related to *capacity 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 Project design of 2006 consisted of the removal of legal, regulatory, and awareness barriers to SHPP development in Montenegro.

<sup>2</sup> The EPCG Study *Construction of New Electric Power Sources*

<sup>3</sup> Measurements of the hydrological regime suggest on average these 70 sites would be operating 31.7% of the time.

### 1.1.2 Institutional Arrangements of the Montenegro Power Sector

Government agencies in Montenegro involved with development of SHPPs includes:

- Ministry of Economy (MoE) that has the overall responsibility of attracting and managing SHPPs in Montenegro. Agencies under the MoE includes:
  - Department for Renewable Energy Sources (RES). This Project's primary contacts with the GoM are through the RES who promote SHPP investments;
  - National Electric Power Company of Montenegro (EPCG) that is in the process of de-bundling of its activities into distribution and generation companies by the end of 2011. EPCG will continue its role in managing energy supplies to meet consumer electricity demand;
  - Energy Regulatory Agency (ERA). This agency regulates the balance between wholesale and retail electricity tariffs;
- Ministry of Sustainable Development and Tourism (MoSDT) that includes:
  - the Environmental Protection Agency of Montenegro (EPA) responsible for environmental policy and enforcement;
  - the Department of Spatial Planning that enforces legalities related to land usage.
- The Hydrometeorological Institute (HMI) responsible for managing and monitoring surface and groundwater resources;
- Local municipal governments that are responsible for various municipal services within their jurisdictions. Montenegro consists of 21 municipalities.

## 1.2 Project Goals, Objectives and Expected Results

The project development **goal** 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.

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

- Institutional, legal and price conditions to attract investment in small hydro-power generation;
- IPP investment decisions in small hydro power are supported with the necessary information;
- Small hydropower IPP concessions are operational; and
- SHPP results and lessons learned are summarized and documented and made publicly available.

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 2 provides more detail on the achievements to date on the Project's outcomes and outputs.

## 1.3 Mid-Term Evaluation

### 1.3.1 Purpose of the Evaluation

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

- Strengthen the adaptive management and monitoring functions of the Project;
- Enhance the likelihood of achievement of Project and GEF objectives through analyzing project strengths and weaknesses and suggesting measures for improvement;
- Enhance organizational and development learning;
- Enable informed decision-making;
- Create the basis for replication of successful project outcomes achieved to date;
- Identify and validate proposed changes to the Prodoc to ensure achievement of all project objectives; and
- Assess whether it is possible to achieve the objectives in the given timeframe, taking into consideration the speed, at which the project is proceeding.

In accordance with UNDP/GEF monitoring and evaluation (M&E) policies and procedures, all projects with long implementation periods (e.g. over 5 or 6 years) are strongly encouraged to conduct mid-term evaluations. In addition to providing an independent in-depth review of implementation progress, this type of evaluation is intending to be responsive to GEF Council decisions on transparency and better access of information during implementation. MTEs are intended to identify potential project design problems, assess progress towards the achievement of objectives, identify and document lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects), and to make recommendations regarding specific actions that might be taken to improve the project. It is expected to serve as a means of validating or filling the gaps in the initial assessment of relevance, effectiveness and efficiency obtained from monitoring. The MTE provides the opportunity to assess early signs of project success or failure and prompt necessary adjustments.

For these reasons, an evaluation mission was fielded to Montenegro from June 13-20, 2011 for the MTE of this UNDP-GEF Project.

### 1.3.2 Key Issues to be Addressed

Key issues to be addressed on this MTE include:

- The appropriateness of the project concept and design in the context of the current events in Montenegro;
- Implementation of the Project in the context of effectiveness and efficiency in the delivery of its activities; and

- Project impacts based on current outputs and outcomes and the likelihood of sustaining project results.

Outputs from this MTE will be used to chart future directions on this Project.

### **1.3.3 Evaluation Methodology and Structure of the Evaluation**

The methodology adopted for this evaluation includes:

- Review of project documentation (i.e. project documents, APRs/PIRs, inception meeting minutes) and other pertinent background information;
- Interviews with key project personnel including the Project Manager, past project personnel, project consultants, and relevant UNDP staff;
- Interview with relevant stakeholders from Government (e.g. Ministry of Economy) and donors (e.g. GIZ); and
- Field visits to selected project sites and interviews with beneficiaries.

A full list of documents reviewed and people interviewed is given in Annex B. A detailed itinerary of the Mission is shown in Appendix C. The Evaluation Mission for the UNDP-GEF project consisted of one International Renewable Energy Expert.

This evaluation report is presented as follows:

- An overview of project implementation from the commencement of operations in June 2008;
- Review of project results based on project design and execution;
- Conclusions and recommendations that can increase the probabilities of a successful conclusion; and
- Lessons learned from implementation of the project to date.

This evaluation report follows the format specified in Appendix A, pages 56 and 57 and by the UNDP Guideline for Evaluators, June 2002:

[http://www.undp.org/gef/05/documents/me/UNDP\\_ME\\_Handbook.pdf](http://www.undp.org/gef/05/documents/me/UNDP_ME_Handbook.pdf)

As a supplement to UNDP Guidelines, GEF's "Monitoring and Evaluation Policies and Procedures" of February 2006 (pages 13-18) were also taken into account:

[http://www.undp.org/gef/05/documents/me/GEF\\_ME\\_Policies\\_and\\_Procedures\\_06.pdf](http://www.undp.org/gef/05/documents/me/GEF_ME_Policies_and_Procedures_06.pdf)

## **1.4 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 RES 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.

## 2. KEY FINDINGS

### 2.1 Project Progress and Achievements to Date

#### 2.1.1 Project Outputs

Project implementation of technical assistance has been in accordance with the work plan towards the achievement of project objectives, although with delays from the original schedule. Project outputs that were intended to create a favorable and supportive regulatory environment for potential SHPP investors include:

- Revision on existing legal framework regarding small hydro plants as well as the drafting of new bylaws on Renewable Energy Sources, technical conditions for building SHPPs, Privileged Energy Producer status, and guaranties for energy produced from renewable energy sources;
- Draft methodology on calculating connection fees for SHPP producers to boost investor confidence that SHPP investments can be recouped within a predictable payback period;
- Draft Power Purchase Agreement that defines relations between energy producers and EPCG for purchasing electric power from SHPPs;
- Commission for technical revision of new SHPP proposals to ensure submitted SHPP proposals meet certain technical standards;
- New and improved tendering documents for SHPP investments that includes:
  - a prequalification stage where investors are qualified on the basis of their background and financial capacity; and
  - a qualification stage where pre-qualified investors are invited to submit concrete SHPP proposals.
- Over 15 operational hydrometric stations for the HMI (8 in 2009 and 7 in 2010) that provides the GoM with the capacity to monitor available water at strategic locations in the country. This equipment will enable the HMI to provide data to potential SHPP investors on water courses strategically located to potential SHPP sites;
- A website ([www.oie-cg.me](http://www.oie-cg.me)) on renewable energy sources where information critical to making SHPP investment decisions is posted. This includes hydrology information, topographic maps and other pertinent information;
- Three concepts for “Climate Change Friendly Economic Settlements” and its use in enhancing SHPP investments (including the Andrijevisa municipality) emphasizing the SHPP investments as a catalyst for sustainable economic development in host municipalities;
- Study tour to Slovenia and Austria for ministry and local government officers and private sector businesses on examples of communities that have embraced the concepts of the “Climate Change Friendly Economic Settlements”;
- Guidebook on developing SHPPs in Montenegro that includes generic concession implementation plans (i.e. phased approaches to development work from reconnaissance work to implementation to transfer of operational projects to local communities) and guidance on best practices of financing SHPP projects (i.e. projecting cash flows, calculating payback periods and the impact of feed-in tariffs);
- Electronic versions of hydrological, geological and topographical maps posted on the web site.



The main output, however, from the Project thus far is a strengthened tendering process for SHPP concessions in line with international practices, as illustrated on Figure 1. In summary, the Project has made good progress to date on its intended outputs as summarized on the Project log-frame shown on Table 1.

### 2.1.2 Project Impacts

The Project activities and outputs are beginning to make a significant impact on SHPP investments. The MTE Mission has observed that the GoM have embraced Project assistance; this is having the impact of accelerating approvals of the various permits, and providing confidence to SHPP investors that final approval to construct will be issued soon. The current SHPP investor-friendly environment is mainly related to the Project assistance to the GoM to:

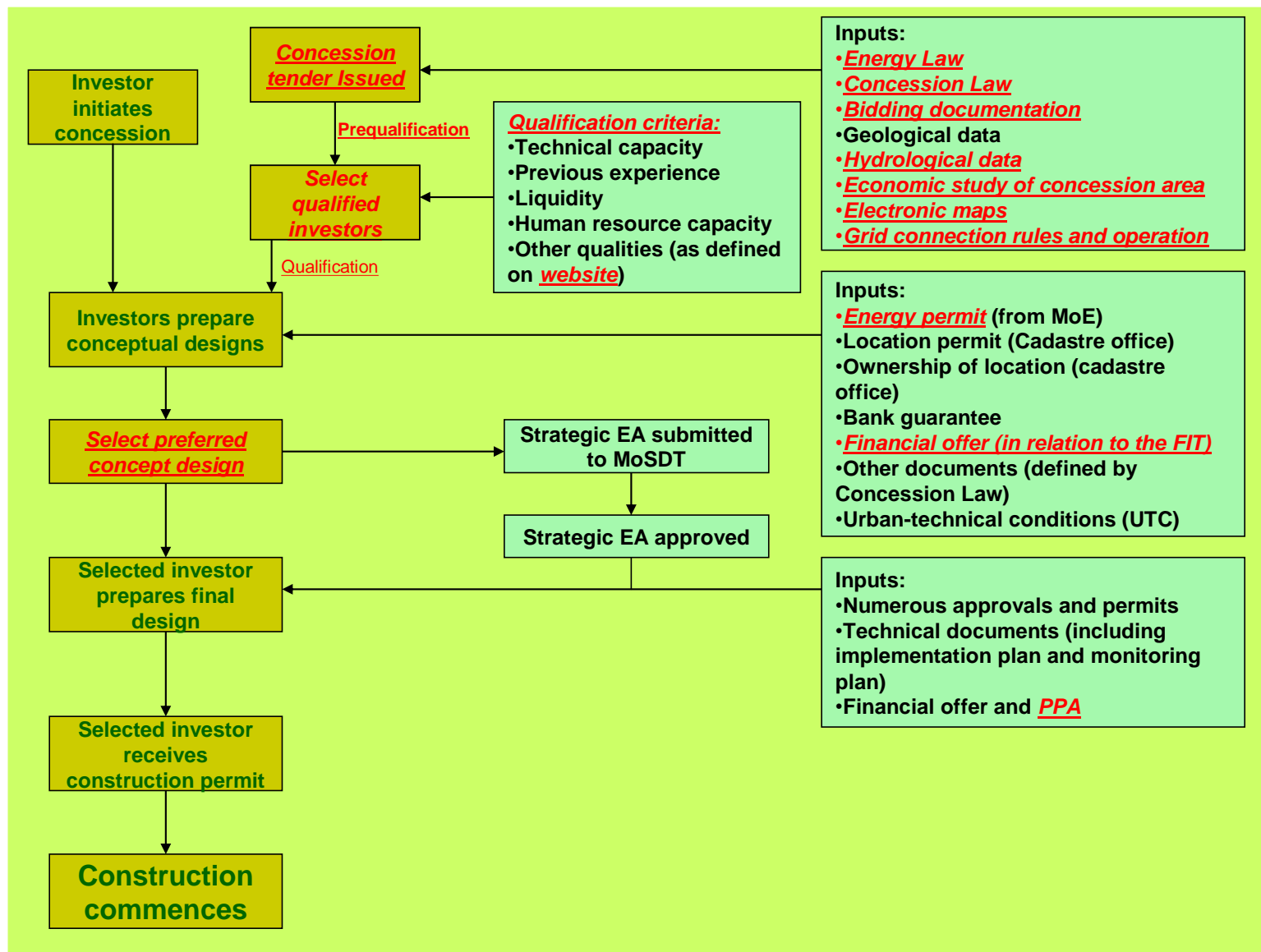
- increase the availability of information critical to making SHPP investment decisions;
- establishing prequalification and qualification phases of the tendering process;
- prepare new and improved tendering documents for SHPP investments;
- draft secondary legislation on the new Energy Law and associated bylaws;
- setup study on the development of the grid capacity to offtake energy from new renewable energy sources and establishing new methodologies and procedures for future offtaking of RE sources to the national grid;
- setup a commission for technical review within the MoE and the introduction of new standards and procedures for evaluation of hydro projects;
- improve awareness and understanding of all potential SHPP investments through the posting of SHPP technical information on a website.

With regards to GHG reductions from this Project, there will be GHG reductions that can be *indirectly* attributed to the Project<sup>4</sup>; one can estimate the CO<sub>2</sub> reduction if the two SHPPs have construction permits approved by the end of 2011 as indicated by the MoE during the MTE mission. By June 2012 or 2013, the indirect emissions reduction impact of these SHPP projects is estimated to be 19,000 tonnes CO<sub>2</sub><sup>5</sup> or 380,000 tonnes CO<sub>2</sub> over a 20-year period as summarized on Table 2 (the Project target is 20,000 to 26,800 tonnes CO<sub>2</sub> per year). GHG emission reduction impacts have been estimated using the methodologies suggested by the “Manual for Calculating GHG Benefits of GEF Projects (Near Final Draft)”, and a grid emissions factor of 0.38 tCO<sub>2</sub>/MWh<sup>6</sup> (in the absence of any such figure from a Montenegrin DNA).

<sup>4</sup> Direct impacts can be considered, for example, if other financial funds would have been established by this Project. This is not the case.

<sup>5</sup> This is based on recent information from the Ministry of Economy of the impending issuance of two construction permits for Bistrica A SHPP (10 MW with planned generation of 30 GWh annually) and Bistrica B SHPP (7.5 MW with planned generation of 20 GWh annually).

<sup>6</sup> <http://www.co2benchmark.com/co2-per-MWH-per-country>

Figure 1: Flowchart of SHPP Concession Tendering Process (**red font indicating Project involvement**)

**Table 1: Project Progress Observed in June 2011**

<b>Project Strategy</b> (taken from Prodoc)	<b>Indicators</b> (taken from Prodoc and APR-PIR)	<b>Observed June 2011</b>
<b>Development Goal:</b> To reduce emission of greenhouse gases (GHG) by promoting the development of small hydropower resources in the Republic of Montenegro.	Favorable legal, regulatory and market environment  Improved institutional and administrative capacities  <i>Target:</i> 20,000 to 26,800 tonnes CO <sub>2</sub> reduced annually from new SHPPs that would be in operation after completion of the Project	<ul style="list-style-type: none"> <li>Investment environment for SHPPs has improved with favorable legal, regulatory and market instruments to encourage SHPP investments.</li> <li>Capacities of government officers in the MoE and MoSDT improved through third country visits and “on-the-job” training</li> <li>if construction permits are issued at the end of 2011 for Bistrica A and B, Project will indirectly generate 19,000 tonnes CO<sub>2eq</sub> annually from these projects. If Project is extended to 2013 (see Recommendations for rationale for Project extension), this GHG reduction estimate will likely increase.</li> </ul>
<b>Project Objective:</b> An increase in utilization of small hydro potential in Montenegro for power generation	<i>Target:</i> 5% or additional 15-20 MW  <i>Baseline:</i> 1.1% of domestic electricity generation or 9 MW	<ul style="list-style-type: none"> <li>One concession (out of 13 tendered) has been approved for final design submission</li> <li>If Bistrica A and B are on-line by 2013, 17.5 MW of generation capacity will have been added to the Montenegrin grid</li> </ul>
<b>Outcome 1:</b> Policies and regulations promoting IPP investment in small hydropower concessions	<ul style="list-style-type: none"> <li>SHPP tendering and concession granting procedures</li> <li>Special rules for SHPP connection to the grid</li> <li>Single fee for SHPP</li> <li>Feed in tariff</li> </ul>	<ul style="list-style-type: none"> <li><i>Completed.</i> New and improved tendering procedures drafted and employed for second concession tender in 2009</li> <li><i>Partially completed.</i> Document that defines grid connection rules and fees has been completed. A study on required regulations on relations between SHPPs and distribution/transmission system operators is in progress.</li> <li><i>Completed.</i> Separate fees for water usage and site concession have been combined to a single fee for SHPPs</li> <li><i>Completed.</i> Guidelines for FITs were formulated for each specific type of renewable energy including small hydropower generation, and have been approved by the MoE</li> </ul>
<b>Outcome 2:</b> IPP investment decisions in SHPPs supported	<ul style="list-style-type: none"> <li>Data answers pre-investment questions of investors through a national cadastre of small hydropower plants</li> </ul>	<ul style="list-style-type: none"> <li><i>Partially completed:</i> 15 sets of hydrometric equipment purchased for the Hydro-Meteorological Institute in 2011.</li> <li>Information of 45 SHPs has been posted on the website; Project has recruited a spatial planner to provide recommendations and instructions on urban technical conditions for RES and on the procedure for issuance of construction permits for RES.</li> <li>Two tendering procedures had been organized for 13 concessionaires: one in 2008 with 8 concession agreements signed for 8 watercourses, and one in 2009 when 5 concession agreements were signed for 5 watercourses.</li> </ul>

**Table 1: Project Progress Observed in June 2011**

<b>Project Strategy</b> (taken from Prodoc)	<b>Indicators</b> (taken from Prodoc and APR-PIR)	<b>Observed June 2011</b>
		<ul style="list-style-type: none"> <li>Economic studies for the Andrijevisa concession (under a project-initiated framework for "Climate-change friendly economic settlements"), has been completed to identify the uses for the electricity, the impact on the economy of the municipalities and to enhance the attractiveness of the SHP investment.</li> </ul>
<b>Outcome 3:</b> Small hydropower IPP concessions operational	<ul style="list-style-type: none"> <li>Competitive IPP concessions awarded for 15 MW to 20 MW of new generating capacity utilizing incentive based tariffs and terms and conditions comparable to EU countries.</li> </ul>	<ul style="list-style-type: none"> <li><i>Completed.</i> After new tendering, bidding and contractual documents for SHPPs were developed, two tenders for 13 SHPP concessions were completed with 13 concession proposals now being technically evaluated for approval to move to a final design stage</li> </ul>
<b>Outcome 4:</b> Project results and lessons learnt summarized, documented, presented and made publicly available	<ul style="list-style-type: none"> <li>Procedures and models adapted based on experience</li> <li>Tenders prepared for second phase of new sites</li> </ul>	<ul style="list-style-type: none"> <li><i>In progress.</i> A number of workshops have organized to share outputs from Outcome 1 (including tendering procedures, requirements for submissions by concessionaires on power production, technical aspects and financing of the SHPP)</li> <li>No SHPPs yet under construction; hence, no supervision of SHPP construction and commissioning has been commenced.</li> <li>RES website established as a "one stop shop" platform to disseminate SHPP information where the investors can find all relevant information and documentation for decision making. The site is experiencing a significant increase in visits in comparison to 2009 and 2010</li> </ul>

**Table 2: Summary of CO<sub>2</sub> Reductions from the Project**  
(cumulative over a 20-year period)

Direct emission reduction <sup>7</sup> due to SHPP, t CO <sub>2</sub>	0
Direct post-project emission reduction <sup>8</sup> due to SHPP, t CO <sub>2</sub>	0
Indirect emission reduction due to SHPP <sup>9</sup> , t CO <sub>2</sub>	380,000
<b>TOTAL EMISSION REDUCTIONS DUE TO UNDP-GEF PROJECT, t CO<sub>2</sub></b>	<b>380,000</b>

<sup>7</sup> Direct impacts can be considered, for example, if other financial funds would have been established on this Project. This is not the case.

<sup>8</sup> Due to the investments supported by mechanisms (e.g., revolving funds) that continue operating after the end of the project (2 x 7 Years assumed).

<sup>9</sup> Due to policy changes and changes in the regulatory environment that has an indirect impact on facilitating SHPP investments. Emission reductions are assumed to commence after the current scheduled completion of the project in 2012.

## 2.2 Project Design and Relevance

### 2.2.1 Project Relevance and Country Drivenness

There is strong relevance of this Project to the GoM's Small Hydro Development Strategy of 2006 and towards poverty reduction where SHPPs and smaller hydropower plants will be able to supply power to the many areas whose population is below the poverty line and not serviced by the national power grid. Moreover, the Project is relevant to Montenegro's developmental priorities of secure energy supplies. Country ownership and drivenness for this Project appears to be strong at this time, especially with their national objectives for accession to the EU.

### 2.2.2 Project Design and Implementation Approach

The strength of the Project design is its strong focus on activities relevant to implementation of SHPP projects in Montenegro. The Project was designed to assist the GoM in streamlining its approaches to SHPP development from its promotion to regulatory support and quality assurance of actual SHPP investment submissions. Technical assistance from the Project was provided to the RES and other GoM agencies to fill in gaps and strengthen various approval processes as identified in the Prodoc.

Implementation approaches to the Project have been highly strategic and conducted in a participatory manner based on close collaborative working relationships between stakeholders (mainly GoM officers of various ministries) and Project officers. A consequence to this approach has been strong support of national and local government on the removal of barriers that has the impact of raising private sector confidence and interest in SHPP investments. Moreover, the Project has demonstrated a proactive stance in promotion of SHPP concessions through its work on preparing "Climate Change Friendly Economic Settlements" that serves to enhance the overall value of SHPP concessions. The MTE Mission has observed the effectiveness of this approach that is backed by frequent visits between Project officers and stakeholders; this facilitates feedback from Government officers on developing various bylaws, guidelines and processes for tendering of concessions leading to adoption of Project outputs.

Delays were encountered during the development of the SHPP tendering process, though many of these delays were beyond the control of the Project, and were mainly related to the necessary time for government to consider changes to the legal and regulatory framework of SHPP development. This included:

- difficulties presenting SHPP plans to the Department of Spatial Planning in a format consistent with past project submissions;
- delays in resolving issues related to offtaking of SHPP power into the national grid;
- longer process time for processing and public consultation of first strategic environmental assessments;
- reaching consensus on FIT calculation;
- time required to complete the procurement process of hydrological equipment and the additional time required to collect required hydrological data; and
- additional efforts required by GoM to prepare proper documentation for construction permits.

In conclusion, Project design and implementation approach has been strong leading to many of the Project's intended outputs being achieved within a 3 year period of a 4-year project.

## 2.3 Project Implementation Arrangements

### 2.3.1 Stakeholder Involvement, Linkages to Project and Other Interventions in Sector

Montenegro is a small country with 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. The result of this is strong involvement of the GoM involvement on the Project.

One other project in the small hydropower sector is the EBRD-funded technical assistance project involving the “Development of Small Hydro Cadastre for Northern Montenegro”<sup>10</sup>. This project commenced operations in early 2011 to identify more hydropower sites that are less than 10 MW.

### 2.3.2 Management, Monitoring and Evaluation, Identification and Management of Risk

Management and M&E of the Project has been adequate based on a review of the Project PIRs that provides a clear picture of Project accomplishments and delays, risks and follow-up actions to mitigate risks.

## 2.4 Project Budget and Cost Effectiveness

Table 3 provides an overview of expenditures of the Project budget of USD 1,018,393 from June 2008 to June 15, 2011. To date, close to 60% of the Project budget has been expended with an additional 17% of the budget already committed to a grid study. This leaves roughly USD 230,000 remaining in the budget (or 23% of the total budget) to complete all Project activities. Considering the achievements of the Project to date, the cost effectiveness of the Project has been adequate.

Current co-financing that is confirmed for the Project is USD 40,000 from UNDP TRAC funds. While estimates of in-kind contributions were not disclosed, the Mission surmises that GoM in-kind contributions appear substantial given its level of collaboration with the Project team. Co-financing from other agencies will be confirmed towards the end of the Project and may include co-finance from EBRD, the Norwegian Government and the Government of Montenegro.

<sup>10</sup> <http://www.blomasa.com/news/blom-wins-small-hydropower-plant-cadastre-project-in-montenegro-together-with-vodni-zdroje.html>

**Table 3: Project Budget and Expenditures (2008-2011)**

Budget categories	Code	Budget	2008	2009	2010	2011 (to June 15)	Remaining
<b>1. Strengthening Institutional and Legal Framework</b>							
International Consultants	71200		0	34,050	28,588	0	
Local Consultants	71300		12,283	5,432	1,729	0	
Travel	71600		5,247	9,421	1,635	4,031	
Contractual services-companies	72100		0	28,544	3,436	0	
Equipment	72200		9,268			0	
Communications	72400		1,333	3,046	1,965	1,690	
Common services Premises, Utilities	73100		0	616		0	
Rental&Maint-Office equipment	73400		0	2,193		0	
Audio Visual&Print Prod Costs	74200		1,678	245	590	162	
Miscellaneous			1,757	466	0	0	
Realized Loss/Gain	76100		-88	573	82	0	
<i>Subtotal</i>		230,192	31,478	84,586	38,025	5,883	70,221
<b>2. Supporting SHP Investment Decisions with Information</b>							
International Consultants	71200		0	13,254	20,112	0	
Local Consultants	71300		0	20,929	35,572	0	
Contractual Services - Individ	71400		0		20,986	0	
Travel	71600		0	2,815		344	
Contractual services-companies	72100		975	71,901	32,595	2,841	
Computer/Information Technology	72800		3,860		0	0	
Miscellaneous			0	957		0	
Realized Loss/Gain	76100		0	375	147	8	
<i>Subtotal</i>		402,950	4,835	110,231	109,412	3,193	175,279
<b>3. Support to Operationalize IPP Concessions</b>							
International Consultants	71200		0	0	13,819	0	
Local Consultants	71300		0	2,228		0	
Contractual Services - Individ	71400		0		5,882	0	
Travel	71600		0	5,437	31,214	2,196	
Contractual services-companies	72100		0	29,865	67,642	0	
Communications	72400		0	1,248	149	0	
Audio Visual&Print Prod Costs	74200		0	1,707	2,133	0	
Miscellaneous			0	-95	0	0	
Realized Loss/Gain	76100		0	256	-74	-3	
<i>Subtotal</i>		220,392	0	40,646	120,764	2,193	56,789
<b>4. Monitoring and Dissemination of Project Results</b>							
International Consultants	71200		0	0	0	5,930	
Local Consultants	71300		0	0	1,844	0	
Travel	71600		0	0	347	0	
Contractual services-companies	72100		0	0	7,407	158	
Communications	72400		0	0	2,250	160	
Audio Visual&Print Prod Costs	74200		0	0	1,531	0	
Realized Loss/Gain	76100		0	0	-102	7	
<i>Subtotal</i>		102,859	0	0	13,277	6,255	83,327
<b>Project Management</b>							
Learning Costs	63405			2,550	0	100	
Local Consultants	71300		1,500	124	0	0	
Contractual Services - Individ	71400		5,973	8,463	5,164	6,505	
Travel	71600		0	4,612	66	-30	
Contractual services-companies	72100		427		288	730	
Communications	72400		0	663	1,283	412	
Rental and Maintenance	73100		0	3,551	4,330	1,925	
Audio Visual&Print Prod Costs	74200		0		811	3	
Miscellaneous	74500		0	608	866	0	
Realized Loss/Gain	76100		0	12	3	1	
<i>Subtotal</i>		62,000	7,900	20,583	12,811	9,646	11,060
<b>TOTAL</b>		<b>1,018,393</b>	<b>44,213</b>	<b>256,045</b>	<b>294,289</b>	<b>27,170</b>	<b>396,676</b>
<b>GEF</b>		<b>978,393</b>	<b>42,713</b>	<b>246,217</b>	<b>286,291</b>	<b>23,889</b>	<b>379,283</b>
<b>UNDP</b>		<b>40,000</b>	<b>1,500</b>	<b>9,828</b>	<b>7,998</b>	<b>3,281</b>	<b>17,393</b>

### 2.4.1 Evaluation of Project

Table 4 provides an evaluation of the current outcomes of each Project output. Each output was evaluated against individual criterion of:

- *Relevance* – the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
- *Effectiveness* – the extent to which an objective has been achieved or how likely it is to be achieved.
- *Efficiency* – the extent to which results have been delivered with the least costly resources possible.
- *Results/impacts* – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short-to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.
- *Sustainability* – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

The Project outputs were rated based on the following scale:

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

The overall rating of the Project is S, mainly due to the Project achieving most of its targets within a 30-month period of a project design of 48 months. The main reason keeping the Project from being rated as HS were Project delays related to encountering obstacles (beyond the control of the Project) during the development of the legal framework and SHPP tendering process. These included:

- difficulties presenting SHPP plans to the Department of Spatial Planning in a format consistent with past project submissions;
- delays in resolving issues related to offtaking of SHPP power into the national grid;
- longer process time for processing and public consultation of first strategic environmental assessments;
- reaching consensus on FIT calculation;
- time for procurement process of hydrological equipment and the additional time required to collect required hydrological data; and
- additional efforts required for preparing proper documentation for construction permits.



**Table 4: Summary Evaluation of Project**

<b>Project Strategy</b>	<b>Relevance</b>	<b>Efficiency</b>	<b>Effective-ness</b>	<b>Overall Rating</b>
<b>Outcome 1:</b> Policies and regulations promoting IPP investment in small hydropower concessions	HS	S	HS	HS
<b>Outcome 2:</b> IPP investment decisions in SHPPs supported	S	MS	S	S
<b>Outcome 3:</b> Small hydropower IPP concessions operational	S	S	S	S
<b>Outcome 4:</b> Project results and lessons learnt summarized, documented, presented and made publicly available	S	S	S	S
<b>Monitoring and Evaluation</b>	S	S	S	S
<b>Overall Rating</b>				<b>S</b>

## 2.5 Sustainability and Replicability

### 2.5.1 Sustainability

In assessing the sustainability of the project, we asked “how likely will Project outcomes (from the 2008 Prodoc) be sustained after termination of the Project”. Sustainability of these objectives was evaluated in the context of financial resources, socio-political risks, institutional framework and governance and environmental factors, using a simple ranking scheme:

- *Likely (L)*: very likely to continue and resources in place;
- *Moderately Likely (ML)*: model is viable, but funding or resources may not be in place;
- *Moderately Unlikely (MU)*: model is not viable or needs changing; and/or resources not in place; and
- *Unlikely (U)*: model is not viable and resources are not in place

The evaluation for sustainability is shown on Table 5. It is important to note that the index is simply to facilitate an assessment of future sustainability and is not a rating of project management and their consultants. Instead, it is a rating of the project design and viability going forward, including availability of budget and resources for continuation.

**Table 5: Assessment of Sustainability for Objectives**

Outcome	Assessment of Sustainability	Dimensions of Sustainability
<b>Outcome 1: Policies and regulations that effectively promote investments in small hydropower concessions. This includes:</b> <ul style="list-style-type: none"> <li>• SHPP tendering and concession granting procedures</li> <li>• Special rules for SHPP connection to the grid</li> <li>• Single fee for SHPP</li> <li>• Feed-in tariff</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Financial Resources</i>: With initial responses on the first two concession tenders, financial resources are likely available to sustain new SHPP policies and regulations;</li> <li>• <i>Socio-Political Risks</i>: With strong political support for the development of SHPPs, there are few if any socio-political risks that will change the current enabling investment environment for SHPP investments;</li> <li>• <i>Institutional Framework and Governance</i>: Institutional framework to regulate SHPP concessions will support the sustained growth of SHPP investments after the completion of the Project;</li> <li>• <i>Environmental Factors</i>: Environmental impacts of SHPP projects are considered benign.</li> </ul>	L
		L
		L
		L
	<b>Overall Rating</b>	L
<b>Outcome 2: IPP investment decisions for SHPPs are supported. This includes data that answers pre-investment questions of investors through a national cadastre of small hydropower plants</b>	<ul style="list-style-type: none"> <li>• <i>Financial Resources</i>: Given the success thus far of the website, the MoE will likely have the financial resources to continue supporting the website that contains the national cadastre of SHPP sites and personnel to manage the program for the GoM;</li> <li>• <i>Socio-Political Risks</i>: There is strong political support for SHPP development; as such, programs to disseminate information on SHPP sites will be sustained;</li> <li>• <i>Institutional Framework and Governance</i>: MoE will likely continue to manage SHPP investment promotion after completion of the Project;</li> <li>• <i>Environmental Factors</i>: Environmental impacts of SHPP projects are considered benign.</li> </ul>	L
		L
		L
		L
	<b>Overall Rating</b>	L
<b>Outcome 3: Small hydropower IPP concessions operational. This would include competitive IPP concessions awarded for 15 to 20 MW of new generating capacity utilizing incentive based tariffs and terms and conditions comparable to EU countries</b>	<ul style="list-style-type: none"> <li>• <i>Financial Resources</i>: Financing of SHPP developments in Montenegro is not an issue; hence, the growth of operational SHPP-IPP concessions is likely to be sustained;</li> <li>• <i>Socio-Political Risks</i>: With strong domestic and international investor interest in SHPP development, the growth of operational SHPPs will likely be sustained;</li> <li>• <i>Institutional Framework and Governance</i>: A strengthened institutional framework for regulating IPP-SHPP concessions is likely to be sustained;</li> <li>• <i>Environmental Factors</i>: Environmental impacts of SHPP projects are considered benign.</li> </ul>	L
		L
		L
		L
	<b>Overall Rating</b>	L
<b>Outcome 4: Project results and lessons learnt summarized, documented, presented and made publicly available. This would include:</b> <ul style="list-style-type: none"> <li>• procedures and models adapted based on experience</li> <li>• tenders prepared for second phase of new sites.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Financial Resources</i>: Financial resources are likely to be available to maintain the renewable energy website for project developers and stakeholders after the completion of the Project;</li> <li>• <i>Socio-Political Risks</i>: There is strong political support for SHPP development; as such, the renewable energy website that is used to disseminate information on SHPP sites is likely to be sustained;</li> <li>• <i>Institutional Framework and Governance</i>: Institutional framework for maintaining the renewable energy website staffed with dedicated government personnel is likely to be sustained;</li> <li>• <i>Environmental Factors</i>: Environmental impacts of SHPP projects are considered benign.</li> </ul>	L
		L
		L
		L
	<b>Overall Rating</b>	L

Project *sustainability is likely*:

- All stakeholders interviewed had a positive view of the Project and the outputs of the Project that have accelerated development of the enabling environment for SHPP investments in Montenegro;
- GoM is committed to supporting FITs that will encourage and sustain the development of SHPPs after the completion of the Project;
- Since 2008, one concession has been approved with another 2 concessions close to approval (out of 13 tendered). This rate of development is likely to encourage SHPP developers that Montenegrin SHPP investments are worthwhile pursuing;
- Interested SHPP developers include a number of international firms in partnership with local firms.

### **2.5.2 Replicability**

The Project outcomes are likely to facilitate the replication of other IPP-SHPP concessions. The GoM now have the enabling environment to encourage such investments. With the remaining Project resources, Project personnel will need to maintain the momentum of SHPP development and strengthening SHPP concession replication potential by:

- providing construction management oversight to ensure adherence to budget, schedule and quality of SHPP construction;
- diligent operation and maintenance of SHPP projects to reduce the risks of disruption of revenue streams; and
- sharing Project experiences of SHPP development through various dissemination activities and postings on the website.

## 3. CONCLUSIONS AND RECOMMENDATIONS

### 3.1 Conclusions

The Project has made substantial and holistic contributions towards the creation of a favorable regulatory environment for developing SHPP investments. This includes assistance to formulation of a new energy law, methodologies and by-laws on feed-in tariffs for renewable energy, and guidelines for SHPP developers on technical and financial issues.

By assisting the GoM in providing the necessary infrastructure and information base to support IPP-SHPP investment decisions, investor confidence in the SHPP sector in Montenegro has been boosted, resulting in a good response to the second SHPP concession tender issued in 2010, and a reported number of unsolicited proposals for concession development.

Project delays have been beyond the control of the Project and were mainly related to the necessary time for government to consider changes to the legal and regulatory framework of SHPP development. However, the Project will now enter a phase where execution of SHPP projects will need to be managed in a manner to demonstrate that SHPP concessions can be constructed on time and on budget in a Montenegrin business environment, and operationalized to ensure adequate investor rates of return of SHPP concessions.

In comparison to other UNDP-GEF projects in renewable energy development, financing of SHPPs does not appear to be an obstacle, as evidenced by the number of investors expressing interest (formally and informally) to developing a several SHPP concessions. Furthermore, the RES informed the Mission that construction permits will be issued in late 2011 for Bistrica A SHPP (10 MW) and Bistrica B SHPP (7.5 MW); this will be a boost to the SHPP sector in Montenegro as well as the outcomes of this Project.

Prospects for **sustainability** and **replication** are excellent based on:

- Strong government policies that are supportive of SHPP investments;
- The number of international and domestic investors who are in Montenegro vying for SHPP opportunities; and
- GoM adoption of streamlined approvals for SHPP concessions and the issuance of construction permits in late 2011 for Bistrica A and B SHPPs under the new tendering process.

### 3.2 Recommendations

The remaining resources of the Project should be used to:

- complete the tendered study on transmission and distribution rules for connecting SHPPs to grid and integrate findings with awarded concessions;
- prepare and post on the RES website an “investor-friendly” guide to developing hydropower projects that includes the flowchart on Figure 1 and linkages to other guidelines and instructions for SHPP;

- Monitor designs and construction activities of the 2 SHPPs where construction permits have been issued. The main reason to justify this activity is the need to demonstrate that construction of SHPPs can be well managed for quality and be implemented on time and on budget, and that SHPPs concessions can be operationalized to generate power and provide a decent rate of return for its investors and creditors;
- Explore the use of remaining Project resources to develop micro and mini hydropower projects (MHPPs) that are less than 1.0 MW. There are potentially several benefits to this:
  - shorter development time for MHPPs where concession tenders are not required;
  - increase opportunities for Project to add to its co-financing with EBRD who are funding development of an MHPP registry;
  - increased opportunity for synergies with two other GEF projects in Montenegro<sup>11</sup>, where impact of renewable energy projects can reduce demand of biomass in a protected area as a primary energy source;
  - strong linkage of such activities to poverty alleviation in rural areas.
- Should the Project pursue development of MHPPs, the Project will have to identify sufficient resources or resources from other projects to resolve critical issues including:
  - identification of suitable mini, micro and pico HPP sites;
  - facilitating collaboration with host and beneficiary communities;
  - assessing local capacity to source equipment or fabricate equipment from the local communities to reduce MHPP costs;
  - formulation of a sustainable business model that includes the sourcing of capital finance for MHPP projects. Based on global experience in micro, mini and pico-HPP development, the Project will need to leverage soft funds and grants that tie into SME development or livelihood development. This may include soft or grant financing from the two other Montenegrin GEF projects on biodiversity, EBRD and climate change funds from promotional banks such as KfW;
  - clear roles and responsibilities of various actors in the proposed MHPP program;
- If the Project adopts approaches to the development of an MHPP development program, the Project terminal date should be extended to 2013 to provide sufficient time to start-up the MHPP program.

### 3.3 Lessons Learned

Key lessons from this 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

<sup>11</sup> “Catalysing Financial Sustainability of the Protected Areas System” (GEF Project 3947), and “Strengthening the Sustainability of the Protected Areas System for the Republic of Montenegro” (GEF Project 3688).

to address. T&D 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. The Project is realizing the benefits of such a relationship between Montenegrin officials and Project staff. In comparison, there are countries where relevant government officials are not available to meet often with project staff causing delays and in some cases non-delivery of outcomes with project components involving institutional and regulatory reform work.

## APPENDIX A – MISSION TERMS OF REFERENCE

### PROJECT MID-TERM EVALUATION



- A. Job title:** International Consultant: Mid-term Evaluation
- B. Type of position:** International, short-term
- C. Post Reference:**
- D. Duty Station:** Podgorica, Montenegro
- F. Duration of appointment:** 15 working days with one visit to Montenegro
- G. Contract type:** Special Service Agreement
- H. Deadline for Application:**

#### i. Background

In May 2006 Montenegro became the newest independent state in the world and the newest UN member. This move was followed with an intense period of establishing multi- and bilateral relations, speeding up the process of EU integrations, and consolidating the normative framework for internal economic development of the young state. The Government of Montenegro (GoM) has adopted the new Energy Strategy in December 2007, and in the same month it had published a tender for research and construction of small mini hydro power plants on over forty locations. This move is in line with the new small hydro development strategy adopted in April 2006 that sets a target of 15 to 20 MW of new generating capacity from small hydro power resources by 2015 and it constitutes an environmentally and politically acceptable way of reducing the country's dependence on energy imports. Montenegro has a total installed capacity of 868 MW, of which over 70% comes from two large hydro generating facilities. The remainder comes from a single coal fired power generating station. All three plants were built between 1977 and 1981. Some seven small hydro power plants of 10MW and less also contribute just over 1% or almost 9MW of generating capacity to this mix. Demand for power fell during the 1990's due to economic contraction, so there was little pressure to plan for new generating capacity. While there has been some discussion about the construction of new generating facilities, mainly large hydro facilities, for various reasons no construction of any new generating capacity since 1981 has been undertaken. However since the mid 1990s demand for power has begun to grow again. In 1994 total final consumption was 505 GWh, while in 2005 it was 2077 GWh. Surprisingly, most of this growth in demand comes from the residential sector, rather than the industrial sector. Montenegro saw a doubling in demand from the residential sector over the last 20 years. In part this can be explained by the heavily subsidized tariff of 2.2 € cents/ kWh, but also from a growth in housing. Although far less efficient it has been cheaper for houses to use electricity for space heating and hot water because of the low tariff.

The national context in which the PIF was written and submitted dramatically changed relative to the period when the project actually received funding- this change was evident most dramatically in the Union of Serbia and Montenegro dissolving into two newly independent countries with two very different visions of development. Considering the political changes in the mid 2006 and the subsequent GoM moves in the energy sector (adoption of the Energy Strategy, publishing of the mini-hydro tender), there are two windows of opportunity for significant assistance from this project is: a) enabling efficient, sustainable and effective investment decisions in this sector through designing institutional and governance frameworks for development of a sector for renewable energies (small hydro power plan sector included) including streamlining of the procedures, developing information management systems, and implementing clear, transparent, internationally-recognized attractive yet competitive business terms and conditions for the investors, and b) capacity building for the Energy Efficiency and the Renewable Energy Unit within the Ministry for Economic Development.

The principal responsibility for managing this evaluation lies with UNDP Montenegro. The evaluation team will be free from undue influence and has full authority to submit reports directly to appropriate levels of decision-making. UNDP management will not impose restrictions on the scope, content, comments and recommendations of evaluation reports. In the case of unresolved difference of opinions between any of the parties, UNDP may request the evaluation team to set out the differences in an annex to the final report.

## **ii. Duties & Responsibilities:**

Mid-term evaluation is intended to assess and rate potential project design issues and implementation approach including logical framework, outcomes, targets, activities, baselines, risks, monitoring and evaluation system, project management structure, adaptive management, progress towards the achievement of objectives, and to identify and document lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects), and to make recommendations regarding specific actions that might be taken to improve the project's implementation. It is expected to serve as a means of validating or filling the gaps in the initial assessment of relevance, effectiveness and efficiency obtained from monitoring. The national context and situation dramatically changed from the time the PIF was written and submitted to the time the project was approved and the country received funding. The Union of Serbia and Montenegro dissolved into two newly independent countries with each pursuing their independent and specific development paths. In Montenegro, this change, as it specifically regards the project, included the development and adoption of two key strategic documents- the National Spatial Plan and the National Energy Development Strategy. Therefore, UNDP and the key Ministerial partner have had to manage the dramatically changing circumstances and its impact on the project design in order to maintain the focus on the envisaged results but through a different set of activities that reflects the changed circumstances. . It also provides an opportunity to assess early signs of project success or failure and prompt necessary adjustments and the basis for learning and accountability for managers and stakeholders in particular the evaluation will address:

- **Project Conceptual Design:** The evaluation will examine whether the project design, outcomes, indicators, targets, risk and assumptions that were revised and agreed upon, as necessitated by the changing geopolitical situation, during the Inception Workshop are still relevant in the context of the country's changing circumstances.
  - The expert should evaluate how the UNDP managed the changed environment in terms of designing and agreeing on the new set of goals and activities within the project, whether these



- reflect major national priorities, whether these have been designed clearly/in a results-oriented manner and whether these were realistic
  - The evaluation should review the extent to which the objectives, outputs, and expected results of the project as designed initially were realistic
  - Review remaining project activities and schedule and assess realistic duration for remaining activities
- Assess the results and achievements of the project since its start. In particular, the evaluation should focus on the following aspects:
- Assess whether the project has produced its outputs effectively and efficiently and identify the major factors, which have facilitated or impeded the progress of the project in achieving its goal and desired results
  - Determine the degree of support given to the project at the national and local level.
  - Review and assess the project delivery and implementation progress to achieve the overall objectives and also assess each outcome against the baseline and target values
  - Assess and rate sustainability - the extent to which the benefits of the project will continue, within or outside the project domain, after it has come to an end.
- Effectiveness of the approach used to produce the project results.
- Review the management structure of the project and determine whether the organizational structure of the project, the resource, the distribution of responsibilities and coordination mechanisms were appropriate for the achievement of project objectives
  - Review the project strategy and approach to ensure sustainability beyond the project period
  - Assess whether these organizational arrangements were cost effective
  - Assess the support and roles of teams at UNDP CO level, project management level, and international/local consultants
- The efficiency of project management
- Assess the efficiency of the approach used in planning, organizing, and controlling the delivery of inputs.
  - Evaluate the agreements made on the inception workshop and PMB
  - Assess the coordination and communication process (incl. the information flows) between the various stakeholders of the project
  - Assess and update the monitoring tools currently being used including validation of its efficiency, information generated, key partners involved. Determine whether the project document was explicit enough on the above and whether sufficient funding was earmarked.
- The impacts on/ views of the direct beneficiaries and stakeholders
- Assess the degree of involvement of various stakeholders in the project implementation process
  - To the extent possible, the evaluation will collect the views and impressions of beneficiaries
  - Assess to what extent the project managed to build national and local level ownership.
  - Assess the impact of the project on the main beneficiaries, policies and the physical environment, etc.
  - To the extent possible highlight linkages (direct or indirect with other government or donor supported projects)
  - Assess involvement and contributions of national staff of implementing and cooperating/responsible partners

- Findings and lessons learned
  - Produce, as logically and objectively as possible, significant conclusions that are extracted from the evaluation in terms of project overall goals, approach, relevance, performance, success, failure, strengths, and weaknesses.
  - Highlight the major problems, shortcomings, and weaknesses in order of importance and validity to resolve
- Recommendations
  - Outline the recommendations for corrective actions by the parties involved. The recommendations must be objective, realistic, practical, understandable and forward looking.
  - Link the recommendations logically to the findings; taking into consideration their impact on the improvement of project performance and accomplishments of its objectives.
  - Classify the recommendations into categories, if possible, by order of importance.
  - Recommend realistic duration for implementation of remaining project activities.
  - Recommend new projects activities that could be included in the second part of project implementation
- The evaluation will consult with main stakeholders and beneficiaries of the project such as:
  - Project Board Members
  - Implementing and cooperating/responsible partners
  - Local NGOs in Montenegro
  - Local community (Municipality of Andrijevica)
  - Project partners and donor communities operation in Montenegro (Ministry of Economy, HMI, GTZ etc.)
  - Project staff and national staff of implementing and cooperating partners

### **iii. Scope of the Evaluation**

The evaluation will cover all the GEF, UNDP and Government of Montenegro funded components and their implementation since the start of the project in Montenegro as well the in-kind and parallel government contribution included in the project document. It covers relevance of the project, quality of project design, efficiency of implementation, effectiveness to date, partners' perception of change and potential sustainability. It assesses the achievements of the project with respect to the relevance of its objectives and the attainability of its outcomes. It assesses the project design including, to what extent the assumptions/risks outlined in the logical framework are valid and identifies external factors beyond the control of the project that affected it negatively or positively. Special emphasis is placed on the degree to which the project has succeeded in carrying out the activities outlined in the logical framework. It will also assess lessons learnt and make recommendations for way forward to ensure national/local ownership and effectiveness in achievement of project results.

### **iv. Products Expected from the Evaluation**

A comprehensive report will be prepared according to the attached draft outline. The report shall include an assessment of the Project and Project components' concept design and administrative arrangements, progress achieved to-date vs. planned targets (identification of causes of slow progress, if any, and suggestion of corrective measures), lessons learned, and revision or re-prioritization of scheduled activities, plans, etc (if necessary). The report will also include

recommendations for improving the performance of the project to fulfill its objectives and maximizing the impact on the improvement of small hydro sector and CO2 reductions, including actions/decisions to be taken and parties responsible as well as time frame. A power-point presentation of the evaluation findings will be prepared.

#### **v. Methodology or Evaluation Approach**

The evaluation will be based on findings and factual statements identified from:

- review of relevant documents including the project document and its amendment, annual and quarterly project work plans, progress and financial reports, project board meetings minutes, monitoring mission reports, quarterly operational reports (QOR) and progress implementation report (PIR), technical reports of national/international consultants, including reports of events organized by the project (workshops, meetings) etc.
- Interviews with the target beneficiaries, the project partners, the implementing agency, cooperating/responsible partners and individuals, the donor community, the project staff, local community, local council and local civil society involved in and targeted by the project.
- Field visits to the project site, beneficiaries and local community

#### **vi. Competencies**

- Extensive experience for not less than 10 years in evaluation in energy, CO2 reduction and institutional development
- Recent experience with result-based management 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).

## APPENDIX B – MISSION ITINERARY (FOR JUNE 13-20, 2011)

The mid-term evaluation mission was conducted by Mr. Roland Wong, International Consultant in accordance with the objectives of the evaluation and obtained data relevant for making judgments regarding Project success and lessons learned.

<b>June 13, 2011 (Monday)</b>			
#	Activity	Stakeholder involved	Place
	Arrival of Mr. Roland Wong		Podgorica
1	Briefing on Project with UNDP Country Office, Ms. Snezana Marstijepovic, Programme Coordinator; Dr. Milica Radojevic, Team Leader Economy and Environment; Ms. Kristine Blokhuis, Deputy Resident Representative	UNDP	Podgorica
2	Skype conversation with previous Project Manager, Mr. Ivan Boskovic	UNDP	Podgorica
<b>June 14, 2011 (Tuesday)</b>			
3	Meeting with Mr. Miodrag Canovic, Deputy Minister, Ministry of Economy	Ministry of Economy	Podgorica
	Travel towards Ostrog Monastery to view existing SHPP projects		Danilovgrad
4	Meeting with Mr. Miodrag Canovich, Deputy Minister and Mr. Ivan Kovacevic and Ms. Lucija Rakocevic, both of the Department of Renewable Energy Sources on details of Project technical assistance and the removal of barriers to a streamlined tendering and project approval process	Ministry of Economy	Podgorica
<b>June 15, 2011 (Wednesday)</b>			
5	Meeting with Local Government of Andrijevica, on progress of the development of SHPP concession in their municipality	Local Government of Andrijevica	Andrijevica
	Tour of Andrijevica SHPP concession south of the town	Local Government of Andrijevica	Andrijevica
<b>June 16, 2011 (Thursday)</b>			
6	Meeting with Ms. Daliborka Pejovic, Director, Mr Dragan Asanovic, Deputy Director and Mrs Sava Vuletic, Independent Advisor I, Environmental Protection Agency	Ministry of Sustainable Development and Tourism	Podgorica

7	Meeting with Mr. Darko Novakovic,, Assistant Director for Hydrology, Ms. Ivana Pavicevic, Advisor on International Relations, the Hydrometeorological Institute of Montenegro, Mrs Nevzeta Alilovic, Officer in the Hydrology Department	The Hydrometeorological Institute of Montenegro	Podgorica
8	Meeting with Mr. Veselin Bakic, Mayor of Andrijevisa	Local Municipal Government of Andrijevisa	Podgorica
<b>June 17, 2011 (Friday)</b>			
9	Meeting with Mr. Velimir Strugar, Deputy Director of Department for Distribution of Electricity, EPCG	Elektroprivreda Crna Gore	Podgorica
10	Skype conversation with Dr. Nikola Cupin, Project Consultant	UNDP	Podgorica
11	Skype conversation with Mr. Zoran Stojic, Project Consultant on project regulatory issues and feed-in tariffs	UNDP	Podgorica
12	Skype conversation with Mr. Geordie Colville, former UNDP RTA for Eastern Europe and CIS Countries for Climate Change Mitigation	UNDP	Podgorica
<b>June 18, 2011 (Saturday)</b>			
	Preparation of Report		Podgorica
<b>June 19, 2011 (Sunday)</b>			
	Preparation of Report		Podgorica
<b>June 20, 2011 (Monday)</b>			
13	Mission de-briefing meeting with Mr. Miodrag Canovic, Deputy Minister and Dr. Ivan Kovacevic of the Department of Renewable Energy Sources	Ministry of Economy	Podgorica
14	Mission de-briefing meeting with UNDP Country Office, Ms. Snezana Marstijepovic, Programme Coordinator; Dr. Milica Radojevic, Team Leader Economy and Environment; Ms. Kristine Blokhuis, Deputy Resident Representative	UNDP	Podgorica
	Departure of Mr. Roland Wong		

Total number of meetings conducted: **14**

## **APPENDIX C – LIST OF PERSONS INTERVIEWED AND DOCUMENTS REVIEWED**

This is a listing of persons contacted in Podgorica (unless otherwise noted) during the Evaluation Period for the MTE only. The Evaluation Team regret any omissions to this list.

- 1) Ms. Kristine Blokhus, Deputy Resident Representative, UNDP Montenegro;
- 2) Dr. Milica Begovic Radojevic, Team Leader, Economy and Environment, UNDP Montenegro;
- 3) Ms. Snezana Marstzeijepovic, Programme Coordinator, CCM and Energy, UNDP Montenegro;
- 4) Mr. Miodrag Canovic, Deputy Minister, Ministry of Economy;
- 5) Dr. Igor Kovacevic, Department of Renewable Energy Sources, Ministry of Economy;
- 6) Ms. Lucija Rakocevic, Department of Renewable Energy Sources, Ministry of Economy;
- 7) Ms. Daliborka Pejovic, Director, Environmental Protection Agency, Ministry of Sustainable Development and Tourism;
- 8) Mr. Dragan Asanovic, Deputy Director, Environmental Protection Agency, Ministry of Sustainable Development and Tourism
- 9) Mrs. Sava Vuletic, Independent Advisor, Environmental Protection Agency, Ministry of Sustainable Development and Tourism;
- 10) Mr. Darko Novakovic, Assistant Director Hydrology, Hydrometeorological Institute of Montenegro;
- 11) Ms. Ivana Pavicevic, Advisor for International Relations, Hydrometeorological Institute of Montenegro;
- 12) Mrs. Nevzeta Alilovic, Officer in the Hydrology Department, Hydrometeorological Institute of Montenegro
- 13) Mr. Velimir Strugar, Deputy Director of Department for Distribution of Electricity, EPCG, Podgorica;
- 14) Mr. Veselin Bakic, Mayor, Andrijevica;
- 15) Mr. Milovan Culafic, Administrator in Andrijevica municipality , Andrijevica;

**Documents reviewed for this evaluation includes:**

- 1) UNDP-GEF Montenegro “Power Sector Policy Reform to Support Small Hydropower Development”, 2006, Project Document;
- 2) UNDP Annual Progress Reports, Project Implementation Review Reports, and Combined Delivery Reports;
- 3) Ministry of Economy, Energy Law (2003 and 2010 versions)
- 4) Ministry of Economy, Draft Law of Concessions (2009);
- 5) Ministry of Economy, Sample Concession Agreement for SHPPs (2008);
- 6) Ministry of Economy, Concessionary Act for Concession Award to Exploit Water Streams for Construction of Small Hydropower Plants in Montenegro (2009);
- 7) Ministry of Economy, Public Announcement for Prequalification of Concession Award to Exploit Water Streams for Construction of Small Hydropower Plants in Montenegro (2009);
- 8) Ministry of Economy, Rulebook on Criteria for Issuance of Energy License, Content of a Request and Registry of Energy Licenses (2010);
- 9) Ministry of Economy, Prequalification Documentation for Concession Award to Exploit Water Streams for Construction of Small Hydropower Plants in Montenegro (2009);
- 10) UNDP-GEF Feasibility Report “Small Hydro and Urban Development with a Positive Impact on Climate Change”, by Dr. Nikola Cupin, October 2009;
- 11) UNDP-GEF Feasibility Report “Pilot Project at Andrijevisa”, by Dr. Nikola Cupin, October 2009;
- 12) UNDP-GEF Feasibility Report “The Energy and Economic Concept of the Watercourses of Mojanska River – Perocica - Zlorecica”, by Dr. Nikola Cupin, September 2010.