



United Nations Development Programme

**Review of GEF Project:
Reducing Barriers to Accelerate the Development of Biomass
Markets in Serbia
PIMS 4382**

Mid-Term Review Report

February 2017

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SYNOPSIS

Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia

UNDP Project ID: 4382

GEF Project ID: 4517

MTR time frame: October 2016 to January 2017

Date of MTR report: January 2017

Region and Countries included in the project: South East Europe, Serbia

GEF Focal Area Objective: Climate Change Objective 3:

Promote Investment in Renewable Energy Technologies

Implementing partner and other strategic partners:

Ministry of Energy and Mining (lead partner) and

Ministry of Agriculture and Environmental Protection of the Republic of Serbia

Acknowledgements:

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1 EXECUTIVE SUMMARY

1.1. Project Information Table

Project Title: Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia			
GEF Project ID:	4517	Country:	Serbia
UNDP Project ID:	4382	Region:	South East Europe
Atlas Project ID:	00086739	Focal Area:	Climate Change
Atlas Award ID:	00074238	FA Objectives, (OP/SP):	
Executing Agency:	UNDP	Other Partners involved:	Ministry of Mining and Energy
ProDoc Signature (date project began):	21.5.2014	(Operational) Closing Date:	9.6.2018
Total resources	at endorsement		at midterm review (Nov. 1st, 2016)
	(Million US\$)		(Million US\$)
GEF financing:	2.845	1.220	
IA/EA own:	0.310	0.100	
	Cash	0.200	
	0.250		
	In-kind		
Government:	1.800	1.000	
	In-kind		
Others:	23.800	14.800	
	Cash	0.450	
	1. 470		
	In-kind		
Total co-financing:	27.630	16.550	
Total Project Cost:	30.475	17.770	

1.2 Project Description

1. This Project, which is supported financially by the Global Environment Facility (GEF) as well as various sources of national and private co-financing, seeks to achieve energy savings and avoided greenhouse gas (GHG) emissions by focusing on raising awareness and creating market demand for the biomass as well as on improving policy and legislative framework related to the use of biomass as an energy source.
2. This UNDP-supported GEF-financed project's strategy is to increase the institutional capacity of Serbia to deal with biomass, by forming a specialized Biomass Support Unit (BSU) within the Ministry of Mining and Energy, for the purpose of providing institutional support to the enhancement of capacity of all stakeholders to develop, finance, construct and operate bankable biomass energy projects. Further to this, models of a long-term biomass supply agreements and appropriate licensing procedures necessary for developing biomass market in Serbia will be prepared. Besides, the project aims at supporting the design of the National Programme for Supporting Biomass Projects, which will be implemented by the Biomass Support Unit, including the Investment Support Mechanism (ISM) to be implemented by the Ministry of Mining and Energy. In order to demonstrate technical viability of specific biomass technologies as a basis for replication, the project aims at providing the Investment Support Mechanism and facilitates investments in facilities utilizing biomass by implementing six demonstration biomass projects (including financing, design, construction and operation of the facility). In addition to those six projects, it is expected that, by the end of the project, twelve additional biomass projects will have been successfully supported by the BSU applying the Investment Support Mechanism. In order to assure the sustainable results throughout Serbia, UNDP-GEF Project will assist the Biomass Support Unit by designing a Public Awareness Strategy and by developing specific training seminars for the relevant stakeholders.
3. The overall objective of the Project is to reduce barriers and accelerate the biomass market in Serbia. The strategy is built around five outcomes:
 - Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia;
 - Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed, approved and implemented;
 - Outcome 3: Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects;
 - Outcome 4: A minimum of six biomass projects are successfully financed, constructed and operating by the end of the Project;
 - Outcome 5: At least 12 additional biomass projects are being supported by the Biomass Support Unit and Investment Support Mechanism by the end of the Project.

1.3 Project Progress Summary

4. Although the Project was approved in January 2014, the signing of the Project Document was four months delayed (May 21, 2014) because of early elections in Serbia. Besides, the implementation of the Project faced a six months delay upon signing the Project Document due to the state of emergency caused by the heavy floods in May 2014.
5. The National Project Director was appointed in August 2014 and the Project office was established in September 2014. The Biomass Support Unit (BSU) started with operations only in the second half of December 2014 after the appointment of its members. The Project Manager was in place as

of January 2014. The BSU Coordinating Officer was recruited in December 2014 and started his duties in January 2015, while the Project Assistant was recruited in October 2014.

6. The project had a slow start, and had to approach implementation under significantly changed circumstances, than anticipated by the ProDoc, as described later on in the report. However, the project team reinvented its implementation strategy very successfully and adapted to the changing conditions and, as a result, has already achieved its key end-of-project targets.
7. At the same time regulatory, financial and market framework conditions in Serbia have also improved.
8. The fact that among the six awarded projects under the Investment Grant Mechanism (IGM)¹ there was not a single wood biomass project needs to be further assessed and addressed.
9. Having this in mind some project activities have to be modified or cancelled, and others reinforced or introduced in order to address actual circumstances under which the Project will continue to operate.
10. The Project could benefit from a no-cost duration extension to capitalize on the current momentum generated by quick implementation of IGM and give time for additional activities which are to be implemented to get traction and produce results.

1.4 Recommendations

11. **Recommendation 1: Make changes to the current project log-frame with the following objectives:** a) Retain outputs and activities that are relevant to the Project; b) Reduce the targets for some indicators (like number of seminars or studies) and modify activities so that they have relevance to the Project overall objective and outcomes; c) set targets so that they are achievable and realistic within the timeframe of the Project.

Suggested changes are elaborated in the report and summarized here and in the Table 1 where the achievement of the targets was reviewed, and ratings provided together with the comments:

- Policy issues with wood and agro biomass should be elaborated with recommendations in two position papers
- IGM mechanism should be considered consumed. The new FIT system and upcoming EU Instrument for Pre-Accession Assistance in Rural Development (IPARD) lay solid foundation for sustainable support of RES utilization for energy production
- There is no justification for BSU operation beyond project lifetime
- Number of studies and seminars should be reduced and subjects refocused as discussed in the report
- Regulatory support work should address broader RES issues, such as energy plantations, agro waste to energy cycle, etc.

12. **Recommendation 2: Focus on strengthening monitoring and evaluation of supported biogas plants.**

The operations of biogas plants supported through IGM should be monitored in terms of biomass use, electricity and heat generated, GHG emission reductions achieved, and any other relevant operational or regulatory issues experienced as inputs for lessons learned.

13. **Recommendation 3: Strengthen outreach to municipalities, regional development agencies**

¹ Also referred to as Investment Support Mechanism (ISM) or Investment Grant Support Mechanism (IGSM): the terms are used interchangeably in the ProDoc

and private sector agro-businesses for promoting biomass potential in the sector.

Agro-sector value chain from primary production to food processing generates large amounts of manure, various residues, solid waste and effluents, which are all useful raw materials for energy production on small or large scale. The project should promote biomass and agro-waste to energy practices thus accelerating biomass market development.

14. Recommendation 4: For any future engagement of project staff and assistance to project partners clear targets and deliverables should be defined and achieved under the Project management and control.

Outsourcing staff to project partners without clear deliverables specified and project management control exercised has proven to yield little specific results if any.

15. Recommendation 5: Request a no-cost extension for 12 months to allow for monitoring implementation of pilot projects, as well as project's indirect impacts, including GHG emissions reductions

This recommendation is based on the facts that:

- project experienced operational delay of about 10 months during its start-up phase due to two force majeure events (nation-wide emergency as a result of massive floods and reorganization of the Government after unscheduled election);
- due to the changes in external environment, adaptive management had to be exercised and IGM redesigned contributing to delay in implementation of investment projects;
- additional time is needed to carry on full-fledged monitoring of the 6 supported through IGM biogas projects (some are still under construction; at least one full year of operations after project commissioning is needed to collect data and additional time to analyse and present the results), in particular GHG emission reduction impacts and other socio-economic benefits;
- project activities are going to be modified as discussed and need time to get traction. Indirect effects of these activities will also contribute to GHG emission reductions, therefore more time is needed to account for these effects.

1.5 Mid-Term Project Ratings and Achievement Summary with Comments

16. Mid-term project ratings and summary of achievements are provided in the Table 1.

Table 1 Review of project progress against targets with comments

Project component	End of project targets as defined in the Inception Report (IR)	Ratings	Comments
Project Goal: Reduction of GHG emissions associated with electricity generation in Serbia	1,247,481 tonnes of CO2 equivalent will be achieved over the lifetime of the investments of 20 years from projects supported by the UNDP GEF project	Highly Satisfactory	<p>Projected direct GHG emission reduction impact of 6 awarded biogas plants is calculated at 1,069,535 tons of CO_{2eq} over 20 years based on the power and heat generation projected in the feasibility studies.</p> <p>However, it seems that there was an error in calculating the emission reduction target as determined during project implementation² so the figures need to be checked.</p> <p>Intensify further monitoring and verification of emissions reduction based on the actual operational data that need to be collected during the remaining project implementation.</p>
Project Objective: To reduce barriers to accelerate the development of biomass markets in Serbia	At least 3 MW of installed capacity supported by this project fully operation by end of the project	Highly Satisfactory	Total installed power generation capacity planned by the six awarded projects is 6.3 Mwe.
Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia	Biomass Support Unit staffed and in full operation with funding to continue after project ends	Highly Satisfactory	Biomass Support Unit in operation since December 2014. It had 10 meetings in 2015 and 3 so far during 2016.
	At least 12 completed regional seminars on biomass energy that employed the designed training module will be presented	Needs to be modified	However, the funding for its operation after project ends cannot be secured, and there is no need for BSU to continue its operation after the project life time.
		Unsatisfactory	No seminar has been organized by the project mostly because there is saturation on the market by number of seminars on biomass energy organized by GIZ, KfW, GFG and other international organizations.
		Needs to be modified	The project should organize seminars pertinent to its follow up activities in the area of use of agro-waste, energy plantations, IPARD upcoming RES support, etc.

² Monitoring and Evaluation Plan for the GEF Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”, November 2016, UNDP

	Established courses on biomass at Universities of Belgrade and Novi Sad	Unsatisfactory, Need to be cancelled	No courses have been established. In discussions with project director it transpires that introduction of new courses at a University requires due process and consideration of overall academic program as well as compatibility with existing subject. His opinion is that the biomass themes are well covered among existing subjects, hence we recommend removal of this Activity.
	Regularly organized and conducted Annual International Workshop on Biomass Energy in Serbia produced by the Biomass Support Unit	Satisfactory	The first workshop was organized in March 2015. The second workshop was organized in October 2016. However, due to already mentioned saturation of biomass related events, it is recommended to organize just one closing workshops at the end of project to present overall project results.
	Biomass e-trading platform operational	Satisfactory	This work is performed by the Serbian Chamber of Commerce. The platform is scheduled to be online by the end of 2016. The preparation of a business plan for the platform is also on-going. An important output of the business plan should be an assessment of available resources which would be traded via platform and interest of the 'owners' of resources to offer them for trading thus providing for liquidity of the e-market
Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed and approved and adopted	Proposed secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities-	Moderately Unsatisfactory	The project has provided assistance to the Ministry of Mining and Energy by hiring a legal person which sits at the Ministry. However no specific regulations and other legal documents contributing to this target were developed. Therefore this assistance should be cancelled, and for any future assistance clear targets and deliverables should be defined and achieved under the Project management and control. Potential areas for development could be for geothermal energy use, for water use for irrigation, for energy plantations, for collecting of agro-waste by bio gas plants, etc.
	Appropriate licensing procedures biomass to energy systems are in place and investors have clarified and simplified process to follow	Satisfactory	According to project management, appropriate licensing procedures for bioenergy plants are already in place and do not require specific project support. However, the project has prepared a guide to investors clarifying licencing and permitting process.
Outcome 3: Successfully operating Biomass Support Unit which leads to increased capability of municipalities and	National Bioenergy Strategy and Action Plan, which reflects broad stakeholder consensus, adopted by the Government of Serbia	Moderately Unsatisfactory	Project has not prepared a strategy or action plan, because strategic documents exists like Action plan for biomass, National renewable action plan (NREAP), Energy strategy, However, there are discrepancies between the strategic documents and operational practices. These discrepancies were some of the reasons that project didn't get any application for

entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects			wood biomass plants and all supported applications were for agro biomass projects. It is recommended therefore for the Project to prepare two position papers: i) On issues related to wood biomass use ii) On issues related to agro biomass, waste and effluents
	At least 10 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding biomass to energy projects and how the Biomass Support Unit can provide assistance through the Investment Support Mechanism	Unsatisfactory, Needs to be modified	As said already, there is saturation with number of courses on the biomass subject for all target groups. Project should consider preparing some targeted workshops for use of agro biomass and waste, once the supported plants are operational. IPARD program will support small-scale biomass project, and that could be a subject to promote as presently available investment support mechanisms.
Outcome 4: Six biomass projects are successfully financed, constructed and operating by the end of the project.	Investment Grant Mechanism (IGM) established and successfully piloted by the end of the project	Highly satisfactory	The BSU has elaborated IGM mechanism and criteria for awarding the grants. Two public calls were open: one for the participating banks, and one for the interested investors with clear evaluation criteria presented.
Technical viability of specific biomass technologies is demonstrated as the basis for replication	6 biomass projects of at least 4MW installed capacity (in total) are successfully financed, constructed and operating by the end of the project	Highly satisfactory	Grant agreements for six projects with total capacity of 6.3 MWe signed in December 2015. Their construction is currently underway.
Outcome 5: At least 12 additional Biomass Projects are being supported by the BSU / IGM by the end of the Project	At least 12 pre-feasibility for the new bio energy projects elaborated by the end of the project	Unsatisfactory, Needs to be modified	The project should diversify away from FIT eligible installations towards IPARD eligible installation and could promote certain number of IPARD eligible projects
	One film covering all the projects established during the project	Satisfactory	Required contracts for preparing the film signed and the shooting has started.

Mid-term Review

UNDP-GEF project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”

2 INTRODUCTION

This report summarizes the findings of the Mid-Term Review (MTR) process for the UNDP-supported GEF-financed project entitled “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia” (herein referred to as the “Project”). The Midterm Review Missions for the Project were fielded to Belgrade, Alibunar and Aleksinac. The midterm review timeframe of this report is October 2016 to January 2017. The MTR covers the project implementation period from May 2014 till September 2016.

2.1. Purpose of Mid-Term Review and Objectives

The purpose of the mid-term review (MTR) for this Project was to assess the progress towards attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements. The MTR serves as an agent of change and plays a critical role in supporting accountability.

In accordance with UNDP-GEF monitoring and evaluation (M&E) policies and procedures³, all projects with implementation periods over 3 or 4 years are strongly encouraged to conduct MTRs. In addition to providing an independent in-depth review of implementation progress, the MTR is intended to be responsive to GEF Council decisions on transparency and better access to information during implementation. Key issues to be addressed by this MTR include:

- Project progress to date;
- The achievability of Project targets given the current outcomes, availability of resources and personnel;
- The necessity of resetting targets and resources; and
- Sustainability of Project interventions.

2.2. Midterm Review Methodology and Scope

The scope of the MTR covers the entire UNDP-supported GEF-financed project and its components as well as the co-financed components of the project. The MTR assesses Project implementation taking into account the status of Project activities, outputs and the resource disbursements made up to September 2016. The MTR also reports on the progress against the objective, each outcome, output, activity (including sub-activities) and impact indicators listed in the Project document. In addition, the progress against the objective and outcomes will be assessed as to how these will be achieved within the Project duration or if a Project extension might be required. The MTR report concludes with recommendations, as appropriate, for the key stakeholders of the project. The MTR will be approached 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.

³ http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf

Table 2 Summary of Efforts of the Midterm Review

Review Tier	Key Actions
Macro level	<ul style="list-style-type: none">• Review of project documents• Review relevant policies and programs/guidelines• Review progress reports• Courtesy calls, meetings and interview with policy makers• Meetings and interviews with project staffs• Interviews with national level key stakeholders
Meso level	<ul style="list-style-type: none">• Review targets in project result framework and Project's accomplishments• Find out capacity gaps and resource needed to meet the targets
Micro level	<ul style="list-style-type: none">• Meetings and interviews with stakeholders, program partners, and investors who received the grants, asking them if appropriate, on their satisfaction, benefits of participating in Project and interacting with project team• Solicit opinions of beneficiaries and government officials whether the Project interventions are working and are relevant and timely. If not what improvements could be done

2.3. Structure of the Mid-Term Review Report

This Review report is presented as follows:

- An overview of project implementation from the commencement of operations in January 2014;
- Review of project results based on project design and execution; and
- Conclusions, recommendations and lessons learned that can increase the probabilities of success.

This MTR was prepared according to GEF M&E policy and according to the "Guidance for Conducting Mid-Term Reviews of UNDP-Supported, GEF-Financed Projects" dated June 2014.

3 PROJECT DESCRIPTION AND STRATEGY

3.1. Project background

Project preparation process took quite some time; it also experienced a number of radical changes in legal and regulatory environment both over the period of project preparation and implementation.

The project preparation started in March 2011 and there were 4 revisions of the Project Identification Form (PIF) until finally the grant for project preparation was approved by the GEF in February 2012. Within the framework of Project Preparation Grant (PPG) of the Project "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia", UNDP engaged the company E4Tech, UK, to prepare a full package of required documents in order to secure the GEF CEO Endorsement, including the GEF CEO Endorsement Request Document, UNDP-GEF Project Document, GEF Climate Change Mitigation Tracking Tool, the Environmental and Social Safeguard Report, Co-financing letters and other supporting documents and reference materials. With 2.85 m US\$ from GEF, 0.31 mil US\$ from UNDP and 27.3 million of co-financing, the Project has total budget of 30.45 million US\$. Co-financing was expected to be provided by Serbian institutions and private investors.

Project preparation included intensive communication with a number of stakeholders (state institutions, municipalities, investors, financing institutions, etc.), elaboration of the baseline report and the Project strategy, design of the Public Awareness Strategy for the Project implementation as well as the

organization of awareness workshop with relevant stakeholders. The full size Project proposal prepared by UNDP was approved by the GEF Secretariat in January 2014.

At the same time energy legislation and other related regulations were undergoing changes creating an insecure investment environment and, as a consequence, not many RES projects were happening. The New Law on Energy was adopted on 29th December 2014. Starting from January 1, 2015, under the new Law on Energy, Serbia would be fully implementing all measures of the EU relevant to the sectors of gas, electric power and renewable energy sources, which made Serbia the first country in the region to transpose the Third Energy Package being the country's principal commitment under the Energy Community Treaty. Elaboration of the new Energy Sector Development Strategy for the period 2015 – 2025, with the projection by 2030 was also finalized and adopted in the Parliament.

Improvements in energy efficiency and use of RES in all energy related sectors were perceived as an overarching objective of the new Strategy. The Strategy particularly emphasized the following strategic actions:

1. Adoption and implementation of the National Renewable Energy Action Plan (NREAP);
2. Defining national objectives for using RES per sectors and monitoring of achievements:
 - a. Using RES for power generation;
 - b. Using RES in heating plants and in final consumption:
 - i. Change of use of fossil fuels for heating;
 - ii. Change of use of electricity for production of sanitary hot water;
 - iii. Introducing RES in buildings sector (primarily in public sector);
 - c. Use of RES in transport sector.
3. Development of distribution network for connection of small power plants;
4. Production and use of equipment and technologies that provide efficient use of energy from RES;
5. Informing and educating the public.

Financial institutions like EBRD, KfW and other were trying to find the place on the market offering various credit lines for supporting implementation of NREAP, some of them with grant components.

3.2. Problems to be Addressed and Project Strategy as devised by ProDoc

According to ProDoc the Project work should focus on removing barriers for biomass to electricity technologies in the agricultural (biogas) and wood sectors to facilitate the future deployment of efficient technologies and increase the share of sustainable bio energy in the Serbian electricity sector.

In summary, based on the preliminary results from the PPG study, the theoretical annual potential supply for biogas is estimated at 23 PJ. In real terms, much of this resource cannot be aggregated among farming units to provide sufficient feedstock that a typical anaerobic digestion (AD) unit may require. It is therefore assumed that ~30% of theoretical potential could be technically exploitable (~ 7 PJ). The installed capacity could be 102 MWe. On the other hand, forest residues in Serbia (e.g. tops, branches and stumps) that are left over at the logging sites and are estimated (from the PPG study) at 2.8 PJ. It was assumed that ~50% of this potential could be exploited for small to medium scale co-generation plants (~ 1,4 PJ). The installed capacity could be 19 MWe.

Both the biogas and woody biomass technologies at the foreseen scales are fully commercial and their security of supply can be safeguarded with local supply agreements, which will further facilitate the development of biomass supply companies who will enter into long-term biomass supply contracts.

The project was intended to complement the Government activities to promote the use of biomass as an energy source in Serbia for electricity generation, by combining

- a technical assistance package which includes building the institutional capacity required to address the legal and institutional barriers as well as creating awareness among all relevant stakeholders from the industry, government and financing sectors and

-
- an Investment Grant Mechanism (IGM) combining the GEF grants with EBRD loans to develop bankable projects through innovative financial packaging and to leverage other sources of financing, and to reduce the risk of projects not being commercially viable or able to attract debt finance.

An investment grant mechanism was selected as the most appropriate financial support mechanism for the Serbian biomass industry only after careful and thorough analysis, including several discussions with investors and financing institutions (EBRD, IFC, etc.) active in the region which concluded that this type of mechanism has the greatest potential to overcome barriers and help develop the biomass market in Serbia.

The overall objective of the Project was to reduce barriers and accelerate the biomass market in Serbia. The Project strategy was built around five outcomes:

Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia;

Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed, approved and implemented;

Outcome 3: Successfully operating Biomass Support Unit (BSU) which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects;

Outcome 4: A minimum of six biomass projects are successfully financed, constructed and operating by the end of the Project;

Outcome 5: At least 12 additional biomass projects are being supported by the Biomass Support Unit and Investment Support Mechanism by the end of the Project.

The BSU was supposed to facilitate the implementation of the Investment Grant Mechanism (1.6 million dollars from GEF) while EBRD was supposed to complement existing financial resources, with assumed ability to absorb significantly higher risks and lower rates of return than financial resources available in the commercial market.

Firstly the BSU was to identify suitable projects for financing based on a Call for proposals. Following, the BSU will use its technical capacity and also employ technical consultants to improve the bankability of the selected projects with assistance for feasibility studies and business plans on a 1:1 basis (\$1 from the project developer, \$1 from GEF). The GEF grants will be then provided as a phased-out incentive payment, which will be offered only to the projects successfully evaluated from EBRD.

According to ProDoc four projects were to be selected (it was increased to six later on), based on their technical readiness, bankability and best leveraging ratio. They will be further referred to EBRD for possible financing. EBRD will conduct a separate evaluation of the potential projects and if it finds them eligible will structure and provide debt financing for their implementation. No state guarantees will be required for this process and private investments, which will follow the procedures from the EBRD's Western Balkan Sustainable Energy Direct Financing Facility (WBSDEFF). The projects will be subject to the regular approval process (applied by the EBRD to small projects) and will be expected to meet the rigorous standards of the EBRD about sound banking, environmental and health and safety regulations, among others. The EBRD will notify UNDP in writing when a project meets all criteria and it is approved for financing.

Then, the first two scoring higher on both BSU and EBRD evaluations will get up to 20% of the capital costs as GEF grant and up to a maximum of 400,000 US dollars per project. The other two will get up to 15% of the capital costs as GEF grant and up to a maximum of 250,000 US dollars per project.

During the second year of the project a second call was to be launched which would follow the same process as above and finance another two projects (up to 10% of the capital costs as GEF grant and up to a maximum of 150,000 dollars per project). In all projects the GEF grant would be provided in two sets:

- a) 30% of the grant to be provided once the project receives positive written response from EBRD in order to get the debt financing (i.e. – the debt financing has been approved)
- b) the remaining 70% will be given upon project completion.

In the longer term, it was expected that the GEF projects would establish a good level of understanding for the EBRD loans and this will enable the future development of bankable projects and provide a good structure to leverage other sources of financing, and to reduce the risk of projects not being commercially viable or able to attract debt finance.

During the mid-term project review a thorough assessment of the need for additional grant provisions were envisaged to be conducted.

3.3. Project implementation arrangements

The project is implemented by UNDP and executed by Ministry of Mining and Energy with close cooperation and coordination through biomass support unit. The project organigram is provided on Figure 1.

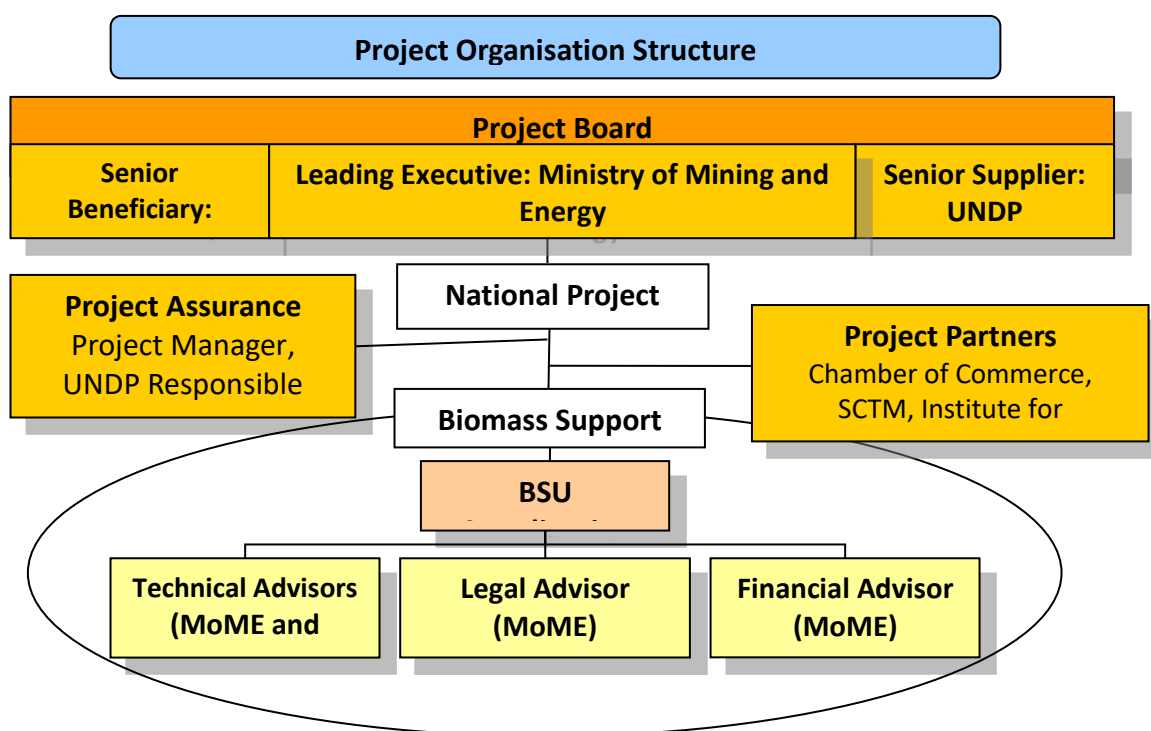


Figure 1 Project Implementation organigram

A cross-sectoral Project Board, chaired by the National Project Director and consisting of the representatives of the relevant ministries and the other project partners was envisaged to be established to guide, provide advice and input for the implementation of the project.

3.4. Project main stakeholders

The project has successfully engaged large number of stakeholders as follows:

1. Ministry of Mining and Energy
2. Ministry of Agriculture and Environmental Protection
3. Standing Conference of Towns and Municipalities
4. Regional Development Agency Srem
5. Institute for Standardization of Serbia
6. Municipality of Alibunar

-
7. Municipality of Ruma
 8. Private investors
 9. Commercial banks
 10. EBRD, KfW

The BSU has been instrumental in facilitating cooperation between two ministries and other public sector stakeholders, but also with the private investors and commercial banks as well. The Project team is to be commended for successfully engaging commercial banks and private investors alike in key project activities.

4 KEY FINDINGS

4.1. Changes in implementing environment

The Inception Workshop of the Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia” was held on October 30th 2014 and was attended by app. 50 participants representing a number of relevant stakeholders of the Project. The Inception report reflected comprehensively on the changes in the project context up to October 2014 and correspondingly has proposed adequate changes in project activities, please see the Annex 5.

The creation of stable legal framework was progressing before and after the Inception workshop. The new Energy law was adopted in December 2014. The new feed in tariffs (FIT) were finally approved at the end of June 2016 after undergoing several changes. However, there was a regulatory gap between December 2014 and June 2016, which has somewhat jeopardized the interests and possibilities for implementation of RES projects. The government of Serbia has also started needed reforms and negotiations for EU membership, thus creating a sense of more political stability.

The IPARD program⁴ has been prepared by the Government and the EU, which includes strong support for using RES in agricultural sector, as an important measure for supporting rural development. The implementation of IPARD program is expected to start in mid 2017.

GIZ and KfW have prepared a large program for fuel switching at district heating plants in Serbia aimed to replacing fuel oil with wood biomass. GIZ project is entitled “Development of a Sustainable Bioenergy Market in Serbia” and is still running. They have organized a number of workshops and seminars in order to promote their services, thus saturating the market by exposing essentially same limited group of interested people to frequent events on biomass subject.

However, the key change affecting the project implementation strategy significantly was the fact that the EBRD reversed its initial readiness for cooperation and declined to work with the project. This has happened after the project was already approved by the GEF, but surprisingly it was not emphasised in the Inception report. As a consequence, the project team had to reinvent the implementation strategy and find alternative mechanisms for project implementation, in particular for the Investment Grant Mechanism.

⁴ IPARD program for Republic of Serbia for 2014-2020

4.2 Project Strategy

4.2.1 Project Design

To meet the objective of reducing barriers for development of biomass market, the ProDoc proposed as the key instrument a concept of Investment Grant Mechanisms (IGM) that would be provided in a partnership with EBRD. The key barrier identified towards implementing of biomass-based energy systems were relatively high upfront investment costs of biomass electricity plants. Even though the FIT system was in place at a time of project design, as well as EBRD's credit line (WeBSEDF) with a grant component of 15-20%, in spite of that, Project design still opted for an additional grant component as an instrument for addressing the mentioned barrier.

The GEF grants were to be provided as a phased-out incentive payment which will be offered only to the projects successfully evaluated by EBRD in two sets:

- a) 30% of the grant will be provided once the project receives positive response from EBRD in order to get the debt financing.
- b) the remaining 70% will be given upon project completion. Each project will get up to 20% of the capital costs as GEF grant and up to a maximum of 400,000 dollars per project (later reduced to USD 266,000)

The approach of introducing a fixed amount grant (with cap and floor) for investors in biogas power plants at the time when a FIT system was in place and commercial lending with a grant component available on the market, doesn't seem the most effective way to address the issues of biomass market acceleration. For instance, if the FIT were not sufficiently attractive to secure adequate return to investors, than the FIT system itself should have been revised instead of attempting to fix it with a grant. Furthermore, with fixed grant amount approach (within a range but not % fixed) after certain threshold there was no correlation anymore between the size of the award and the size of the investment or resulting GHG savings. As an example, while for the smallest project the GEF grant represented 15% of the total investment costs, for the biggest awarded project this was only 2% and as such not really a decisive factor.

Another issue with the design approach is that commercial banks would not accept for financing any biomass project, which is not viable based on FIT only, but it might be with a grant award. This issue was not addressed by the ProDoc. This was proven in practice because based on the initial financial analysis of the awarded projects, all of them looked adequately profitable for implementation on the basis of the Government feed-in tariff only – subject to the perceived risk, of course.

Putting aside considerations of effectiveness of the designed grant scheme, another building block of project design – to work only with and through EBRD's Western Balkan Sustainable Energy Direct Financing Facility (WeBSEDF) – couldn't be realized. In the meeting with the EBRD representative held during the UNDP-GEF project inception phase in mid 2014 (1,5 years after the signature of EBRD's co-financing letter), EBRD expressed interest in cooperating with and supporting implementation of UNDP-GEF Project in line with the support letter. However, they also acknowledged that by that time, available funding from the EBRD WeBSEDF II credit line (for direct financing of medium-sized EE/RES projects) has already been committed and the approval of new funds was expected only in 2015, however with high degree of uncertainty. Instead, it was suggested by EBRD and agreed by UNDP to organise meetings and seek collaboration with local commercial banks, which have arrangements with EBRD to approve loans for EE/RE from the Western Balkan Sustainable Energy Finance Facility (WeBSEFF) credit line. All in all, in order to avoid further implementation delays, the project team had to broaden the list of potential financing partners to implement the envisaged Investment Grant Support Mechanism and essentially to reinvent a feasible implementation strategy for IGM component under the given circumstances, which they did remarkably well. The need for and the urgency of adaptive management has also been duly acknowledged by project partners during the Project Inception workshop

4.3. Revised project implementation strategy for IGM

The Inception report prepared by the Project team provides a comprehensive review of the project environment in 2014 in terms of policy and legal framework, technical context, other relevant projects and financial products offered by the local commercial and international banks.

Against that background and having in mind the EBRD withdrawal, the Project team devised new implementation plan for Investment Grant Mechanisms in 3 stages as follows:

STAGE I: One public call to establish a pool of banks, which will participate in the UNDP-GEF Project;

STAGE II: One public call for the selection of 6 investors in biomass/biogas fired CHP facilities;

STAGE III: Grant awards during preparation and construction of 6 biomass/biogas fired CHP facilities.

The criteria for banks selection were established as follows:

- Minimum requirements for the commercial, technical and financial viability of the project on the construction of biomass/biogas fired CHP facilities;
- Methods for assessing the eligibility of projects (whether to use technical assistance within the available credit line or to outsource an authorized technical expert);
- Loan granting procedure, with time frame for the implementation of each individual activity;
- Relevant documentation for a detailed analysis of the project and creditworthiness of a loan user that all investors should submit;
- Terms and time frames for the disbursement of funds after the loan has been granted, including any additional documentation that investors should submit in order to be able to use the loan;
- General terms of loan granting: tenor, grace period, security instruments;
- Availability of financial incentives for the project implementation (if there are financial incentives and how investors can obtain and use them).

Main criteria for the public call for investors were as follows:

- Investor may be any private company registered for performing activities planned by the project;
- Project on the construction of biomass/biogas fired CHP facility is prepared to such an extent that the start of its financing can be anticipated;
- Investor has agreed with a selected bank on credit terms for financing the construction of biomass/biogas fired CHP facilities.

Mandatory content of the project application required the following:

- Evidence that the interested party is a private company registered for performing activities planned by the project;
- Letter of intent issued by the bank on financing the proposed project on the construction of biomass/biogas fired CHP facility;
- Assessment done by an expert or a technical expert that the project is technically feasible for being financed by the bank;
- Project documentation on the basis of which the loan has been granted;
- Plan for the generation and consumption or/and sale of energy from biomass/biogas fired CHP facility.

Main criteria with an adequate scoring system for selection of 6 grant winning projects were:

- Environmental and sustainability criterion;
- Social criterion;
- Best available technology criterion,
- Cost efficiency criterion and
- Full utilization of the technical potential of the plant Criterion.

Finally, the disbursement rates for the grant were foreseen in two instalments:

- 30% of GEF grant is disbursed after the conclusion of the loan agreement between an investor and the bank. It can be used to cover the costs of compiling documentation necessary for the initiation of facility construction pursuant to the law and/or as a down payment made by an investor out of all project costs in loan granting process;
- 70% of GEF grant is disbursed upon the completion of project on the construction of biomass/biogas fired CHP facility, on the basis of the project verification report. It can be used as a one-off repayment of a part of the principal, to cover borrowing cost and/or to stock up on biomass/biogas.

At the time of MTR, the Project went through all 3 stages as described above, and have fully committed the total foreseen amount for the grants of USD 1.6 M as shown in the Table 3.

Table 3 Beneficiaries of grant support for the construction of biogas CHP facilities

Name	Capacity (MW)	Investment (M USD)	Grant (USD)	Commercial bank
Forkom doo,	0.20	1.42	222,400.40	Pro Credit Banka
BGS gama BP doo,	0.65	2.14	275,519.92	EBRD (WEBSSEDF)
BGS beta BP doo,	0.65	2.14	275,519.92	EBRD (WEBSSEDF)
BGS alfa BP doo,	0.65	2.14	275,519.92	EBRD (WEBSSEDF)
Biogas Energy doo,	3.57	12.43	275,519.92	AIK Banka
Bioelektra doo,	0.60	2.37	275,519.92	ERSTE Banka
TOTAL	6.32	22.64	1,600,000	

It is interesting to note that all supported projects are based on agricultural biomass only. There were no successful applications for biomass projects based on wood biomass.

There are number of reasons why there were no wood biomass projects among the 6 supported. Perhaps the most important one is the fact that current use of wood biomass in Serbia is close to the limit of sustainable use of that resource. This is the consequence of extensive use of firewood for heating and cooking in Serbia, as well as big demand for lower grade wood as raw material for laminates and pellets production. A clear policy direction on how Serbia wants to use its wood biomass is lacking.

Further, in order to enable secure supply of biomass from forests in public ownership, it is necessary to have long-term contracts signed with Public enterprises in charge of forest management, which are not easy to get. Woody biomass supply from privately owned forests is not an attractive option for investors because of smaller plots of forests in private ownership and bad forest's roads. Consequently, sufficient and reliable wood biomass supply is another issue affecting lack of wood biomass projects.

4.4. Progress towards Results

Project team has almost fully achieved the key project goal and objective (in terms of expected GHG emission reduction and investment in biomass-based power plants), already at the time of MTR, in spite

of major changes in the project environment and in assumed project implementation strategy for IGM set up. These changes as described earlier presented huge challenges but the Project team and the BSU have managed to overcome it.

However, while the Project team was busy with successfully devising and implementing new strategy for IGM operationalization, the expected results of other activities have been achieved to a lesser degrees of satisfaction.

Table 4 Progress Towards Results Matrix

Project Strategy	Indicator	Baseline Level	Level in 1 st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment ⁵	Achievement Rating ⁶	Justification for Rating
Objective: To reduce barriers to accelerate the development of biomass markets in Serbia	Indicator: Installed capacity of incremental biomass projects, substituting fossil fuel-based heating, supported by the project	4.8 MW	4.8 MW	NA	4.8 MW+ 3 MW = 7.8 MW		HS	Provided in chapter 4.4.1
Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia	Indicator 1: Established Biomass Support Unit (BSU)	No BSU	Inter-institutional BSU has been established within the Ministry of Mining and Energy, staffed and in operation.	NA	BSU staffed and in full operation with funding to continue after project ends		HS	Provided in chapter 4.4.1

⁵ Colour coded according to Indicator Assessment Keys:

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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⁶ 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

	Indicator 2: Training Modules and seminars on Biomass Energy for local municipalities and entrepreneurs based upon the UNDP Municipal Biomass Guide and Guide for Investors	No training or study courses on Biomass to Energy issues	No training modules and seminars on Biomass Energy for local municipalities and entrepreneurs (planned for latter phase of project)	NA	At least 12 completed regional seminars on biomass energy that employed the designed training module will be presented		MU	Provided in chapter 4.4.1
	Indicator 3: New course on Biomass Energy at the University of Belgrade & Novi Sad	No university training or study courses on Biomass to Energy issues	No new course on biomass energy at the University of Belgrade and Novi Sad (planned for latter phase of project)	NA	Established courses on biomass at Universities Belgrade and Novi Sad Regularly organized and conducted		MU	Provided in chapter 4.4.1

	Indicator 4: Public awareness raising campaign on Biomass Energy and Annual International workshop	Limited awareness about climate change issues	Public awareness raising campaign on biomass energy initiated: 4.1. International conference 'Sustainable Growth from Biomass' was organized on 26 March, 2015 in the Serbian Chamber of Commerce and Industry in cooperation with Finnish Embassy in Serbia and Standing Conference of Towns and Municipalities. 4.2. Project web site has been established (http://biomasa.undp.org.rs).	NA	Annual International Workshop on Biomass Energy in Serbia produced by the Biomass Support Unit		S	Provided in chapter 4.4.1
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	Indicator 5: Support to development of the biomass market incl. Biomass e-trade platform	No biomass e-trading platform	Grant Agreement for non-credit related activities was signed between the UNDP and Serbian Chamber of Commerce and Industry for the Project "Development and Operation of the Biomass Web Portal along with the Online Biomass Trading Platform and Biomass e-trading Platform" in June 2015.	NA	Biomass e- trading platform operational		S	Provided in chapter 4.4.1
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Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed and approved and adopted	Indicator 1: Status of adoption of secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities.	No secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities	Elaboration of the new Government decrees in line with recently adopted new Energy law is in course: 1.1 The Decree on Incentives for Privileged Power Producers which will prescribe in more detail the categories of privileged power producers, incentives, conditions for their achievement, manner of setting the incentive period, rights and obligations derived from the incentives for privileged power producers and other energy entities, set the content of relevant contracts etc. is in course. 1.2 The Decree on Conditions and Procedure for Acquiring the Status of Privileged Electricity	NA	Proposed secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities		MU	Provided in chapter 4.4.1
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			<p>Producer 1.3 The Decree on Setting the Models of Power Purchase Agreements and Pre-Agreements</p> <p>1.4 The Decree on Guarantee of Origin for Electricity Produced from Renewable Energy Sources The above listed decrees are of decisive significance for use of biomass, and renewable energy in general.</p> <p>1.5 Project partner institution - Institute for Standardization (ISS) has started activities on the GEF Project in May 2015. European Standard EN 16325 has been translated. Process of its adoption by technical commission A242 of ISS has been initiated. It will provide basis for Decree on</p>					
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			Guarantee of Origin for Electricity Produced from Renewable Energy Sources which is to be adopted by the Government of RS to complement recently adopted Energy Law. Elaboration of the said Decree is in course.					
	Indicator 2: Established licensing procedures	Lack of integrated licensing procedures	No Licensing procedure established (planned for latter phase of project)	NA	Appropriate licensing procedures; biomass to energy systems are in place and investors have clarified and simplified process to follow		MU	Provided in chapter 4.4.1
Outcome 3: Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects	Indicator 1: Availability of National Programme for bio energy development in Serbia	No long-term National Programme for bio energy sector in Serbia	No National Programme for bio energy (planned for latter phase of project)	NA			MU	Provided in chapter 4.4.1

	Indicator 2: Number of training seminars for banks and project developers	No dedicated training	No training seminars for banks and project developers (planned for latter phase of project)	NA			U	Provided in chapter 4.4.1
	Indicator 3: Status of Investment Grant Mechanism	Lack of knowledge about biomass projects among local banks and project developers No Investment Grant mechanism	Elaborate investment grant mechanism prepared by Biomass Support Unit (BSU) and agreed with the Ministry of Mining and Energy and project partners. Public call for investors in biomass/biogas fired CHP facilities along with model contract and application form has been elaborated by the BSU. Public call or investors in biomass/biogas fired CHP facilities was published in May 2015.	NA			HS	Provided in chapter 4.4.1

Outcome 4 Six biomass projects are successfully financed, constructed and operating by the end of the project Technical viability of specific biomass technologies is demonstrated as the basis for replication	Indicator 1: Investment Grant Support Mechanism	No investment grant support mechanism	Investment grant mechanism established. Its implementation is in course	NA			HS	Provided in chapter 4.4.1
	Indicator 2: Implemented biomass projects	No bio energy projects, insufficient capacities	No biomass projects (planned for latter phase of project)	NA			HS	Provided in chapter 4.4.1
Outcome 5: At least 12 additional Biomass Projects are being supported by the Biomass Support Unit / Investment Grant Mechanism by the end of the Project	Indicator 5: Number of new bio energy projects initiated in Serbia	No bio energy projects, insufficient capacities	No new bioenergy projects	NA			U	Provided in chapter 4.4.1
	Indicator 2: Case Study or Documentary film on biomass	No recent films covering full supply to delivery chains	No Case Study Documentary film on biomass	NA			HS	Provided in chapter 4.4.1

4.4.1 Progress towards Outcomes Analysis

Assessment of project results have been conducted against key performance indicators in the GEF Climate Change Mitigation (CCM) Tracking Tool, see Table 5. Overall, the project has already achieved its key indicators in relation to installed biomass capacity, biomass-based energy generation and direct GHG emission reduction. With regard to co-financing, the project is on-track with 60% realization rate at mid-term.

Table 5 Progress against key indicators in the CCM Mitigation Tracking Tool

Indicator	End-of-Project Target	Status at mid-term
Co-financing	27,630,000 US\$	16,550,000 US\$
Additional co-financing leveraged	N/a	30,000 US\$
Installed capacity per technology (biomass) directly resulting from the project*	6.9 MW el 6.0 MW th	6.32 MW el 6.17 MW th
Life-time energy production per technology (biomass) directly resulting from the project	967,104 MWh el 1,261,440 MWh th	960,880 MWh el 451,420 MWh th
Lifetime direct GHG emissions	1,247,481 tCO ₂ eq	1,054,407 tCO ₂ eq

**There is inconsistency in target for installed biomass capacity set up in ProDoc and Request for CEO Endorsement (3 MW) and the target reported in the CCM Tracking Tool*

The achievement of Project goals, objectives and outcomes has been defined by the end-of-project targets in Revised Project Results Framework from the Inception report. Progress towards meeting these targets is discussed in the following text.

Project Goal:

Reduction of GHG emissions of 1,247,481 tonnes of CO₂ equivalent will be achieved over the lifetime of the investments of 20 years from projects supported by the UNDP GEF project.

Progress

Projected direct GHG emissions reduction of 6 awarded biogas plants are at 1,069,535 tons of CO_{2eq} over 20 years. This is based on the power and heat generation projected in the feasibility studies only. However, it seems that there was an error in calculating the emission reduction target as determined during project implementation⁷ so the figures need to be checked.

Comments

Because of the apparent error in calculating this target and in order to get actual figures of GHG emission reductions consequent to operation of six awarded biogas plants, the project has to improve further monitoring and verification of GHG emission at all 6 plants during the remaining project lifetime by collecting and analysing actual operational data from all 6 biogas plants

⁷ Monitoring and Evaluation Plan for the GEF Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”, November 2016, UNDP

Project Objective:

At least 3 MW of installed capacity supported by this project fully operation by end of the project.

Progress

Total installed power generation capacity planned by the six awarded projects stands at 6.3 MWe, which means that this target is fully met already.

Comments

However, all the plants are based on agriculture biomass only, hence the project needs to recognize this issue and CommNet it because absence of wood bio mass projects is a significant factor for accelerating overall biomass market development.

Outcome 1:**Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia**

1.1 Biomass Support Unit staffed and in full operation with funding to continue after project ends

Progress

Biomass Support Unit is in operation since December 2014. It had 10 meetings in 2015 and 3 so far during 2016. BSU was instrumental for devising and applying new IGM implementation strategy, particularly at:

1. Enabling good cooperation among involved ministries
2. Preparing and conducting public call for applications for grant
3. Defining legal, technical and financial conditions for grant award.

Comments

The ProDoc calls for prospects of BSU sustainability to be assessed towards the end of the project. Although the BSU was instrumental at this stage of the project and at given role, it couldn't be expected to live beyond the project lifetime because it is essentially a group of professionals volunteering to do some good job with the Project team providing the structure, organizational and secretarial support. After the Project ends, there will be neither source of funding nor real needs for BSU to continue its operation. The advisory support for biomass project development is an available service on the consulting market in Serbia, provided by a number of private companies and Universities.

1.2. At least 12 completed regional seminars on biomass energy that employed the designed training module will be presented

Progress

No seminar has been organized by the project.

Comments

It is mostly because there is saturation on the market by number of seminars on biomass energy organized by GIZ, KfW, GFG and other international organizations. However, the Project needs to address this situation and come up with revised activities and indicators.

An option is to organize 4 regional workshops for local self-government representatives but also for agricultural advisory services, local entrepreneurs and regional development agencies on upcoming IPARD support for RES projects.

1.3. Established courses on biomass at Universities of Belgrade and Novi Sad

Progress

No courses have been established.

Comments

In discussions with project director (who is also full professor at University of Belgrade)⁸ it transpires that introduction of new courses at a University requires due process and consideration of overall academic program as well as compatibility with existing subject. His opinion is that the biomass themes are well covered among existing subjects, hence this activity should be cancelled. MTR supports this view.

1.4. Regularly organized and conducted Annual International Workshop on Biomass Energy in Serbia produced by the Biomass Support Unit

Progress

The first workshop was organized in March 2015.

The second workshop was organized in October 2016.

Comments

However, due to already mentioned saturation of biomass related events, it is recommended to organize just one closing workshops at the end of project to present overall project results.

1.5. Biomass e-trading platform operational

Progress

This work is performed by Serbian Chamber of Commerce. The platform is scheduled to be online by the end of 2016. The preparation of a business plan for the platform is also on-going.

Comments

An important output of the business plan should be an assessment of available resources which, would be traded via platform and interest of the 'owners' of resources to offer them for trading thus providing for liquidity of the e-market.

Outcome 2:

Stronger and more effective secondary legislation related to biomass energy is developed and approved and adopted

2.1. Proposed secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities

Progress

The project has provided assistance to the Ministry of Mining and Energy by hiring a legal person which sits at the Ministry. However, although the Project provided assistance in developing five Government Decrees which regulate the mechanism for power producers from renewable energy no other specific regulations and other legal documents contributing to this target were developed. At the moment Project supports elaboration of methodology for monitoring and reporting on power production in CHP plants and primary fuel use as prescribed by the Decree D on the Requirements and Procedure of Acquiring the Status of Privileged Power Producer, Preliminary Privileged Power Producer (and Producer from Renewable Energy Sources).

Comments

Therefore this assistance in its present form should be cancelled, and for any future technical assistance clear targets and deliverables should be defined and achieved under the Project management and control.

Potential areas for development could be regulatory framework / guidelines, for energy plantations, for collecting of agro-waste by bio gas plants.

2.2. Appropriate licensing procedures for developing biomass to energy systems are in place and investors have clarified and simplified process to follow

⁸ Prof Dr Milos Banjac

Progress

According to project management, appropriate licensing procedures for bioenergy plants were adopted in early 2015 and therefore there is no need for further project support.

Comments

However the project has prepared an elaborate guide to investors clarifying the licensing procedures and permitting process and a template for long term biomass supply contracts.

Outcome 3:

Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects

3.1. National Bioenergy Strategy and Action Plan, which reflects broad stakeholder consensus, adopted by the Government of Serbia

Progress

Project has not prepared a strategy or action plan, because Energy Sector Development Strategy was adopted in 2015 and NREAP in 2013..

Comments

However, there are discrepancies between the strategic documents and operational practices. While the strategic documents support wood bio mas use for electricity generation, it seems that current use of wood biomass in Serbia is close to the limit of sustainable use of that resource because of extensive use as firewood and as raw material for laminats manufactruing. These discrepancies were some of the reasons that project didn't get any application for wood biomass plant and all supported applications were for agro-biomass projects.

The Project could therefore prepare two position papers to address the remaining gaps:

1. On issues related to wood biomass use
2. On issues related to use of agro biomass, waste and effluents

3.2. At least 10 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding biomass to energy projects and how the Biomass Support Unit can provide assistance through the Investment Support Mechanism

Progress

No seminar was prepared and completed.

Comments

As said already, there is saturation with number of courses on the biomass subjects for all target groups as further elaborated under 4.5.2. A guide for investors in biomass and other RES projects have been prepared by the project. The Project maintains an informative web site <http://biomasa.undp.org.rs>.

The BSU was very effective within the process of selecting particular project for awarding the grant. However, the other roles foreseen for the BSU like to prepare seminars, to develop new projects in public and private sector, are already taken by others and the services are available on the market, the BSU is not needed to do that and therefore BSU role could be considered already as successfully fulfilled.

Anyway, the Project should consider preparing some targeted workshops for use of agro-biomass and agro-waste, once the supported plants are operational. IPARD program will support small-scale biomass project, and that could be a subject for promotion as new investment support mechanisms.

Outcome 4:

Six biomass projects are successfully financed, constructed and operating by the end of the project.

4.1. Technical viability of specific biomass technologies is demonstrated as the basis for replication

Progress

6 awarded biomass projects already selected successfully and demonstrating the use of agro-biomass for electricity generation.

4.2. Investment grant mechanism (IGM) established and successfully piloted by the end of the project

Progress

The BSU has elaborated IGM criteria and procedures for awarding the grants. Two public calls were open: one for the participating banks, and one for the interested investors with clear evaluation criteria presented.

4.3. 6 biomass projects of at least 4MW installed capacity (in total) are successfully financed, constructed and operating by the end of the project

Progress

Six projects are already selected. Grant agreements for six projects with total capacity of 6.3 MWe were signed in December 2015. Their construction is currently underway.

Outcome 5:

At least 12 additional Biomass Projects are being supported by the Biomass Support Unit / Investment Grant Mechanism by the end of the Project

5.1. At least 12 - pre-feasibility for the new bio energy projects elaborated by the end of the project

Progress

No pre-feasibility study has been prepared to date.

Comments

The available funds for grants are fully utilized and no additional awards are expected under IGM instrument for the remaining of the project life time. Therefore the relevance of this activity is questionable. However, in order to support sustainability of biomass market development, Project may consider some activities to strengthen supply side of the market. For that purpose, the life cycle agro-waste flow could be followed (from primary production to food processing) with consideration of how to provide these as raw material for bio-gas plants in a legally and logistically sound manner. For that purpose also energy plantations (fast growing trees) could be considered as well.

Additionally, Project could explore feasibility of small-scale installations which may seek IPARD support. An appropriate number of pre-feasibility studies should result from these activities.

5.2. One film covering all the projects established during the project

Progress

Required contracts for preparing the film signed and shooting is under way.

Overall the progress towards results is very good particularly with the key Project outputs and objective. Some support activities should be modified and some cancelled for the remaining project life-time, and monitoring of awarded projects must be strengthen.

The summary of project ratings and achievements is presented in the Table 8 in the Section 5.

4.5. Project Implementation and Adaptive Management

4.5.1 Implementation arrangements

The project was implemented based on the UNDP National Implementation Modality (NIM). The project management arrangements were slightly amended after the finalisation of the project inception report to reflect a) new composition of the Government of Serbia; and b) revised arrangements for implementation of the Investment Grant Support Mechanism, as follows. Given the fact that the Ministry of Mining and Energy and Ministry of Agriculture and Environmental Protection, have signed Project Document, both Ministries delegated their members in the Project Board. The Leading Executive Ministry has been appointed the Ministry of Mining and Energy. Further, to ensure inclusion of additional financing partners, local banks, in the implementation of the Investment Grant Support Mechanism, BSU was tasked to undertake regular consultation and coordination of relevant Project activities with financial institutions. According to stakeholders, the Project Board has been duly involved and regularly consulted on all important decisions and their views have been taken into account and their approval sought before the final decision.

The implementation approach uses the National Implementation Modality (NIM) modality. This was realised in a competent manner, with the appointment of staff to create a Project Management Unit (PMU) that was independent of but answerable to the client (MoME) and both supported and overseen by the GEF implementing agency (UNDP Serbia). Letter of Agreement was signed between UNDP and the Ministry of Mining and Energy for implementation of the Investment Grant Support Mechanism.

The support of UNDP, as the Implementing Agency through its Country Office, has been sustained and effective throughout current project implementation, undoubtedly contributing significantly to the achievements. Its support has been particularly beneficial on a number of occasions, including the Inception phase and regular bi-weekly meetings with the Project Manager to formally review project achievements and project implementation strategy.

4.5.2 Co-ordination

Concerning the technical assistance components of the project, it was concluded in the Project Inception Report that “several activities foreseen to be implemented under the GIZ DKTI Project “Development of Sustainable Bioenergy Market in Serbia” started in January 2014 are similar to activities foreseen within UNDP-GEF Project. Besides, both Ministries and some institutions (ISS and SCTM) which are partners of the UNDP-GEF Project are at the same time partners of the GIZ DKTI Project. Therefore, careful planning of the Project activities and coordination between the various actors has been done in order to avoid overlaps”. Unfortunately the impression at the time of the mission was that the co-operation between the UNDP/GEF project and the mentioned GIZ DKTI project is still far from optimal, although there are also some clear distinctions in the type of activities supported (the GIZ DKTI project, for instance, is focusing more on household wood and bioenergy use for heating purposes). Still, there are several activities that would benefit from and may also serve significant amount of financial resources of both donors and/or enhance their overall impact, if closer collaboration could be agreed upon. As an example, several biomass energy related events were organized in 2015 and 2016 basically around the same topics that both projects are dealing with, but with no apparent co-operation and co-ordination. Obviously, however, there is not much that UNDP can do either alone to improve the situation, but this would require mutual interest of both parties.

By building on KfW's long standing commitment to support the rehabilitation of municipal district heating systems in Serbia, the KfW has more recently also started to explore the possibilities to convert some existing DH plants for the use of biomass and/or to build new biomass-based CHP plants. The current status of these activities is still to be clarified, but some areas of common interest are likely to be found also there, at least for sharing information, eventual studies, resource assessments, feasibility studies

etc. that can contribute, among others, to building up the resource base of the biomass web-portal currently developed by the SCCI.

The EU supported S2Biom project (www.s2biom.eu) has been, among its other activities, developing a computerised Biomass Atlas toolset, which has been announced to be ready for publishing in 2016. As informed by a letter sent to UNDP in October 2014. “the toolset will be publically available online and will be based on update harmonized datasets (for biomass cost supply) at local, regional, national and pan European level for EU28, western Balkans, Moldova, Turkey and Ukraine”. Consequently, a decision was taken in the UNDP/GEF project inception workshop that that the UNDP/GEF project will not invest any resources for a similar activity (Biomass Atlas - Output 1.4) within the UNDP/GEF project, but will rely on the results and outputs of the mentioned S2Biom project. This is an excellent example of smart and productive donor co-operation and related adaptive project management, which hopefully would also work with other donors.

4.5.3 Adaptive Management

The Project team has applied exemplary adaptive management approach in devising and implementing new strategy for IGM operationalization subsequent to major changes in the project environment as discussed earlier.

The BSU proved to be instrumental in facilitating IGM implementation, which was carefully planned by the Project team.

An International consultant has been engaged to advise on adaptive management process and the Project team have developed a good working relationships with the consultant.

However, some activities as commented in chapter 3.4 were not implemented, and these do need documented project management response, which was not evident.

The work plan for the next period should reflect the updated project implementation strategy that is going to be prepared by the project team following accepted/approved MTR recommendations.

4.6. Finance and Co-Finance

For the activities that have been funded by the Project to date, the financial management of Project funds has been satisfactory. Moreover, the Project has appropriate financial controls, which include regular reporting. Besides the grants, other interventions funded with Project resources consisted mostly of studies and feasibility studies that have been carried out.

Some of the activities that were not implemented so far provide excess funds which has to be accounted for, and the use of available funds have to be planned by AWP over the remaining of the project life-time in line with updated project implementation strategy.

Project expenditures to date by components are shown on Table 6.

The Project was also able to leverage co-financing from the Government of Finland for a joint study with Srem Development Agency and a study tour to Finland for the project partners. An updated project co-financing table is presented under Table 7.

The targeted co-financing amount should be related to targeted biomass plants capacity, because the majority of co-financing investments would go towards constructing the biomass plants.

The fact that Project document targeted co-financing for biomass plants to the amount of USD 23.8 M, while the capacity target was set at 3 MW, indicates on a gross mismatch. This conclusion is supported by the following costs assumptions and calculations:

- Assumed current investment costs for biomass plants per 1 kW of capacity are at USD 4,000 as maximum value,

- Target capacity by the ProDoc was set at 3 MW or 3,000 kW
- Than total investments for 3,000 kW would amount to USD 12 M,

That means that maximum investment costs for 3 MW capacity would be around USD 12 M, which project has surpassed already. The figure for targeted co-financing of 23.8 M is too high for the given capacity target. Therefore if the presented rational for correlation between capacity and co-financing targets is accepted, the co-financing target should be modified.

Table 6: Project Budget and Expenditures (in USD)

Outcome	2014 (Dec. 31 st)	2015 (Dec. 31 st)	2016 (Dec. 31 st)	Total disbursed	Total planned for the projects	Total remaining
Outcome 1	44,783	79,928	63,589	188,300	477,250	288,950
Outcome 2	799	20,561	25,779	47,139	180,000	132,861
Outcome 3	2,466	108,991	22,591	134,048	530,000	395,952
Outcome 4	0	480,000	785,728	1,265,728	1,600,000	334,272
Outcome 5	356	4,800	8,752	13,908	172,750	158,842
Outcome 6 M&E	0	0	10,000	10,000	50,000	40,000
Project management	10,218	43,830	28,927	82,975	145,000	62,025
Annual planned disbursement	331,250	453,000	2,033,000	1,742,098	3,155,000	1,412,902
% expended of planned disbursement	17.7	162.9	46.5	55.2	100	44.8

Table 7: Details of Project Co-Financing

Sources & type of co-financing	Name of co-financer	Amount confirmed at CEO Endorsement	Actual amount Contributed at stage of Mid-term Review (Nov. 1 st 2016)	Actual % of expected amount
		USD	USD	
CASH				
IA	UNDP	250,000	100,000	40
OTHERS	PRIVATE INVESTORS	23,800,000	14,800,000	62
IN- KIND				
IA	UNDP	310,000	200,000	65
GOVERNMENT	Government of Serbia	1,800,000	1,000,000	56
OTHERS	Chamber of Commerce and Industry of Serbia	440,000	240,000	55
OTHERS	Standing Conference of Towns and Municipalities	300,000	180,000	60
OTHERS	Regional Development Agency Srem	50,000	30,000	60
OTHERS	Municipality of Alibunar	100,000	60,000	60
OTHERS	Municipality of Ruma	340,000	0	0
OTHERS	Institute for Standardization	240,000	0	0
	TOTAL	27,630,000	16,610,000	60
Additional co-financing leveraged				
IN- KIND				
GOVERNMENT	Government of Finland	0	75,000	100

4.7. Project-Level Monitoring and Evaluation Systems

The elements of the project level monitoring and evaluation system have been defined in the project design as follows:

- Project Inception Workshop: to assist all partners to fully understand and take ownership of the project, and agree on possible revisions of the indicators, targets and their means of verification, while rechecking assumptions and risks.
- Quarterly monitoring of project progress (UNDP Enhanced Results Based Management Platform), update of risk logs in ATLAS from which Project Progress Reports can be generated.
- Annual Project Review / Project Implementation Report (APR/PIR) to monitor progress made since project start and in particular for the previous reporting period (1 July to 30 June).
- Periodic Monitoring site visits.
- Mid-Term Review and Final Terminal Evaluation in accordance with UNDP and GEF requirements.

In order to standardize project monitoring practices and align its work with revised UNDP Monitoring Policy and Procedures (Ref. Launch of the Programme and Project Management Reforms, 8 March 2016), UNDP CO Serbia has developed Standard Operating Procedures for project cycle management including general M&E framework ensure quality of project implementation in accordance with corporate requirements. The SoP became effective as of 21 November 2016.

The Project has harmonised the UNDP general M&E framework with GEF Project Results Framework what resulted in a document: “Project Monitoring and Evaluation Plan for the Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”

The Project’s should intensify M&E activities not only related to monitoring awarded biogas plants performance monitoring and consequent GHG emission reductions evaluation, but also for keeping an eye on progress with achievement of all project indicators.

It should be coordinated with budget control so that budget over- or under- utilization is promptly detected and addressed.

4.7.1 Stakeholder Engagement

The project has successfully engaged large number of stakeholders as follows:

1. Ministry of Mining and Energy
2. Ministry of Agriculture and Environmental Protection
3. Standing Conference of Towns and Municipalities
4. Regional Development Agency Srem
5. Institute for Standardization of Serbia
6. Municipality of Alibunar
7. Municipality of Ruma
8. Private investors
9. Commercial banks

The Project has made an excellent job in developing partnerships with direct and indirect stakeholders, which is increasing impacts and visibility of projects interventions.

The Project was successful in facilitating good cooperation between involved Ministers, which is always a kind of challenge.

Moreover, the Project has supported the creation and work of BSU, thus enabling it to be a very effective instrument for IGM implementation.

More importantly, the Project team is to be commended for successfully engaging commercial banks and private investors alike in key project activities, thus compensating for EBRD’s inability to provide expected co-financing for project implementation (see earlier discussion on EBRD’s co-financing). Active involvement and participation of commercial banks were critical for project success in implementing IGM.

4.7.2. Reporting and communication

Progress reporting and internal communication have been undertaken through quarterly and annual reporting to UNDP CO and MoME. Annual Work Plans (AWPs) were prepared by the Project team, with inputs from UNDP CO, and submitted to the Project Board for formal approval. Meetings of the Project Board were usually twice a year (the first PB meeting was held 4th May 2015 followed by others on 22 December 2015, 18 April 2016 and 20 December 2016).

UNDP CO generated its own quarterly financial reports from Atlas. These expenditure records, together with Atlas disbursement records of direct payments, served as a basis for monitoring expenditure and revisions to the budget. The latter took place annually, based on progress in disbursing funds and changes in the operational work plan, and also on an *ad hoc* basis depending upon the rate of delivery. UNDP CO has also required quarterly delivery projections, along with work plans (derived from the

AWPs) and procurement tables, all of which have served as an additional reporting tool, especially to quantify Project progress.

Two Project Implementation Reports (PIRs), covering the period July to June, have been prepared and submitted by the Project team to the UNDP CO, UNDP Regional Coordination Unit in Istanbul, and UNDP HQ for review and official comments, prior to final submission to GEF. Annual Project Reports (APRs), covering calendar years (January - December), were also prepared as part of the AWP monitoring protocol in accordance with UNDP's regulations.

Communication:

The Communication Strategy has been developed in early stage of the Project i.e. in course of Project preparation. Given the long time period which has elapsed between the submission of the Project to the GEF and actual start of Project activities the need for revision of the Communication Strategy arose. The revised Strategy has been prepared in 2015. As foreseen by the Strategy the communication activities follow four pathways:

1. Communication activities related to Public Call and construction of CHP plants:
 - a. Six public presentations of Public Call have been performed through Serbia in cities Belgrade, Ruma, Novi Sad, Cacak, Nis and Krusevac. All presentations were covered by local electronic media. The Project Manager has given a number of statements for local TV and radio stations, some of which are available on internet:

<https://www.youtube.com/watch?v=hb2Qbl9clcU>
<https://www.youtube.com/watch?v=fS2qOuBCEFM>
<https://www.youtube.com/watch?v=8ea2yl-UeOI>
http://www.dailymotion.com/video/x2wz1cq_tv-kanal-9-novi-sad-pkv-podsticaj-za-proizvodnju-energije-iz-biomase_news
 - b. The main national TV (Radio Television of Serbia) with broadcasted in a prime time a long information about the Project and Public Call:

<http://www.rts.rs/page/stories/sr/story/13/ekonomija/2014357/projekat-undp-a-za-vecu-zastupljenost-biomase.html>
 - c. The TV Station Copernicus with national coverage broadcasted an interview with the Project Manager

https://www.youtube.com/watch?v=TF1idbih_rw
 - d. Ceremonial signing of contracts between the Ministry of Mining and Energy and investors selected under public Call was broadcasted by a number of media including national TV:

<http://www.rts.rs/page/stories/ci/story/5/ekonomija/2104119/uskoro-sest-postrojenja-za-proizvodnju-energije-iz-biomase.html>
<http://balkans.aljazeera.net/vijesti/energija-biomase-neiskoristeni-potencijal-srbije>
<http://www.vesti.rs/Vesti/Bespovratna-sredstva-za-energiju-iz-obnovljivih-izvora-2.html>
 - e. Ceremonial putting in operation of the first CHP plant in Botos by the minister of Mining and Energy was covered by a number of electronic and printed media:

<https://www.youtube.com/watch?v=XpGuqadWF8Y>
<http://biomasa.undp.org.rs/?p=1981>
 - f. Production of two films on construction of biogas CHP plants:
 - i. Short film (5 min) titled Biomass energy all around us:
http://biomasa.undp.org.rs/?page_id=2038&lang=en
 - ii. Long film (25 min), production is still in course

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2. Communication and information activities related to capacity building of Project partners
 - a. The Project has been supporting Serbian Chamber of Commerce and Industry (SCCI) to develop and manage a Green Energy Portal along with the online biomass trading platform.
 - b. The Project has actively supported Standing Conference of Towns and Municipalities, Regional Development Agency of Srem in elaboration of the Biomass Study in Srem Region which was financed by the Finnish Embassy.
 - c. In October 2015, a study visit to Finland was organised by the Project and the Finnish Embassy in Serbia for the representatives of relevant ministries, Chamber of Commerce and Industry, Standing Conference of Towns and Municipalities, Regional Development Agency of Srem and municipalities. The purpose of the visit was to present first-hand experience of Finland, the world leader in using biomass, and its public policies and business practices.
 - d. Visits to CHP plant construction sites were organized by the Project in May and November 2016 for representatives of Project partners with the purpose of the visit was to present first-hand the construction process of the biogas CHP plant.
 - e. Communication activities related to stakeholders and professional community
 - i. International conference 'Sustainable Growth from Biomass' was organized in March, 2015 in the Serbian Chamber of Commerce and Industry in cooperation with Finnish Embassy in Serbia and Standing Conference of Town and Municipalities
 - ii. International conference 'Use of Biomass for Energy Purposes – the Road to Business Success' was organized in October 2016 in the framework of 12th Belgrade Energy Fair in the Ceremonial hall of the Administration Building. The conference was jointly organized by UNDP, the Embassy of the Slovak Republic in Belgrade and the Chamber of Commerce and Industry of Serbia with the support of the Ministry of Mining and Energy of the Republic of Serbia. This conference aims at promoting and supporting investments in biomass energy in Serbia.
 - iii. The NPD and the Project manager have presented the Project and its results in a number of conferences, both in Serbia and abroad.
 3. Communication activities related to general public.
 - a. The web site of the project has been operational since March 2015
 - b. The Project produced a leaflet about the Project in Serbian and English.

4.8. Sustainability

The Project sustainability issue should be discussed from two perspectives:

- i) Perspective of Project design
- ii) Perspective of Project objective, i.e. “to accelerate the development of biomass markets in Serbia”

As discussed earlier the key instrument in project design was Investment Grant Mechanism. Even though the Project has already successfully implemented this particular instrument, the IGM as devised is not sustainable because there are **no policy justification** for maintaining such a measure at present.

Another instrument was Business Support Unit (BSU). The BSU played very important role in IGM implementing already. Besides, it was supposed to be involved in further project development activities working with municipalities and entrepreneur, even after the Project life-time. This aspect is also not sustainable because the BSU is composed of professionals who work at various institutions, and serve at BSU on voluntary basis to support implementation of this specific project. Therefore, the BSU neither has a legal and financial structure under which it could continue to operate, nor does it have a mandate

or a clear need for their continuing operation. The advisory services for RES project development are available in Serbia on the open market where there are number of private companies ready to provide them. Therefore there is really no need for the BSU operation beyond the project life- time.

From the perspective of project intent – to accelerate biomass market development in Serbia – the situation is different. The project did significantly accelerate the development of biomass market in Serbia by enabling substantial 2.5-fold increase in installed biomass capacity in the country, from 4,8 MW in the baseline up to 10,7 MW as a result of the project. New FIT system is in place since June 2016 and that is a real and permanent form of IGM. Recently Government of Serbia has prepared program for IPARD support for small-scale RES installations, which is coming on line next year as a complementary IGM for smaller project which would not seek FIT support.

According to investors⁹, the present level of FIT is sufficiently attractive to undertake a RES project development. What the investors value now the most is stability of policy and regulatory framework which also seems to be in place after some turbulent years of changing and amending regulations. Then, cost of financing at commercial banks has been significantly reduced over the last 5 years.

The Project has prepared an Investors guide for RES projects development; an e-trading platform for biomass will be soon on line. It is important to achieve relevance and liquidity of the trading platform. At the same time, the performance of awarded biogas plants need to be closely monitored and promoted. The Project still has to address the issues of wood biomass, energy plantations, logistics of enabling biogas plants to use all kind of agro-waste, and small-scale RES installations, which would further strengthen the biomass market development.

Having this in mind we can definitively state that the Project objectives on clear path to be sustainably achieved even though the key project instruments are not sustainable. The Project played important role in jump-starting the market for and creating confidence among investors and commercial banks in biomass projects. Key preconditions are in place, in the form of enabling policy and tariff framework and financial sector's readiness, to ensure sustainability of biomass market development in Serbia.

4.8.2 Financial Risks to Sustainability

Financial risks to the Project sustainability are low or none because key components for sustainability are already in place, and for the remaining activities, there is sufficient project budget. The feed-in tariff system in place is adequately financially supported by government regulations.

4.8.3 Socio-Economic Risks to Sustainability

The socio-economic risks to the Project sustainability are rated as low or none, because use of biomass is not a controversial issue, it has clear social and economic benefits, it supports rural development agenda, and public perception of biomass use is positive. To further substantiate this claim with evidence, the project shall conduct rigorous monitoring of socio-economic risks, as well as benefits of the supported biogas projects (once commissioned) and present the findings to wide range of stakeholders in the form of appropriate lessons learnt report.

4.8.4 Institutional Framework and Governance Risks to Sustainability

The institutional framework and governance risks to sustainability are rated as moderately sustainable. This is due to the issues related to wood biomass, where still there is no clear policy on priorities and

⁹ Investors in Alibunar biogas plant (€ 14 M)

development objective of using the wood biomass. As a consequence of policy vacuum, vested interests were formed and currently dominate this biomass market segment.

4.8.5 Environmental Risks to Sustainability

There should be no environmental risks to the Project sustainability since Project was designed to promote use of biomass thus reducing GHG emissions, an objective consistent with the Government of Serbia (GoS)'s policy direction to consume resources in a sustainable manner.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

5.1.1 Relevance of Project Strategy

Key building block of project implementation strategy was anticipated cooperation with EBRD, which didn't materialize. This fact has left project management team with a challenge to reinvent a new project implementation plan.

As discussed earlier the key instrument in project design was Investment Grant Mechanism. Even though the Project has already successfully implemented this particular instrument, the IGM as devised was not a critical factor – a deal maker – for six awarded projects to happen. Further IGM is not sustainable because there are no financial resources, which can continue providing for the IGM, and actually there is no policy justification for maintaining such a measure when there is a FIT system in place.

Another project instrument was Business Support Unit (BSU). The BSU played very important role in implementing IGM already. Besides, it was supposed to be involved in further project development activities working with municipalities and entrepreneur, even after the Project life-time. This was a design fault because it is not realistic to assume that the BSU as a temporary set up composed of professionals who work at various public institutions and serve at BSU on voluntary basis to support implementation of this specific project, could continue to operate as a basically service provider after the Project life time. Therefore, the BSU neither has a legal and financial structure under which it could continue to operate, nor is there a mandate or a clear need for their continuing operation. The advisory services for RES project development are available in Serbia on the open market where there are number of private companies ready to provide them. Consequently there is really no need for the BSU operation beyond the project life time.

Therefore with a benefit of hindsight, the project strategy was not appropriate for the given project context, the project team has applied adaptive management approach already, and the future project activities should be modified as recommended elsewhere in the report.

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5.1.2 Extent of Attainment of Planned Project Outputs and Outcomes.

Project Goal:

Reduction of GHG emissions associated with electricity generation in Serbia

Projected direct GHG reduction impact of 6 awarded biogas plants is calculated at 1,069,535 tons of CO_{2eq} over 20 years based on the power and heat generation projected in the feasibility studies. This is based on the power and heat generation projected in the feasibility studies only. However, it seems that there was an error in calculating the emission reduction target as determined during project implementation¹⁰ so the figures need to be checked.

Rating: Highly satisfactory

¹⁰ Monitoring and Evaluation Plan for the GEF Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”, November 2016, UNDP

Project Objective:

To reduce barriers to accelerate the development of biomass markets in Serbia

Total installed power generation capacity by the six awarded projects is at 6.3 MWe, while the target was set at 3 MWe.

Rating: Highly satisfactory

Outcome 1:

Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia

Biomass Support Unit is in operation since December 2014. It had 10 meetings in 2015 and 3 so far during 2016. However the funding for its operation after project ends cannot be secured, and there is no need for BSU to continue its operation after the project life time. No seminar has been organized by the project mostly because there is saturation on the market by number of seminar on biomass energy organized by GIZ, KfW, GFG and other international organizations.

Rating: Satisfactory

Outcome 2:

Stronger and more effective secondary legislation related to biomass energy is developed and approved and adopted

The project has provided assistance to the Ministry of Mining and Energy by hiring a legal person which sits at the Ministry. However no specific regulations and other legal documents contributing to this target were developed.

According to project management, appropriate licensing procedures for bioenergy plants are already in place and do not require specific project support.

Rating: Moderately unsatisfactory

Outcome 3:

Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects

No training course was developed by the Project because as said already there is saturation with number of courses on the biomass subjects for all target groups provided mostly by GIZ and KfW.

However, the Project could have explored other issues that were not addressed by existing courses, which could potentially accelerate biomass market development, for instance such as the fact that there was no wood biomass project among the 6 awarded, and possibly some other?

Rating: Moderately unsatisfactory

Outcome 4:

Six biomass projects are successfully financed, constructed and operating by the end of the project.

Total installed power generation capacity by the six awarded projects is at 6.3 MWe, while the target was set at 3 MWe.

Rating: Highly satisfactory

Outcome 5:

At least 12 additional Biomass Projects are being supported by the Biomass Support Unit / Investment Grant Mechanism by the end of the Project

The project has successfully selected 6 biomass projects which have received investment grant. No additional biomass projects were identified by the Project and BSU because the allocated funds for IGM are fully consumed by this 6 projects and there is no chance that it could be replenished. However the Project should diversify away from FIT eligible installations towards IPARD eligible installation and could promote certain number IPARD eligible projects.

Rating: Moderately unsatisfactory

5.1.3 Quality of Project Implementation and adaptive management

Project had a slow start, and approached implementation under significantly changed circumstances than anticipated by the ProDoc. Key assumption for project implementation strategy was not materialized (cooperation with EBRD), but the project reinvented its implementation strategy successfully and have achieved already key end-of-project targets (commitment of IGM to 6 awarded projects, and consequent GHG emission reductions), which is very commendable.

However, some other outcomes and targets were achieved to a lesser degree, admittedly due to objective circumstances in the project environment. However, the Project still could address the issues of wood bio mass, energy plantations, logistics of enabling biogas plants to use all kind of agro waste, and small-scale RES installations which would further strengthen the biomass market development.

Rating: Satisfactory

5.1.4 Sustainability

The Project sustainability issue should be considered from two perspectives:

- i) Perspective of Project design
- ii) Perspective of Project intent

From the perspective of project design, the key project instruments IGM and BSU are not sustainable as discussed elsewhere.

From the perspective of project intent – to accelerate biomass market development in Serbia – the situation is different. New FIT system is in place since June 2016 and that is a real and permanent form of IGM. Recently Government of Serbia has prepared program for IPARD support for small-scale RES installations, which is coming on line next year as a complementary IGM for smaller project which would not seek FIT support. The advisory services for RES project development are available in Serbia on the open market where there are number of private companies ready to provide them.

Therefore necessary preconditions for further development of biomass market are in place and are likely to remain there.

Rating: Likely

Table 8 MTR Ratings & Achievement Summary

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	Highly satisfactory
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	Satisfactory
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	Moderately unsatisfactory
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	Moderately unsatisfactory
	Outcome 4	Highly satisfactory
	Outcome 5	Moderately unsatisfactory
Project Implementation & Adaptive Management	(rate 6 pt. scale)	Satisfactory
Sustainability	(rate 4 pt. scale)	Likely

5.2 Recommendations

Recommendation 1: Make changes to the current project result framework with the following objectives: a) Retain outputs and activities that are relevant to the Project; b) Reduce the targets for some indicators (like number of seminars or studies) and modify activities so that they have relevance to the Project overall outcome; c) set targets so that they are achievable and realistic within the timeframe of the Project.

Suggested changes are elaborated in the report and summarized here and in the Table 4 where the achievement of the targets was reviewed, and ratings provided together with the comments:

- Policy issues with wood and agro biomass should be elaborated with recommendations in two position papers
- IGM mechanism should be considered consumed. The new FIT system and upcoming IPARD support are foundation for sustainable support for RES utilization for energy production
- There is no justification for BSU operation beyond the project lifetime
- Number of studies and seminars should be reduced and subjects refocused as discussed in the report
- Regulatory support work should address broader RES issues such as energy plantations, agro waste to energy cycle, etc.

Recommendation 2: Focus on strengthening monitoring and evaluation of supported biogas plants.

So far the Project was monitoring the progress at construction of the awarded biomass plants. Once these plants start generating electricity, the actual operational data should be monitored in terms of biomass use, electricity and heat generated, GHG emission reductions achieved, and any other relevant operational or regulatory issues experienced as inputs for lessons learned. A monitoring plan should be prepared for that.

Recommendation 3: Strengthen outreach to municipalities, regional development agencies and private sector agro businesses for promoting biomass potential in the sector.

Besides regular communication activities, the Project should reach out to agro sector value chain stakeholders from primary production to food processing which generate large amounts of manure, various residues, solid waste and effluents that are all useful raw materials for energy production on small or large scales. The project should promote biomass and agro waste to energy practices thus accelerating biomass market development.

Recommendation 4: For any future engagement of project staff and assistance to project partners clear targets and deliverables should be defined and achieved under the Project management and control.

Outsourcing staff at project partners without a clear deliverables specified and project management control exercised has proven to yield little specific results if any.

Recommendation 5: Request a no-cost extension for 12 months

This recommendation is based on the facts that:

- project experienced operational delay of about 10 months during its start-up phase due to two force majeure events (nation-wide emergency as a result of massive floods and reorganization of the Government after unscheduled election);
- due to the changes in external environment, adaptive management had to be exercised and IGM redesigned contributing to delay in implementation of investment projects;
- additional time is needed to carry on full-fledged monitoring of the 6 supported through IGM biogas projects (some are still under construction; at least one full year of operations after project commissioning is needed to collect data and additional time to analyse and present the results), in particular GHG emission reduction impacts and other socio-economic benefits;
- project activities are going to be modified as discussed and need time to get tractions. Indirect effects of these activities will also contribute to GHG emission reductions, therefore more time is needed to account for these effects.

5.3 Lessons Learned

- **Project design.** Some project design assumptions and interventions proved not to be the most effective or even realistic. EBRD role was seen as a cornerstone for IGM implementation, and without EBRD the team was left with a challenge to devise alternative implementation approach. Hence, critical alliances with specific partners during the project strategy formulation should be avoided unless they are fully explored, understood and confirmed especially when central to the sustainability of the project's financing and implementation strategy and firmly confirmed by partners.
- **Project instrument.** The approach of introducing a fixed amount grant (with cap and floor) for investors in biogas power plants at the time when a FIT system was in place and commercial lending with a grant component available on the market, doesn't seem the most effective way to address the issues of biomass market acceleration. For instance, if the FIT were not sufficiently attractive to secure adequate return to investors, than the FIT system itself should have been revised instead of attempting to fix it with a grant. Furthermore, with Fixed grant amount approach (within a range but not % fixed) after certain threshold there was no correlation anymore between the size of the award and the size of the investment or resulting GHG savings. As an example, while for the smallest

project the GEF grant represented 15% of the total investment costs, for the biggest awarded project this was only 2% and as such not really a relevant factor.

- **Project implementation.** Project should use monitoring and evaluation practices to get inputs for lessons learnt on biogas plants operation, biomass trading platform effectiveness, and overall enabling framework and best practices for strengthening biomass market development in agro sector in particular.
- **Stakeholders' engagement.** The project has proven that with the right approach and efforts invested, the public and private stakeholders alike could be attracted for active participation in project activities. Particular emphasis is on achieved level of cooperation between the ministries and with the private investors and commercial banks.
- **Accuracy of ProDoc calculations and estimates.** Two key targets as set by ProDoc – GHG emission reduction and amount of co-financing, are apparently wrongly established.

For instance, projected direct GHG reduction impact of 6 awarded biogas plants is calculated at 1,069,535 tons of CO_{2eq} over 20 years based on the power and heat generation projected in the feasibility studies. This is based on the power and heat generation projected in the feasibility studies only. However, it seems that there was an error in calculating the emission reduction target as determined during project implementation¹¹ so the figures need to be checked.

As of targeted co-financing amount in the case of this project it should be related to targeted biomass plants capacity, because the majority of co-financing investments would go towards constructing the biomass plants of targeted capacity.

The fact that Project document targeted co-financing for biomass plants to the amount of USD 23.8 M, while the capacity target was set at 3 MW, indicates on a gross mismatch. This conclusion is supported by the following costs assumptions and calculations:

- Assumed current investment costs for biomass plants per 1 kW of capacity are at USD 4,000 as maximum value,
- Target capacity by the ProDoc was set at 3 MW or 3,000 kW
- Than total investments for 3,000 kW would amount to USD 12 M,

That means that maximum investment costs for 3 MW capacity would be around USD 12 M. The figure for targeted co-financing of 23.8 M is too high for the given capacity target.

There should be a checking mechanism to avoid having a project trying to reach impossible targets.

¹¹ Monitoring and Evaluation Plan for the GEF Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”, November 2016, UNDP

5.4 Ratings

These are summarized with comments in Table 6.

Table 6: Review of project progress against targets with comments

Project component	End of project targets as defined in the Inception Report (IR)	Ratings	Comments
Project Goal: Reduction of GHG emissions associated with electricity generation in Serbia	At 1,247,481 tonnes of CO2 equivalent will be achieved over the lifetime of the investments of 20 years from projects supported by the UNDP GEF project	Highly Satisfactory	Projected direct GHG reduction impact of 6 awarded biogas plants is calculated at 1,069,535 tons of CO _{2eq} over 20 years based on the power and heat generation projected in the feasibility studies. However, it seems that there was an error in calculating the emission reduction target ¹² so the figures need to be checked. Intensify further monitoring and verification of emissions reduction during the remaining project implementation
Project Objective: To reduce barriers to accelerate the development of biomass markets in Serbia	At least 3 MW of installed capacity supported by this project fully operation by end of the project	Highly Satisfactory	Total installed power generation capacity planned by the six awarded projects: 6.3 MWe
Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia	Biomass Support Unit staffed and in full operation with funding to continue after project ends	Highly Satisfactory Needs to be modified	Biomass Support Unit in operation since December 2014. It had 10 meetings in 2015 and 3 so far during 2016. However the funding for its operation after project ends cannot be secured, and there is no need for BSU to continue its operation after the project life time.
	At least 12 completed regional seminars on biomass energy that employed the designed training module will be presented	Unsatisfactory, Needs to be modified	No seminar has been organized by the project mostly because there is saturation on the market by number of seminar on biomass energy organized by GIZ, KfW, GFG and other international organizations.
	Established courses on biomass at Universities of Belgrade and Novi Sad	Unsatisfactory, Need to be cancelled	No courses have been established. In discussions with project director it transpires that introduction of new courses at a University requires due process and consideration of overall academic program as well as compatibility with existing subject. His opinion is that the biomass themes are well covered among existing subjects, hence we recommend removal of Activity.

¹² Monitoring and Evaluation Plan for the GEF Project “Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia”, November 2016, UNDP

	Regularly organized and conducted Annual International Workshop on Biomass Energy in Serbia produced by the Biomass Support Unit	Satisfactory	The first workshop was organized in March 2015. The second workshop was organized in October 2016. However, due to already mentioned saturation of biomass related events, it is recommended to organize just one closing workshops at the end of project to present overall project results.
	Biomass e-trading platform operational	Satisfactory	This work is subcontracted to -Serbian Chamber of Commerce. The platform is scheduled to be online by the end of 2016. The preparation of a business plan for the platform is also on-going. An important output of the business plan should be an assessment of available resources which would be traded via platform and interest of the 'owners' of resources to offer them for trading thus providing for liquidity of the e-market
Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed and approved and adopted	Proposed secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities-	Moderately Unsatisfactory	<p>The project has provided assistance to the Ministry of Mining and Energy by hiring a legal person which sits at the Ministry. However no specific regulations and other legal documents contributing to this target were developed.</p> <p>Therefore this assistance should be cancelled, and for any future assistance clear targets and deliverables should be defined and achieved under the Project management and control.</p> <p>Potential areas for development could be for geothermal energy use, for water use for irrigation, for energy plantations, for collecting of agro-waste by bio gas plants, etc.</p>
	Appropriate licensing procedures biomass to energy systems are in place and investors have clarified and simplified process to follow	Satisfactory	According to project management, appropriate licensing procedures for bioenergy plants are already in place and do not require specific project support. However, the project has prepared a guide to investors clarifying licencing and permitting process.
Outcome 3: Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and	National Bioenergy Strategy and Action Plan, which reflects broad stakeholder consensus, adopted by the Government of Serbia	Moderately Unsatisfactory	Project has not prepared a strategy or action plan, because strategic documents exists like Action plan for bio mas, National renewable action plan, Energy strategy, However, there discrepancies between the strategic documents and operational practices. These discrepancies were some of the reasons that project didn't get any application for wood biomass plant and all supported applications were for agro biomass projects. It is recommended therefore for the Project to prepare two position papers:

operate bankable biomass energy projects			iii) On issues related to wood bio mas use iv) On issues related to agro biomass, waste and effluents
	At least 10 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding biomass to energy projects and how the Biomass Support Unit can provide assistance through the Investment Support Mechanism	Unsatisfactory, Needs to be modified	As said already there is saturation with number of courses on the biomass subject for all target groups. Project should consider preparing some targeted workshops for use of agro biomass and waste, once the supported plants are operational. IPARD program will support small scale biomass project, and that could be a subject to promote as presently available investment support mechanisms.
Outcome 4: Six biomass projects are successfully financed, constructed and operating by the end of the project.	Investment grant mechanism (IGM) established and successfully piloted by the end of the project	Highly satisfactory	The BSU has elaborated- IGM mechanism and criteria for awarding the grants. Two public calls were open: one for the participating banks, and one for the interested investors with clear evolution criteria presented.
Technical viability of specific biomass technologies is demonstrated as the basis for replication	6 biomass projects of at least 4MW installed capacity (in total) are successfully financed, constructed and operating by the end of the project	Highly satisfactory	Grant agreements for six projects with total capacity of 6.3 MWe signed in December 2015. Their construction is currently underway.
Outcome 5: At least 12 additional Biomass Projects are being supported by the Biomass Support Unit / Investment Grant Mechanism by the end of the Project	At least 12 pre-feasibility for the new bio energy projects elaborated by the end of the project	Unsatisfactory, Needs to be modified	The project should diversify away from FIT eligible installations towards IPARD eligible installation and could promote certain number IPARD eligible projects
	One film covering all the projects established during the project	Satisfactory	Required contracts for preparing the film signed and the shooting has started.

6 ABBREVIATIONS

APR-PIR	Annual Project Review / Project Implementation Report
BSU	Biomass Support Unit
CO	UNDP Country Office
CO ₂	Carbon Dioxide
CPAP	Country Program Action Plan
DKTI	German Climate Technology Initiative
EBRD	European Bank for Reconstruction and Development
EU	European Union
FA	Focal Area
FIT	Feed-in Tariff
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFG	Green For Growth Fund
GHG	Greenhouse Gases
GoS	Government of Serbia
IA/EA	Implementation Agency/Executing Agency
IPARD	EU Instrument for Pre-Accession Assistance in Rural Development
ISM	Investment Support Mechanism
IGSM	Investment Grant Support Mechanism
KfW	Development Bank
kW	Kilowatt
kWh	Kilowatt-hour
M&E	Monitoring and Evaluation
MoME	Ministry of Mining and Energy
MWe	Megawatt Electrical
MWh	Megawatt-hour (million watt-hours)
MTR	Mid-Term Review
NGO	Non-governmental Organization
NPD	National Project Director
NREAP	National Renewable Energy Action Plan
OECD	Organization for Economic Cooperation and Development
PIF	Project Identification Form
PM	Project Manager
PMU	Project Management Unit
PPG	Project Preparation Grant
ProDoc	Project document
QPR	Quarterly Project Review
R&D	Research and Development
RES	Renewable Energy Sources
SMEs	Small and Medium-sized Enterprises
ToR	Terms of Reference
tCO ₂	Tonne of Carbon Dioxide
toe	Tons of Oil Equivalent
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
WBSEDF	Western Balkans Sustainable Energy Direct Financing Facility

7 ANNEXES

Annex 1: Terms of Reference

Annex 2: List of relevant documents

Annex 3: Mission agenda

Annex 4: List of meeting participants

Annex 5: Revised activity table from the Inception report

Annex 6: Revised Project Results Framework

Annex 1: Terms of Reference

Title:	Midterm review of the GEF Project: "Reducing Barriers to Accelerate the Development of Biomass Markets"
Programme:	GEF Project: "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia", PIMS No 4382
Reporting to:	Portfolio Manager
Duty Station:	Home based and at least two mission to Belgrade and project locations in Serbia
Type of contract:	Individual Contract (IC) or Reimbursable Loan Agreement (RLA)
Duration:	31 October 2016– 26 January 2017
Estimated number of working days:	17 working days

Background

a. Purpose

To undertake the midterm review (MTR), of the GEF Project: "Reducing Barriers to Accelerate the Development of Biomass Markets (the Project), and to make recommendations that might improve further implementation of the Project.

b. Objective

To assess progress towards the achievement of the Project objectives and outcomes as specified in the Project Document, and assess early signs of Project success or failure with the goal of identifying the necessary changes to be made in order to set the Project on-track to achieve its intended results. The MTR shall also review the project's strategy and its risks to sustainability.

c. Background Information

The United Nations Development Programme (UNDP), acting as an implementing agency of the Global Environment Facility (GEF), is implementing together with the Ministry of Mining and Energy (MoME) GEF Project: "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia"

With 2.85 m US\$ from the GEF, the Biomass Project will have a total volume of 30 m US\$. Co-financing will be provided by Serbian institutions and private investors.

The Biomass Project will inter alia contribute to establishing the required legal and institutional framework needed for the development of the biomass market. In addition, the project will provide an investment support grant mechanism (ISGM) for private investments with the aim to realize up to 6-8 biomass/biogas fired combined heat and power plants (CHP). Additionally, 12 similar projects will be technically prepared in terms of the elaboration of feasibility studies and technical documents. Biomass Project strategy is to increase institutional capacity of Serbia to deal with biomass, by establishing the specialized Biomass Support Unit (BSU) within the MoME, with the purpose to provide institutional support to the capacity enhancement of all stakeholders to develop, finance, construct and operate bankable biomass energy projects. In addition, BSU is responsible for the implementation of ISGM and a public call for grant applications under IGSM. Complementary activities will include a number of training activities for municipalities, investors and banks, as well as capacity building and planning activities at the national and local level.

The project is executed by the MoME in cooperation with the Ministry of Agriculture and Environmental Protection. Main external project partners are, the Chamber of Commerce and Industry of Serbia, the

Standing Conference of Towns and Municipalities, the Institute for Standardization and Regional Development Agency Srem and banks.

Duties and Responsibilities

a. MTR Approach and Methodology

The MTR expert must provide evidence based information that is credible, reliable and useful. The MTR expert will review all relevant sources of information including documents prepared during the preparation phase (i.e. Project Identification Form-PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review). The MTR expert will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins.

The MTR expert is expected to follow a collaborative and participatory approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders.

Engagement of stakeholders is vital to a successful MTR. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to Ministry of Mining and Energy, Ministry of Agriculture and Environmental Protection, UNDP, other Project partners, key experts and consultants in the subject area, Project Board, project stakeholders, local governments, academia, nongovernmental organizations, etc. Additionally and besides conducting the required interviews in Belgrade, the MTR expert is expected to conduct field missions to at least two locations of the supported pilot projects.

The final MTR report should describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

b. Scope of Work

The MTR expert will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

Project Strategy

Project design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?
- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?
- Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.
- If there are major areas of concern, recommend areas for improvement.

Results Framework/Logframe:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.
- Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc.) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART 'development' indicators, including sex-disaggregated indicators and indicators that capture development benefits.

Progress Towards Results

Progress Towards Outcomes Analysis:

- Review the logframe indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and following the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as "Not on target to be achieved" (red).

Table 1. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Indicator ¹³	Baseline Level ¹⁴	Level in 1 st PIR (self-reported)	Midterm Target ¹⁵	End-of-project Target	Midterm Level & Assessment ¹⁶	Achievement Rating ¹⁷	Justification for Rating
Objective:	Indicator (if applicable):							
Outcome 1:	Indicator 1:							
	Indicator 2:							
Outcome 2:	Indicator 3:							
	Indicator 4:							
	Etc.							
Etc.								

¹³ Populate with data from the Logframe and scorecards

¹⁴ Populate with data from the Project Document

¹⁵ If available

¹⁶ Colour code this column only

¹⁷ Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

Indicator Assessment Key

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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In addition to the progress towards outcomes analysis:

- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

Project Implementation and Adaptive Management

Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the GEF Partner Agency (UNDP) and recommend areas for improvement.

Work Planning:

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.

Finance and co-finance:

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.

Sustainability

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

- **Institutional Framework and Governance risks to sustainability:**
- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

Conclusions & Recommendations

The MTR expert will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.¹⁸

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for guidance on a recommendation table.

The MTR expert should make no more than 15 recommendations total.

Ratings

The MTR expert will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table 2. MTR Ratings & Achievement Summary Table for project titled: "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia"

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
Project Implementation & Adaptive Management	(rate 6 pt. scale)	
Sustainability	(rate 4 pt. scale)	

Deliverables and Timeline

The total duration of the MTR will be approximately 17 days over a time period of 13 weeks starting on October 31, 2016, and shall not exceed three months from when the MTR expert is hired.

The tentative MTR timeframe is as follows:

¹⁸ Alternatively, MTR conclusions may be integrated into the body of the report.

Time frame	Activity
Oct. 31, 2016	Contract with MTR expert signed
Nov. 04, 2016	Prep. the MTR expert (handover of Project Documents)
Nov. 04 - Nov. 14, 2016 (3 days)	Document review and preparing MTR Inception Report
Nov. 18, 2016 (1 day)	Finalization and Validation of MTR Inception Report
Nov. 21 – Dec. 09, 2016 (6 days)	MTR mission: stakeholder meetings, interviews, field visits
Dec. 09, 2016 (incl. above)	Mission wrap-up meeting & presentation of initial findings
Dec. 10–Dec. 24, 2016 (5 days)	Preparing draft report
Jan. 12 – 16 Jan. 2017 (1day)	Incorporating audit trail from feedback on draft report/Finalization of MTR report (with two weeks reserved for circulation and review of the draft report)
Jan. 16 –Jan. 26, 2016 (1day)	Preparation & Issue of Management Response
Dec. 16, 2016	Expected date of full MTR completion

Options for site visits should be provided in the Inception Report.
The MTR expert is responsible for the following deliverables:

	Deliverables	Deadline
1	MTR Inception Report (with clarified objectives and methods of Midterm Review)	20 Nov.2016
2	Presentation in initial findings	09 Dec. 2016
3	Draft Final Report Full report (using guidelines on content outlined in Annex B) with annexes	24 Dec. 2016
4	Final Report Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTR report	26. Jan. 2017

Deliverables 1 and 2 will have to be reviewed by the Portfolio Manager and UNDP CO DRR.
Deliverables 3 and 4 will have to be reviewed by the Portfolio Manager, UNDP CO DRR, GEF Regional Technical Advisor and GEF Operational Focal Point.

c. Requirements
Skills and Competencies

- Excellent analytical skills;
- Displays ability to synthesize research and reach empirically based conclusions on related subject;
- Strong writing skills;
- Proven capacity to produce reports;
- Displays capacity to provide experienced advice on best practices;
- Possesses knowledge of inter-disciplinary development issues;
- Focuses on result for the client and responds positively to feedback;
- Good application of Results-Based Management;
- Good communication, coordination and facilitation skills;
- Consistently ensures timeliness and quality of work;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Demonstrates integrity by modelling ethical standards.

Qualifications and Experience

Education:

A university degree in the project related field. MA would be considered a strong asset.

Work experience:

- Minimum 5 years of relevant professional experience, preferably in international/multilateral development context;
- Previous experience in project evaluation methodologies;
- Previous assignments in the role of relevant senior expert positions would be considered as an asset.

Knowledge

- Knowledge of UNDP, evaluation policy, norms and standards;
- Knowledge of IPCC Methodologies, Guidelines, UNFCCC documents and the EU legislation and Sendai Framework;

Personal qualifications

- Ability to deliver when working under pressure and within changing circumstances;
- Consistently approaches work with energy and a positive, constructive attitude;
- Excellent interpersonal skills.

Language:

- Fluency in English, knowledge of Serbian shall be considered as an asset.

d. Application Procedure:

Qualified and interested candidates are asked to submit their applications via UNDP Web site: [UNDP in Serbia](#) under section “Jobs”.

- Letter of Interest containing the following information:

(i) Explaining why the candidate is the most suitable for the work

(ii) Provide a brief methodology on the approach to the work and how it will be conducted (max. 300 words)

- Updated and signed P11 (PDF format)
- Financial offer – lump sum (including fee, travel costs and DSA)
- List e-mail contacts of three referees in P11 (section 26 & 29)

The above information should be included in the following documents:

- Offeror's Letter to UNDP confirming Interest and availability for the Individual Contractor (IC) Assignment. Document can be downloaded from the following: <http://www.undp.org.rs/download/ic/Confirmation.docx> (only PDF will be accepted).
- Updated and signed P11, in PDF format, containing e-mail contacts of at least three referees (section 26 & 29). P11 can be downloaded from the following: <http://www.undp.org.rs/download/ic/P11.doc>.

Additional Information:

- An Individual Contract (IC) will be applicable for individual consultants applying in their own capacity. If the applicant is employed by any legal entity, an IC will be issued upon the submission of a consent letter from the employer acknowledging the engagement with UNDP. A template of General Conditions on IC can be found on: <http://www.rs.undp.org/download/ic/Confirmation.docx>
- A Reimbursable Loan Agreement (RLA) will be applicable for applicants employed by any legal entity. A template of RLA with General Terms and Conditions can be found on: <http://www.rs.undp.org/download/RLA%20with%20General%20Terms%20and%20Conditions.doc>. In the case of engagement of Civil servants under an IC contract modality a no-objection letter should be provided by the Government entity. The 'no-objection' letter must also state that the employer formally certifies that their employees are allowed to receive short-term consultancy assignment from another entity without being on "leave-without-pay" status (if applicable), and include any conditions and restrictions on granting such permission, if any. If the previous is not applicable 'leave-without-pay' confirmation should be submitted.

Engagement of Government Officials and Employees:

- Government Officials or Employees are civil servants of UN Member States. As such, if they will be engaged by UNDP under an IC which they will be signing in their individual capacity (i.e., engagement is not done through RLA signed by their Government employer), the following conditions must be met prior to the award of contract:

(i) A “No-objection” letter in respect of the individual is received from the Government employing him/her, and;

(ii) The individual must provide an official documentation from his/her employer formally certifying his or her status as being on “official leave without pay” for the duration of the IC.

- The above requirements are also applicable to Government-owned and controlled enterprises and well as other semi/partially or fully owned Government entities, whether or not the Government ownership is of majority or minority status.

UNDP recognizes the possibility that there are situations when the Government entity employing the individual that UNDP wishes to engage is one that allows its employees to receive external short-term consultancy assignments (including but not limited to research institutions, state-owned colleges/universities, etc.), whereby a status of “on-leave-without-pay” is not required. Under such circumstances, the individual entering into an IC with UNDP must still provide a “No-objection” letter from the Government employing him/her. The “no objection” letter required under (i) above must also state that the employer formally certifies that their employees are allowed to receive short-term consultancy assignment from another entity without being on “leave-without-pay” status, and include any conditions and restrictions on granting such permission, if any. The said document may be obtained by, and put on record of, UNDP, in lieu of the document (ii) listed above.

Annex 2: List of relevant documents

No	Types of documents	DOCUMENT(S)
1	ProDoc_LoAs	1. Final PIMS 4328 Biomass Serbia ProDoc; 2.GEF BIOMASS Project LoA No1 2014; 3.GEF BIOMASS Project LoA No2 2015 4. Request for CEO Endorsement dated 9 January 2014
2	Project Board Meetings	1.Project Board 18 04 2016; 2.Project Board 21 12 2015; 3.Project BoardInception Report Approval 04 05 2015
3	BSU Meeting Minutes	1.BSU members; 2.MINUTES_Biomass Support Unit Meetings
4	Public Call	1.Banks: Attendance sheet Novi Sad, Krusevac, PKS Terazije Beograd, Nis, Ruma, Cacak; photos; Pozivno pismo za prezentaciju javnog poziva; Prezentacija javnog poziva - Maja Matejic javni poziv za banke, minutes_meeting with banks_SRB, minutes_meeting with banks_ENG, poziv bankama, ponuda banaka, prezentacija o projektu_Milos Banjac, prezentacija - Finansijski mehanizam podrške investicijama u korišćenje biomase/biogasa; 2.Public call: Application form_ENG, Application form_SRB, Contract signing press release_ENG, Contract signing press release_SRB, Pitanja i odgovori po javnom pozivu, Public call validation _ENG, Public call validation_SRB, Public call_ENG, Public call_SRB, Report of the Commission_SRB, Report of the Commission_ENG, Resenje Ministra, Ugovor; 3.Public call presentations: Attendance sheet Novi Sad, Krusevac, Beograd, Nis, Ruma, Cacak; photos; Poziv za prezentaciju javnog poziva; Prezentacija javnog poziva - Maja Matejic
5	Contracts for LT Biomass Supply	1.Model Contracts_Agricultural Biomass_9-2016 bilingual; 2.Model Contracts_Woody Biomass_9-2016 bilingual; 3.Catalouge_Agricultural Biomass Products_9-2016 bilingual; 4.Catalouge_Woody Biomass Products_9-2016 bilingual
6	Energy Crops Study	1.Stajic_Report

7	Guides for Investors	1.Detailed Guide for Investors_Biomass_bilingual, 2. Brief Guide for Investors_Biomass_bilingual
8	Leaflets	1.Biomass Leaflet_ENG; 2.Biomass Leaflet_SRB
9	Inception Workshop	1.Presentations; 2.Agenda SRB, 3.Agenda ENG, 4.Attendance Sheet, 5.Inception Report, 6.Inception Report Approval, 7.Invitation Letter ENG, 8.invitation Letter SRB, 9.Minutes Inception Workshop, 10.Press Release ENG, 11.Press release SRB
10	Biomass Conference 26March2015	1.Presentations, 2.Agenda SRB, 3.Agenda ENG, 4.B2B meetings schedule, 5.Invitation letter ENG, 6.Invitation letter SRB
11	Biomass Conference 13October2016	1.Presentations, 2.Agenda SRB, 3.Agenda ENG, 4.Invitation letter ENG, 5.Invitation letter SRB, 6.Attendance Sheet, 7.Saopstenje za stampu ENG, 8.Saopstenje za stampu SRB, 9.Video clip_Energy Fair, 10.Konferencija o biomasi 2016_kliping
12	Study Visit to Finland	1.Invitation letters, 2.Programme, 3.Report_Study visit to Finland ENG, 4.Report_Study Visit to Finland SRB, 5.photograph
13	Visit to CHPs Bac	1.Attendance Sheet_Field visit to Bac, 2.Mission Agenda, 3.Bac obilazak_video clip

14	E trade platform	1.MoU_Grant Agreement_CCIS_UNDP; 2.Finansijski izveštaj, 3.Narativni izveštaj, 4.Biznis plan PKS_Zeleni portal, 5.Graficki dizajn platforme za trgovinu biomasom, 6.Uputstva za reklamiranje, 7.Uputstvo za koriscenje aplikacije, 8.Uputstvo za registraciju, 9.Portal for Biomass Trading in Serbia_Maja Matejic ENG, 10.Portal for Biomass Trading in Serbia_Maja Matejic SRB
15	Public Awareness Strategy	1.Public Awareness Strategy ENG, 2.Public Awareness Strategy SRB
16		1.Rough estimate of project remaining funds by June 2018
17		1.Mission Report_Vesa Rutanen_December 2015
18		1.Mission Report_Vesa Rutanen_June 2016
19		1.Studija - Tehno-ekonomski aspekti primene obnovljivih izvora energije I mobilnih robotizovanih solarnih elektro-generatora u poljoprivredi
20		1.Serbia_IPARD II_Programme
21		1.Prezentacija - IPARD Program 2014-2020
22		1.Project Implementation Review 2016
23		1.Prezentacija - Obnovljivi izvori energije -između potreba i mogućnosti
24		1.Prezentacija - Politika OIE Republike Srbije
25		1.Serbia Biomass PIF_30/10/2011, 2.Serbia Biomass PIF approved_28/12/2011
26		1.Request for PPG_16/01/2012; 2. Request for PPG approved_28/12/2011
27		1.Letter EBRD to UNDP
28		1.Prezentacija - Podrška projektima izgradnje CHP postrojenja na biogas
29		1. ENERGY-Project Brief – SOLLAR IRRIGATION SYSTEMS 14 03 2016. doc
30		1.Mission Agenda Mid Term Evaluation
31		1.Analiza postojećih barijera za finansiranje EE/OIE projekata
32		1.Brosura o EE/OIE projektima za predstavnike finansijskih institucija
	Relevant Laws, Strategic Documents, Plans and Bylaws	Laws
		1. The Energy Law, Official Gazette of RS No. 145/14
		2. The Law on the Spatial Plan of the Republic of Serbia, Official Gazette of RS No. 88/10
		3.The Law on Environmental Protection, Official Gazette of RS No. 135/04, 36/09, and 14/16

		4. The Law on Integrated Pollution Prevention and Control, Official Gazette of RS No. 135/04 and 25/15
		5. Law on Planning and Construction, Official Gazette of RS No. 72/09, 81/09, 64/10 – decision of the Constitutional Court 24/11, 121/12, 42/13 - decision of the Constitutional Court 50/13 - decision of the Constitutional Court 98/13 - decision of the Constitutional Court 132/14 and 145/14
		6. The Law on Forests, Official Gazette of RS No. 30/10 and 93/12
		7. The Law on Waters Official Gazette of RS No. 30/10 and 93/12
		8. The Law on Nature Protection, Official Gazette of RS No. 36/09, 88/10, 91/10 and 14/16
		9. The Law on Air Pollution, Official Gazette of RS No. 36/09 and 10/13
		10. The Law on Environmental Impact Assessment, Official Gazette of RS No. 135/04 and 36/09
		11. The Law on Strategic Environmental Impact Assessment, Official Gazette of RS No. 135/04 and 88/10
		12. General Administrative Procedure Law, Official Gazette of RS No. 18/16
		13. The Law on Public-Private Partnership and Concessions, Official Gazette of RS No. 88/11 and 15/16
		Strategies and Plans
		1. The Strategy of Development of the Energy Sector of the Republic of Serbia until 2025 with Projections until 2030, Official Gazette of RS No. 101/15
		2. National Renewable Energy Action Plan of the Republic of Serbia, Official Gazette of RS No. 53/13
		3. First National Energy Efficiency Action Plan for the period 2010-2012
		4. Second National Energy Efficiency Action Plan for the period 2013-2016, Official Gazette of RS No. 98/13
		Decrees
		1. The Decree on Requirements and Procedure for Acquiring the Status of Privileged Electricity Producer, Preliminary Privileged Electricity Producer and Electricity Producer from Renewable Energy Sources, Official Gazette of RS No. 56/16
		2. The Decree on the List of Projects for which the Environmental Impact Assessment Is Mandatory and on the List of Projects for which the Environmental Impact Assessment May be Requested, Official Gazette of RS No. 114/08
		3. The Decree on Protection Regimes, Official Gazette of RS No. 31/12
		4. The Decree on Location Requirements, Official Gazette of RS No. 35/15

		5. The Decree on Conditions of Supply and Procurement of Electricity, Official Gazette of RS No. 63/13
		6. Decree on Incentive Measures for Production of Electricity from Renewable Energy Sources and from High-efficiency Combined Production of Electricity and Heat, Official Gazette of RS No. 56/16
		7. Decree on Power Purchase Agreement, Official Gazette of RS No. 56/16
		8. The Decree on Fees for Incentives for Privileged Electricity Producers, Official Gazette of RS No. 12/16
		9. The Decree on the Amount of Special Fee for Incentives for the Year 2016, Official Gazette of RS No. 12/16
		Bylaws
		1. The Rulebook on Energy Permit, Official Gazette of RS No. 15/15
		2. The Rulebook on Contents of Information on Location and on Contents of Location Permit, Official Gazette of RS No. 3/10
		3. Rulebook on Content, Method and Manner of Development and Performing Control of Technical Documentation According to Class and Intended Use of the Structure, Official Gazette of RS No. 23/15
		4. Rulebook on Classification of Structures, Official Gazette of RS No. 22/15
		5. Rulebook on General Rules of Parcelization, Regulation and Construction, Official Gazette of RS No. 22/15
		6. Rulebook on Contents and Form of the Application for Issuing Water acts and Contents of Opinion in the Procedure of Issuing Water acts, Official Gazette of RS No. 74/10, 116/12 and 58/14
		7. Rulebook on Contents of the Application Concerning the Need for Impact Assessment and Contents of the Application for Determining Scope and Contents of the Environmental Impact Assessment Study, Official Gazette of RS No. 69/05
		8. Rulebook on Contents of Environmental Impact Assessment Study, Official Gazette of RS No. 69/05
		9. Rulebook on Content, Method and Procedure for Preparation and Control of Technical Documentation by Class and Intended Use of Structures, Official Gazette of RS No. 23/15
		10. The Rulebook on the Content and Manner of Issuing the Construction Permit, Official Gazette of RS No. 93/11 and 103/13 – decision of the Constitutional Court
		11. Rulebook on Closing and Marking of Closed Construction Site, Official Gazette of RS No. 22/15

		12. Rulebook on Content and Manner of Technical Inspection of Structures, Composition of the Commission, Content of Proposed Decision of the Commission Regarding the Fitness of the Structure for Use, Surveillance of Soil during Construction and Use, and Minimum Guarantee Periods for Different Types of Structures, Official Gazette of RS No. 27/15
		13. The Rulebook on Minimum Guarantee Periods for Different Types of Structures and Works, Official Gazette of RS No. 93/11
		14. The Rulebook on Licenses for Performing Energy Activity and Certification, Official Gazette of RS No. 87/15
		15. Decision Determining the Methodology for Calculation of costs of Connection to the Electricity Transmission and Distribution System, Official Gazette of RS No. 109/15

Annex 3: Mission agenda

November 08-11, 2016

Tuesday, 08th November

09.00 – 09.30: Introductory meeting with UNDP project team

Participants: Zoran Morvaj and UNDP project team

Venue: PKS, Resavska 13-15, office 410

09.30-10.15: Meeting with Chamber of Commerce and Industry of Serbia representatives

Participants: Zoran Morvaj, Dragan Stefanović, Ljubinko Savić and Vera Ražnatovic

Venue: Chamber of Commerce and Industry of Serbia, Resavska 13-15, office 303

12.00-12.45: Meeting with Ministry of Mining and Energy representative

Participants: Zoran Morvaj, Maja Matejić and Miloš Banajc, NPD

Venue: Ministry of Mining and Energy, Kralja Milana 36, 11 000 Belgrade

13.30 - 14.30: Meeting with Ministry of Agriculture and Environmental Protection representatives
(member of BSU from Directorate of Forests, Senior Advisor)

Participants: Zoran Morvaj, Maja Matejić, Dragan Stefanović, Vesna Gajić, and Dušan Jović

Venue: PKS, Resavska 13-15, office 410

14:45 – 16:00: Meeting with Ministry of Agriculture and Environmental Protection representatives

Participants: Zoran Morvaj, Maja Matejić, Dragan Stefanović, Vesna Gajić and Slobodan Cvetkovic,
Senior advisor (BSU member from the Sector for environmental protection)

Venue: PKS, Resavska 13-15, office 410

17.00 – 18.00: Meeting with Steliana Nedera, Project Board member-

Participants: Zoran Morvaj, Maja Matejić and Steliana Nedera

Wednesday, 09th November (Field visit to Aleksinac/Gornje Suhotno)

08.15: Departure from Belgrade -TBC

11.30-14.00 Visit to CHP facility and meeting with investors

16.00: Departure from Aleksinac/Gornje Suhotno

Participants: Zoran Morvaj, Ivan Radović (investor), Vojin Lepojević (investor), UNDP project team,
Vesna Rodić (Ministry of Mining and Energy) and Rastislav Kragić (BSU member from the Ministry of
Mining and Energy)

Thursday, 10th November

10.00 - 11.00: Meeting with Professor Branko Glavonjić

Participants: Zoran Morvaj and Branko Glavonjić (Faculty of Forestry)

NOTE: Branko Glavonjic is also engaged as a technical expert in GIZ Biomass Project

Venue: Chamber of Commerce and Industry of Serbia, Resavska 13-15, office 410

11.00 - 11.50: Meeting with Standing Conference of Towns and Municipalities representative

Participants: Zoran Morvaj and Miodrag Gluščević

Venue: Chamber of Commerce and Industry of Serbia, Resavska 13-15, office 410

12.00-12.45: Meeting with Aleksandar Bogunović, Chamber of Commerce and Industry of Serbia
representative (BSU member. He was senior advisor in sector for Rural Development of Ministry of
Agriculture and Env. Protection, his present position is Deputy Secretary of Association of Food
Processing Industry)

Participants: Zoran Morvaj and Aleksandar Bogunović

Venue: Chamber of Commerce and Industry of Serbia, Resavska 13-15, office 410

12.45- 14.00: Lunch break

14.00 -16.30: Meeting with UNDP project team

Participants: Zoran Morvaj and UNDP project team

Venue: PKS, Resavska 13-15, kancelarija 410

Friday, 11th November

12.00-13.00: Meeting with representative of Regional Development Agency Srem

Participants: Zoran Morvaj, Bora Obradović, Maja Matejić and Dragan Stefanović

Venue: PKS, Resavska 13-15, office 410

NOTE: Bora Obradovic is also engaged as technical expert in KfW biomass loan facility

13.00 – 15.00: Meeting with UNDP project team

Participants: Zoran Morvaj, Maja Matejić and Dragan Stefanović

Venue: PKS, Resavska 13-15, office 410

Annex 4: List of meeting participants

1. Ljubinko Savic, Deputy Secretary in the Association of Energy and Coal Mining, Chamber of Commerce and Industry of Serbia. Email: ljubinko.savic@pks.rs
2. Vera Raznatovic, Senior Advisor, in the Association of Energy and Coal Mining, Chamber of Commerce and Industry of Serbia. Email: vera.raznatovic@pks.rs
3. Milos Banjac, NPD and Assistant Minister in the Ministry of Mining and Energy. Email: milos.banjac@mre.gov.rs
4. Dusan Jovic, BSU Member and Senior Advisor in the Directorate of Forests, Ministry of Agriculture and Environmental Protection. Email: dusan.jovic@minpolj.gov.rs
5. Slobodan Cvetkovic, BSU Member and Senior Advisor in the Sector for Environmental Protection, Ministry of Agriculture and Environmental Protection. Email: slobodan.cvetkovic@eko.minpolj.gov.rs
6. Steliana Nedera, Project Board Member and UNDP DRR. Email: steliana.nedera@undp.org
7. Vojin Lepojevic, FORKOM DOO (Investor - CHP facility in Aleksinac/Gornje Suhotno), Email: lepojevic@yahoo.com
8. Ivan Radovic, FORKOM DOO (Investor - CHP facility in Aleksinac/Gornje Suhotno), Email: ivan.radovic72@yahoo.com
9. Vesna Rodic, Advisor, Ministry of Mining and Energy. Email: vesna.rodic@mre.gov.rs
10. Rastislav Kragic, Advisor, Ministry of Mining and Energy. Email: rastislav.kragic@mre.gov.rs
11. Branko Glavonjic, Professor at the Faculty of Forestry. Email: branko.glavonjic@sfb.bg.ac.rs
12. Miodrag Gluscevic, Standing Conference of Towns and Municipalities representative. Email: Miodrag.Gluscevic@skgo.org
13. Aleksandar Bogunovic, Chamber of Commerce and Industry of Serbia representative (BSU member. He was senior advisor in the sector for Rural Development of the Ministry of Agriculture and Env. Protection, his present position is Deputy Secretary of Association of Food Processing Industry). Email: aleksandar.bogunovic@pks.rs
14. Bora Obradovic, Regional Development Agency Srem representative and a technical expert in KfW biomass loan facility. Email: bora.obradovic@gmail.com
15. UNDP Biomass team: Maja Matejic, Project manager maja.matejic@undp.org, Dragan Stefanovic, BSU Coordinator dragan.stefanovic@undp.org, Vesna Gajic, Senior Project Assistant vesna.gajic@undp.org.

Annex 5: Revised activity table from the Inception report

Activities as per Project Document	Activities Revised
Implementation arrangements and Project inception:	
Organize Inception Workshop with key stakeholders	
Elaborate Inception Report	
Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia	
Output 1.1: Biomass Support Unit Established and Operational with Team in Place to Support Biomass Projects in Serbia	
Activity 1.1.1: Develop and agree ToR for Biomass Support Unit (BSU)	
Activity 1.1.2: Prepare ToR for all staff positions	
Activity 1.1.3: Hire all Biomass Support Unit staff including Head of Unit/Project Manager	
Activity 1.1.4: Hire international Chief Technical Advisor (part-time) to support the work of BSU	Shifted under Outcome 3, Output 1 as an activity 3.1.5 Note: No sufficient budget for such position under Outcome 1 (as per budgetary note: Two international consultants for a week each year but only for the Activity 1.5.2).
Output 1.2 Designed and Implemented Training Modules on Biomass Energy for local municipalities and entrepreneurs based upon the UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants	
Activity 1.2.1: Develop Training Module based upon UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants	Activity 1.2.1: Develop Training Module based upon UNDP Municipal Biomass Guide and a new Guide for Investors in Biomass Plants. The new Guide for Investors in Biomass Plants should be in line with the new Law on Energy, the adoption of which is expected by the end of 2014.
Activity 1.2.2 Training Courses successfully delivered based on the UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants by the Biomass Support Unit	Excluded from the Project activities and expected results since it is redundant to activity 1.3.1?
Activity 1.2.3: Gap analysis on the issues that arose during initial trainings on UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants (based on feedback from initial trainings)	Shifted under Output 1.3 as an activity 1.3.2
Activity 1.2.4: Updating of the Municipal Biomass Guide and Guide for Investors in Biomass Plants by end of the Project	
Output 1.3 At least 16 completed regional seminars on biomass energy that employed the designed training module and the UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants will be presented (both demand side and supply side)	
Activity 1.3.1: Implement the 10 Training Modules on Biomass Energy for local municipalities and entrepreneurs in at least 16 regional seminars	Activity 1.3.1: Implement the Training Module on Biomass Energy for local municipalities and entrepreneurs in at least 16 regional seminars

	<p>Activity 1.3.2: Gap analysis on the issues that arose during initial trainings on UNDP Municipal Biomass Guide and Guide for Investors in Biomass Plants (based on feedback from initial trainings). Shifted from Output 1.2</p>
Output 1.4: Completed studies on biomass and preparation of “Serbian Biomass Atlas”	
Activity 1.4.1: Review existing studies and perform gap analysis on the issues that still require investigation	<p>Excluded from the Project activities and expected results due to the following reason: Within the framework of the S2Biom Project (www.s2biom.eu) a computerized Biomass Atlas toolset will be developed by August 2016. The toolset will be publically available online and will be based on updated harmonized datasets (for biomass cost supply) at local, regional, national and pan European level for EU28, western Balkans, Moldova, Turkey and Ukraine. The S2Biom project aims to build up a concise knowledge base both for the sustainable supply and logistics of non-food biomass (quantities, costs, technological pathway options for 2020 and beyond) as well as for technology and market analysis to support the development of a “resource efficient” Bio economy for Europe. It will also analyse selected industrial processes for manufacturing biomass-derived goods/products as well as energy conversion, both for large scale and small scale units. The research work is organized in three individual but strongly interrelated themes: Theme 1 focuses on methodological approaches, data collection and estimation of sustainable biomass potentials, resource efficient pathways and optimal logistical supply routes as well as on the development of the computerized toolset. Theme 2 will make use of the findings of Theme 1 and develop a Vision, Strategies and an R&D roadmap for the sustainable delivery of non-food biomass feedstock at local, regional and pan European level. Theme 3 will validate the findings from Themes 1 and 2 and ensure the project outreach. Although the S2Biom project has officially started in August 2013, the final structure, contents and work plan for the Biomass Atlas toolset were formulated within 2014 and therefore not reflected in the Project Document which was submitted to GEF in June 2013. Since the tool will be available online and include explicit information for Serbia as well, it could also facilitate the needs and requirements of the Biomass Atlas component for the Project. Having in mind that there is no need to implement this component of the Project since it is already</p>
Activity 1.4.2: Define and adopt methodology for biomass potentials estimation	
Activity 1.4.3 Define and adopt methodology for biomass consumption estimation	
Activity 1.4.4: Continuation of studies on “The Potential of Biomass Projects in Serbia” with a focus on biomass and energy crops from agricultural and improving (as required) the study on wood waste potential for biomass	
Activity 1.4.5 : Preparation of Serbian Biomass Atlas (including both production and consumption data), a one stop shop for all information concerning biomass energy	

	implemented by the S2Biom, budget resources should be reallocated to the Output 1.8 E-trade Platform.
Output 1.5: Incorporated new course on Biomass Energy at the University of Belgrade & Novi Sad	
Activity 1.5.1: Design new course (annual weekly course module incl. international expert lectures)	Note: Budget revision is needed since the foreseen funding is not sufficient to finance international experts.
Activity 1.5.2 Provide funding for two top international biomass experts to serve as lecturers to deliver the courses at University of Belgrade and University of Novi Sad	
Activity 1.5.3: Implement new course in the two Universities	
Output 1.6: Completed national public awareness raising campaign on Biomass Energy run by the Biomass Support Unit	
Activity 1.6.1: Design and implement a national public awareness campaign	Activity 1.6.1: Implement a national public awareness campaign on the basis of Public Awareness Strategy which has been developed in course of Project preparation. Review and revision of the Strategy is needed in order to reflect the situation as of 2015.
Activity 1.6.2: Incorporation of Biomass awareness Raising Activities into the activities of the Standing Conference on Towns and Municipalities with a particular focus on supply-side activities	Incorporation of biomass awareness raising activities into the activities of projects partners with particular focus on biomass project implementation.
Output 1.7: Regularly organized and conducted Annual International Workshop on Biomass Energy in Serbia prepared by the Biomass Support Unit	
Activity 1.7.1: Organization of International Biomass Conference in Serbia in partnership with other key stakeholders	Activity 1.7.1: Organization of International Biomass Conference in Serbia in partnership with other key stakeholders and, if possible, international partners which have significant experience in the use of biomass.
Activity 1.7.2 Organization and conduct of study Tours to Biomass Projects in other countries in the region for selected municipalities	Activity 1.7.2 Organization and conduct one study Tour to Biomass Project in neighbouring countries in the region for selected stakeholders (municipalities, relevant Serbian institutions, etc.).
Output 1.8 E-trade platform	
Activity 1.8.1: Specialized web portal to enable e-trading with biomass and facilitate local and regional trading, as well as export of the locally produced biomass.	Note: Given the fact that the set of activities under 1.7 will not be implemented the significance of the activity 1.8.1 is increased. Besides for the e-trading, the platform shall be intensively used in scope of awareness raising campaign (1.6.1). In addition, the platform shall be used to support implementation of the activities under Outcomes 2, 3, 4 and 5. Activity shall be implemented by Serbian Chamber of Commerce and Industry, by using micro capital grant mechanism. Therefore, budget revision is necessary.
Output 1.9: Project Website	
Activity 1.9.1: Development and Updating of Project Website including relevant information such as	

Municipal Biomass Guide and Serbian Biomass Atlas (and e-trade platform)	
Outcome 2: Stronger and more effective secondary legislation related to biomass energy is developed, approved and adopted	
Output 2.1: Adopted and implemented technical standards and regulations for biomass energy projects in line with international best practices	
Activity 2.1.1: Review of international best practices on technical standards related to biomass and identification of most relevant ones for adoption in Serbia	Note: This activity should be aligned with the similar activity which has already been implemented by the GIZ DKTi Programme.
Activity 2.1.2: Supporting development, adoption and implementation of technical standards and regulations for biomass projects, including required amendments to existing standards and regulations for energy/power facilities.	Activity 2.1.2: Supporting development, adoption and implementation of secondary legislation, technical standards and technical regulations relevant for biomass projects, including required amendments to existing bylaws, technical standards and technical regulations for RE energy/power facilities.
Output 2.2: Policies and regulations to promote biomass supply and its sustainability adopted and implemented	
Activity 2.2.1: Supporting development, adoption and implementation of biomass sustainability criteria considering a range of issues such as sustainable harvesting rates, biodiversity protection and land use rights for local population. Only projects and facilities meeting the established criteria would qualify for investment support scheme and any other form of public support	
Activity 2.2.2: Supporting development, adoption and implementation of policies and regulations promoting and enhancing bioenergy production by farmers (such as bioenergy crops production, collection and handling of agricultural residues), including, inter-alia, via amendments to the existing agricultural policies and rural development programmes.	Excluded from the Project activities and expected since it has already been implemented by the GIZ DKTi Project.
Output 2.3: Appropriate licensing procedures developed and in place to support the long-term development of the biomass market in Serbia	
Activity 2.3.1: Develop the Business Plan of a one stop shop for bio energy investments	Excluded from the Project activities and expected results since the Government of Serbia decided to establish one stop shop for all investments (regardless of the type of facility) within the Ministry of Construction, Infrastructure and Transport.
Activity 2.3.2: Development improved licensing procedures for long term biomass supply, bio energy and bio fuel plants to support market development.	Note: This activity should be aligned with the similar activity which has already been implemented by the GIZ DKTi Project.
Outcome 3: Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects	
Output 3.1: Developed and adopted National Programme for Supporting Biomass Projects	
Activity 3.1.1: Develop National Biomass Programme (five year plan)	

Activity 3.1.2: Provide expert assistance to the selected project developers including assessment of CDM potential and carbon finance and support for preparation of CDM documentation	Excluded from the Project activities and expected results since it is not feasible under the proposed Investment Grant Mechanism
Activity 3.1.3: Develop a Biomass Resource Efficiency Strategy and Roadmap to exploit the biomass feed stocks for energy, fuels and other industrial applications.	
	Activity 3.1.3: Assistance to the Government of Serbia with establishing public funding window for biomass projects under its Environment and Energy Efficiency Fund Note: Shifted from Outcome 4.
	Activity 3.1.4: Hire international Chief Technical Advisor (part-time) to support the work of BSU
Output 3.2: At least 20 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding biomass to energy projects and how the Biomass Support Unit can provide assistance through the Investment Support Mechanism	Output 3.2: At least 10 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding biomass to energy projects and how the Biomass Support Unit can provide assistance through the National Biomass Programme NOTE: The proposed number of 20 training seminars is not realistic since the number of banks and project developers in Serbia is not that big.
Activity 3.2.1: Work with existing banks, financing programs, and facilities in Serbia to improve their understanding of renewable/biomass energy projects	
Activity 3.2.2: Use the technical assistance funding as a tool to secure financing for the best demonstration projects and project ideas by ensuring that technical assistance funds are targeted at those projects with highest chances of success	Shifted under Outcome 5, activity 5.1.2. Note: Budget revision is necessary
Outcome 4: A minimum of six biomass projects are successfully financed, constructed and operating by the end of the project	
Output 4.1 Investment Grant Support Mechanism	
Activity 4.1.1 Structure of Investment Grant Support Mechanism	
Activity 4.1.2 Tendering and evaluation process	
Activity 4.1.3 Provision of Investment Grant Support to six biomass projects	
Activity 4.1.4 Assistance to the Government of Serbia with establishing public funding window for biomass projects under its Environment and Energy Efficiency Fund	Shifted to Outcome 3, activity 3.1.4 since there is no available budget under Outcome 4.
Output 4.2 Agricultural biomass projects are selected under the Investment Grant Support Mechanism and are developed, constructed and operational by the end of the project	
Activity 4.2.1 Selection of projects through tendering procedure	
Activity 4.2.2 Monitoring project development	

Activity 4.2.3 Best Practice guidelines for the implementation of the similar type projects	Excluded from the Project activities and expected results since it is redundant with the activity 5.1.3 (5.1.4) Note: No available budget under Outcome 4
Output 4.3 Woody biomass projects are selected under the Investment Grant Support Mechanism and are developed, constructed, and operational by the end of the project.	
Activity 4.3.1: Selection of projects through tendering procedure	
Activity 4.3.2: Monitoring project development	
Activity 4.3.3: Best Practice guidelines for the implementation of the similar type projects	Excluded from the Project activities and expected results since it is redundant with the activity 5.1.3 (5.1.4) Note: No available budget under Outcome 4
Outcome 5: At least 12 additional biomass projects are being supported by the Biomass Support Unit / Investment Support Mechanism by the end of the Project	
Output 5.1 Twelve 12 additional biomass projects in Serbia are successfully supported beyond those which are partially assisted with GEF funds	
Activity 5.1.1: Selection of projects through tendering procedure	
	Activity 5.1.2: Use the technical assistance funding as a tool to secure financing for the best demonstration projects and project ideas by ensuring that technical assistance funds are targeted at those projects with highest chances of success Shifted from Outcome 3.
Activity 5.1.3: Monitoring project development	
Activity 5.1.4: Best Practice guidelines for the implementation of the similar type projects	
Output 5.2 Produced documentary film on the implemented Biomass Energy pilot projects produced by the Biomass Support Unit	
Activity 5.2.1 Development of short-film on Biomass Energy based on investment in biomass pilot projects in Serbia	
Activity 5.2.2 Short Case Studies produced from the demonstration projects	
Outcome 6 Evaluation and Monitoring	
Output 6.1 Monitoring, reporting, and preparing of financial audits	
Activity 6.1.1 Project financial and progress reports prepared and submitted	

Annex 6: Revised Project Results Framework

This Project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: Focusing on environmental and natural resource management					
Country Programme Outcome Indicators: Enabling environment and status of implementation of national and international environmental commitments					
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): <u>1. Mainstreaming environment and energy</u> OR 2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.					
Applicable GEF Strategic Objective and Program: GEF-4 Strategic Programme 4 on 'Promoting Sustainable Energy Production from Biomass'					
Applicable GEF Expected Outcomes: a. Appropriate policy, legal and regulatory frameworks adopted and enforced; b. Sustainable financing and delivery mechanisms established and operational; c. GHG emissions avoided					
Applicable GEF Outcome Indicators: a. Extent to which EE policies and regulations are adopted and enforced; b. Volume of investment mobilized; c. Tonnes of CO ₂ equivalent avoided					
	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Goal Reduction of GHG emissions associated with electricity generation in Serbia	GHG emission reductions, achieved during Project lifetime, from Project-supported installation and operation of biomass	Zero	At 1,247,481 tonnes of CO ₂ equivalent will be achieved over the lifetime of the investments of 20 years from Projects supported by the UNDP-GEF Project	Project monitoring system and all Project Reports	Feasibility studies prove cost-effectiveness of biomass technologies in Serbian context Cost of technologies being higher than initial estimation in the prodoc which might lead to lower supported installed capacity*. Required investments are forthcoming
Project Objective To reduce barriers to accelerate the development of biomass markets in Serbia	Installed capacity of incremental biomass projects, substituting fossil fuel-based heating, supported by the Project	Zero	At least 3 MW of installed capacity supported by this Project fully operational by end of the Project Direct greenhouse gas emission reductions totalling 1.2 million tonnes of CO ₂ equivalent will be achieved over the lifetime of the investments of 20 years	Commissioning reports and/or Energy balance – energy generated from biomass	Feasibility studies prove cost-effectiveness of biomass technologies in Serbian context. Cost of technologies being higher than initial estimation in the prodoc which might lead to lower supported installed capacity*. Not attractive investment environment (adoption of lower feed-in tariffs). Required investments are forthcoming.

Outcome 1: Improved capability of local municipalities and entrepreneurs to identify, prioritize and develop biomass investment opportunities in Serbia	Established Biomass Support Unit	No Biomass Support Unit	Biomass Support Unit staffed and in full operation with funding to continue after Project ends	Document issued by MoME on appointing members of the Biomass Support Unit and/or Project monitoring system	Relevant stakeholders provide sufficient level of cooperation
	Training Modules and seminars on Biomass Energy for local municipalities and entrepreneurs based upon the UNDP Municipal Biomass Guide and Guide for Investors	No training or study courses on Biomass to Energy issues No guidance in development of biomass projects or previous experience	At least 12 completed regional seminars on biomass energy that employed the designed training module will be presented	Project monitoring system and/or Surveys and Questionnaires	No attractive investment environment
	New course on Biomass Energy at the University of Belgrade & Novi Sad	Currently no training or study courses on Biomass to Energy issues	Established courses on biomass at Universities of Belgrade and Novi Sad	Project monitoring system and/or Surveys and Questionnaires	No interest expressed by universities No follow-up activities after completion of Project
	Public awareness raising campaign on Biomass Energy • Annual International workshop	Limited awareness about climate change issues	Regularly organized and conducted Annual International Workshop on Biomass Energy in Serbia produced by the Biomass Support Unit	Project monitoring system and/or Surveys and Questionnaires	Opposition to climate change Indifference to climate change
	Support to development of the biomass market • Biomass e-trading platform	No biomass e-trading platform	Biomass e-trading platform operational	Project monitoring system	Relevant stakeholders provide sufficient level of cooperation Lack of interest of the biomass suppliers/users for e-trading
Outcome 2 Stronger and more effective secondary legislation related to	Status of adoption of secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply	No secondary legislation, technical standards, policies and regulations for biomass projects	Proposed secondary legislation, technical standards, policies and regulations for biomass projects and biomass supply including required	Project monitoring system and/or Report on adoption of secondary legislation, technical standards,	Lack of harmonized standards and regulations according to the European requirements causes difficulties in future market development. There is a significant number of different appliances for the use of biomass,

biomass energy is developed and approved and adopted	including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities.	and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities.	amendments to existing bylaws, technical standards and technical regulations for energy/power facilities.	policies and regulations for biomass projects and biomass supply including required amendments to existing bylaws, technical standards and technical regulations for energy/power facilities.	available at the Serbian market, which are not tested/ certified according to appropriate technical standards and development of corresponding laboratories for testing/certification is very slow.
	Established licensing procedures	Lack of integrated licensing procedures	Appropriate licensing procedures; biomass to energy systems are in place and investors have clarified and simplified process to follow	Project monitoring system and/or Surveys and Questionnaires	Changes in EU biomass legislation mainly due to sustainability issues could potentially create complications in the licensing procedures.
Outcome 3 Successfully operating Biomass Support Unit which leads to increased capability of municipalities and entrepreneurs in Serbia to develop, finance, construct, and operate bankable biomass energy projects	Availability of National Programme for bio energy development in Serbia	No long-term National Programme for bio energy sector in Serbia	National Bio energy Strategy and Action Plan, which reflects broad stakeholder consensus, prepared for adoption by the Government of Serbia.	Project monitoring system and/or Surveys and Questionnaires	Government of Serbia willing to formalize vision for bio energy development in the country
	Number of training seminars for banks and project developers	No dedicated training Lack of knowledge about biomass projects among local	At least 10 completed training seminars by the Biomass Support Unit for Serbian banks and Serbian project developers regarding	Project monitoring system and/or Surveys and Questionnaires	No capacity from the financial side (local banks) Lack of equity prohibits further investment in the bio energy sector causing lack of interest among the banks and project developers.

		banks and project developers	biomass to energy projects.		
	Status of Investment Grant Support Mechanism	No Investment Grant Support Mechanism	Operational criteria agreed with relevant stakeholders and investment grants released	Project monitoring system	Co-financing partners keep their financial commitments Continuation of Grant Mechanism after Project ends?
Outcome 4: Six biomass projects are successfully financed, constructed and operating by the end of the Project Technical viability of specific biomass technologies is demonstrated as the basis for replication	Investment Grant Support Mechanism	No Investment Grant Support Mechanism	Investment Grant Support Mechanism established and successfully piloted by the end of the Project		Lack of mature projects of adequate value and capacity, ready for implementation. Cost of technologies being higher than initial estimation in the prodoc which might lead to lower supported installed capacity*. Cancellation of selected Projects
	Implemented biomass projects	No bio energy projects, insufficient capacities	6 biomass projects of at least 4MW installed capacity (in total) are successfully financed, constructed and operating by the end of the Project	Project monitoring system	Sufficient level of interest among potential investors in biomass projects
Outcome 5: At least 12 additional biomass projects are being supported by the Biomass Support Unit / Investment Support Mechanism by the end of the Project	Number of new bio energy projects initiated in Serbia	No bio energy projects, insufficient capacities	At least 12 pre-feasibility for the new bio energy projects elaborated by the end of the Project.	Project monitoring system	Sufficient level of interest among potential investors in biomass projects. Lack of equity prohibits further investment in the bio energy sector
	Case Study or Documentary film on biomass	No recent films covering full supply to delivery chains	One film covering all the projects established during the Project	Project monitoring system	No risks