

Country Name	The Project for Assistance of Enhancement of Energy Management System in Energy Consumption Sectors in the Republic of Serbia
Republic of Serbia	

I. Project Outline

Background	<p>Serbia was dependent on imports for about 40% of its primary energy (as of 2009), facing a need to diversify energy sources and promote energy conservation. Besides, Serbia was required efforts to fulfill the EU Directive 2012/27 in Energy Efficiency to be an EU member country after the accession to the Energy Community Treaty in 2006. The Directive stipulates a 20% reduction in overall EU energy consumption compared to 2012. It requires the EU member countries to prepare a national action plan every three years that sets intermediate targets for reducing energy consumption. Under that circumstance, JICA conducted a development study, “Study for Introduction of Energy Management in Energy Consumption Sectors in Serbia,” from 2009 to 2011 and identified a significant energy efficiency potential in the industry sector of Serbia. Based on the institutional design of the energy management system recommended by the study, Serbia enacted the Law on Efficient Use of Energy in March 2013. Accordingly, there was an urgent need to establish a framework for energy management and auditing systems (hereafter “energy management system” (EMS)) and to develop human resources for Energy Managers (EMs) and Energy Auditors (EAs).</p>										
Objectives of the Project	<p>Through 1) establishing the scheme design of the EMS, 2) establishing the classroom training program of EMs and EAs, 3) establishing the practical training program of EMs and EAs, 4) institutionalizing the qualification and examination system of EMs and EAs, and 5) strengthening the capacity of the Ministry of Mining and Energy (MOME) to implement the energy management and audit system, this project aimed at the introduction and implementation of the energy management system in Serbia, thereby contributing to the promotion of energy efficiency in the designated organizations under the EMS.</p>										
	<ol style="list-style-type: none"> 1. Overall Goal: Energy efficiency in designated organizations (DOs) under the EMS will be promoted. 2. Project Purpose: EMS is introduced and implemented. 										
Activities of the project	<ol style="list-style-type: none"> 1. Project site: Whole country of Serbia 2. Main activities: <ol style="list-style-type: none"> (1) To review secondary legislations (decrees, rulebooks, and decisions) of Ministry of Mining and Energy (MOME) that are necessary for EMS, to prepare guidebooks for DOs, to program the database for EMS, and to formulate/implement the plan of use of energy efficiency fund/other available funds to promote EMS. (2) To prepare and implement classroom training for EMs and EAs. (3) To design and procure training equipment, to prepare and implement practical training for EMs and EAs. (4) To prepare and conduct examination test and to issue the license for EMs and EAs, respectively (5) To plan and implement dissemination and awareness seminars for DOs and EMs, to develop manuals on monitoring of DOs, to conduct monitoring of DOs, to conduct performance check of EAs, and to review/make necessary revisions on EMS. 3. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Serbian Side</td> </tr> <tr> <td>1) Experts: 12 persons</td> <td>1) Staff allocated: 29 persons</td> </tr> <tr> <td>2) Equipment: Equipment for practical training (boiler unit, steam trap unit, air compressor unit, pump unit, testing equipment, tools)</td> <td>2) Building and facilities: Office space for JICA experts; rooms and spaces for installation and storage of the equipment</td> </tr> <tr> <td>3) Local cost</td> <td>3) Local cost</td> </tr> </table> 			Japanese Side	Serbian Side	1) Experts: 12 persons	1) Staff allocated: 29 persons	2) Equipment: Equipment for practical training (boiler unit, steam trap unit, air compressor unit, pump unit, testing equipment, tools)	2) Building and facilities: Office space for JICA experts; rooms and spaces for installation and storage of the equipment	3) Local cost	3) Local cost
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Project Period	(ex-ante) February 2014 – February 2016 (actual) March 2014 – December 2017 (Extension period: March 2016 – December 2017)	Project Cost	(ex-ante) 229 million yen, (actual) 292 million yen								
Implementing Agency	Ministry of Mining and Energy (MOME) Mechanical Faculty of Belgrade University (MFBU) as a Training Organization/Training Center										
Cooperation Agency in Japan	Tokyo Electricity Power Company Holdings, Inc., YSK Consultants Co., Ltd.										
Related Project	<ul style="list-style-type: none"> - Technical Cooperation for Development Planning: Study for introduction of energy management in energy consumption sectors in Serbia (2009~2011) - Technical Cooperation: Capacity Development Project on Nationally Appropriate Mitigation Actions (NAMAs) (2010~2013) - Dispatch of Science Technology Researchers: Project for Science and Technology Research Partnership for Biomass Energy Utilizing Livestock Waste (2011~2013) - Country-focused Training: Measures of Energy Efficiency and Conservation Training (2010) 										

II. Result of the Evaluation

<Constraints on Evaluation>

- Due to the COVID-19 situation, interviews were conducted online.

<Special Perspectives Considered in the Ex-Post Evaluation >

- Assessment of the Overall Goal: Since the year of achievement of the Overall Goal is designated as 2022, the ex-post evaluation in 2021 verified achievement level against the target value of the Overall Goal based on achievements to date and the prospects for achievement during 2022.

1 Relevance

<Consistency with the Development Policy of Serbia at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Serbia. In the “Energy Sector Development Strategy” (2005-2015) and the “Energy Strategy Implementation Program” (2007–2012), the promotion of energy efficiency and conservation was taken up as a priority issue. The “Energy Development Strategy by 2025” (Draft) and the “Energy Efficiency Action Plan 2013–2015” (Draft) were formulated. The implementation of the EMS was the core of the promotion of energy efficiency and conservation in those plans.

<Consistency with the Development Needs of Serbia at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Serbia for improvement of energy efficiency. 20% reduction in the overall EU energy consumption required the EU member countries to take actions to attain the target. And Serbia, as a Contracting party to the Treaty Establishing the Energy Community, was required to fulfill the energy efficiency goals adapted at the level of the Energy Community. Besides, Serbia had its own development needs regarding improvement of energy efficiency, which was also reflected by goals set out in the Energy Sector Development Strategy and other energy policy documents.

<Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation>

The project was also consistent with Japan’s ODA Policy to Serbia. Of the three priority areas of Japan’s aid policy for Serbia as of 2013 (market economy, healthcare and education, and environmental conservation), this project was positioned in the “environmental conservation” area¹.

<<Appropriateness of Project Design/Approach>

Although the project design was consistent with the development policy and needs of Serbia, more attention should have been paid to the actual range of the project scope having in mind the lack of staff of the Implementing Agency (MOME) and slowness of the relevant institutions which were involved in the process of approval of the Law and the bylaws, though numerous secondary legislation acts regulating the EMS were adopted during the project period except the Law and bylaws². Therefore, these facts should have been taken into consideration during the project formulation in order to adjust the main project design to them.

<Evaluation Result>

In light of the above, the relevance of the project is fair.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The project purpose was partially achieved. The number of DOs submitting Periodical Reports (PRs) was 55, which could not reach the target (100) because 2017 was the first year of submitting PRs. The number of submissions was expected to gradually increase with penetration of the EMS. It was assumed that there were difficulties for municipalities in dealing with a lot of facilities during the first year.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have partially continued. EMS has been partially implemented from 2017 up to the time of ex-post evaluation. Training for EMs has been still conducted by MFBU, as was defined at the time of the project; however, the number of newly qualified EMs has been decreasing over the years though there have been applicants every year due to the limited number of DOs.

The EA system including EA training has not yet been introduced because of the amendment of the Law on Efficient Use of Energy in that part. At the time of ex-post evaluation, the rulebooks on the training and exam for EAs and implementation of the Energy Audit were being prepared under the technical assistance of the IPA14 Project (“Technical Assistance to the Ministry in Charge for Energy and Relevant Public Entities for the Implementation of the New Energy Law, NEEAP and RES Directive”, financed through European Union (EU)’s Instrument for Pre-Accession Assistance (IPA) fund).

The EMS database developed under the project has been functional and working. The design of the database was prepared within the scope of the project and the database programming was financed by the Norwegian Government, which is a good example of successful combination of financing from various sources. Successful integration of the databases has been implemented which makes it easier for DO in public sector to use it and make annual reports.

There was a decrease in the number of PRs submitted in 2019 and 2020 due to a COVID-19 pandemic situation. Nonetheless, there have been efforts to strengthen DOs ability to analyze energy consumption and develop energy efficiency plans. Technical assistance was provided for some municipalities to prepare energy efficiency plans and programs under the UNDP Global Environment Facility (GEF) project, “Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia” which was in implementation in the period from 2015 to 2020.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has not been achieved at the time of ex-post evaluation. It has been achieved in the part of energy consumption reduction in municipalities and buildings but overall result for industry has not been achieved (Indicator 1). Although some individual examples have shown that the Overall Goal has been achieved in some cases in industry as well since significant energy consumption reduction has been registered. The reason for not achieving the Overall Goal for the industry sector has been rise in industrialization in the country.

The Budgetary Fund for energy efficiency has supported EMS systematically. In the public calls issued by the Budget Fund for financing energy efficiency projects in Municipalities, those Municipalities that are DOs of EMS need to have appointed EM in order to apply for the funds and must submit annual report in order to get the final payment on the project. Through the above-mentioned UNDP project, support was provided to smaller Municipalities to introduce EMS, prepare annual reports, programs and introduce data in Energy Management

¹ MOFA, ODA Data book 2013

² Later in April 2021, new Law on energy efficiency and rational use of energy was adopted (“Official Gazette of RS”, No. 40/21) and based on the new Law, bylaws regulating energy audits has been prepared for the adoption procedure.

Information System (EMIS) database. In addition to that, 10 demonstration energy efficiency projects, identified and implemented within the energy management system with the use of EMIS were implemented.

The implementation of EA has not started yet (Indicator 2), due to the revision of law as mentioned above.

<Other Impacts at the time of Ex-post Evaluation>

No negative impacts on the natural environment have been observed.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is low.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source																																
(Project Purpose) EMS is introduced and implemented.	Indicator 1: At least 100 DOs can analyze current situation on energy consumption and prepare the plan to enhance energy efficiency in their periodical report	Status of the Achievement: Partially achieved (partially continued) (Project completion) The number of DOs submitting PRs could not reach the target because 2017 was the first year of submitting PRs. The number of submissions is expected to gradually increase with penetration of the EMS scheme. It is assumed that there are difficulties for municipalities in dealing with a lot of facilities during the first year. Data collection methods are to be established as early as possible.	JICA documents, MOME																																
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(Overall Goal) Energy efficiency in designated organizations (DOs) under the EMS will be promoted.	Indicator 1: Five years after the introduction of EMS, on the average of total DOs for five years, the percentage of total energy consumption reduction will be 1% for a year.	(Ex-post Evaluation) Partially achieved - In Industry there is 1.68% increase of primary energy consumption average per DO due to increased production, improvement of technological processes. - In Municipalities there is 1.82% decrease of primary energy consumption average per DO - In Buildings there is 1.28% decrease of primary energy consumption average per DO.	MOME																																
	Indicator 2: Five years after the introduction of EMS, energy audit must be conducted for All DOs in industry sector.	(Ex-post Evaluation) Not achieved The implementation of energy audits has not started yet.	MOME																																

3 Efficiency

The project cost exceeded the plan and the project period significantly exceeded the plan (the ratio against the plan: 128%, 184%, respectively). The project was extended twice. The project was extended to April 2017 to add activities regarding secondary legislations to PDM since those secondary legislations had not been completed by the time of launching the project. The project was further extended to December 2017 to make certain of the project's effects. Both extensions were somewhat affected by factors such as elections (carried out twice and it took long time to appoint responsible persons in MOME) as well as slow processing by the side of the Legal Secretariat (a body which checks all submitted laws and bylaws). The outputs were produced as planned.

Therefore, the efficiency of the project is low.

4 Sustainability

<Policy Aspect>

Established support from Government's policy side have existed. According to the new Law, energy efficiency policy in the future will be planned through documents including the "Energy Sector Development Strategy of the Republic of Serbia", the "Programme determining the conditions, manner, timetable and measures for Strategy Implementation", and the "Integrated National Energy and Climate Plan", that shall be adopted pursuant to the law regulating the field of energy. The obligation to adopt Integrated National Energy and Climate Plan is in accordance with Directive 2012/27/EU on energy efficiency, that is with its amendments introduced through Regulation (EU) 2018/1999 of the European parliament and of the Council of 11 December 2018.

<Institutional/Organizational Aspect>

Insufficient number of staff in organizational structure of MOME has still existed which is one of the main reasons for slower implementation of EMS system than it was planned and expected. The Department for Energy Efficiency of MOME has dealt with EMS. Although the staff members increased, there was only two persons assigned in the daily work on the EMS; however, one place was empty. Due to budget limitations, according to the Law on Budgetary System, from December 2013 until December 2020 there was limitation of number of persons that could be employed in the Government institutions.

As for MFBU, there has been no changes in the organizational structure of Organization for the training of certified energy managers and energy advisors (TO). The TO was established on 20 November 2015 on the basis of a decision adopted by the Minister of Mining and Energy under Decision No 401-00-00204/2/2015-06 ("Official Gazette of the RS", No. 95/15), which gave authorization to MFBU to perform tasks relating to the training of energy managers and certified energy advisors. The establishment of the TO is one of the main results of this technical cooperation project. MFBU is authorized to perform training of EM and certified EA in the period of four new years (until October 2023) based on the Decision adopted by the Minister of Mining and Energy (Decision No. 401-00-00204 / 3 / 2015-06) ("Official Gazette of RS", No. 84/19 of November 29, 2019),.

MFBU as TO has had sufficient number of staff for all activities which were established by the project.

<Technical Aspect>

Due to the insufficient manpower at MOME, there has been no specific capacity development program for promotion and dissemination of EMS system, and therefore limited activities on it. The Standing Conference of Towns and Municipalities - National Association of Local Authorities in Serbia, has supported MOME and has organized a few seminars for EM in municipalities and put in place an electronic way of communication between them aiming at exchange of knowledge and experience.

Manuals/guidelines/ materials developed by the project have been utilized. The equipment procured under this project is fully operational and successfully used.

<Financial Aspect>

Within the activities of the Budgetary Fund for energy efficiency, EMS has been systematically supported. Still, the range of this support needs to be bigger in the future in order to achieve even stronger impact of the project and considering the needs from various DOs. MOME has been thinking for financing energy efficiency projects from the Budgetary Fund.

At MFBU, costs for work (expenditures) of the TO have been covered only from revenue that the TO achieves through the collection of expenditures that trainees pay as compensation for provision of training services.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project partially achieved the Project Purpose at the project completion, as PRs were submitted, though the number of PRs did not reach the target. The effects of the project have partially continued such as training, database and submission of PRs; however, EA system including EA training has not yet started. The Overall Goal has not been achieved. Energy consumption has reduced in Municipalities and Building sector; however, the energy consumption has increased in Industry sector, due to the increased production. As for the sustainability, slight problems have been observed in terms of the institutional/organizational and financial aspects. As for the efficiency, the project cost exceeded the plan and the project period significantly exceeded the plan.

Considering all of the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- The small number of staff employed in MOME makes implementation slower than it should be. MOME should increase the number of staff and should also use JICA KCCP trainings for Energy Efficiency to educate them, besides the internal education they carry out through their work.
- Dissemination and promotion of EMS to DOs should be even more frequent and energetic in order DOs to grasp importance of EMS. Special point should be put on the industrial sector with this regard since they are the biggest energy consumers.
- Even larger budgetary support should be obtained by MOME for EMS in the future to secure sustainability of EMS system.
- MOME should accelerate part of the project concerning EA since this part's implementation is rather slow.

Lessons Learned for JICA:

During the time of project formulation, JICA Consultant Team was not aware of quite slow process of approval of Secondary Laws by the Legal Secretariat and the other relevant ministries as well as of the political situation (frequent elections), so the project period was determined in the regular way. The JICA Consultant Team had no practical project experience in the Balkan Region before, and MOME did not explain sufficiently to them and JICA the actual speed of feedback by the counterparts like Legal Secretariat and other Ministries - too many sides were involved in the Secondary Law approval. JICA should formulate the project period more realistically **by appropriately including the process for taking necessary actions to implement the project plan.**

Database (EMIS) screen with the list of officially submitted yearly reports from Designated Organizations

Званична презентација Министарства Корисник: Министарство рударства и енергетике

Република Србија
МИНИСТАРСТВО РУДАРСТВА И ЕНЕРГЕТИКЕ

База података за енергетски прегледи и систем енергетског мониторинга

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ГОДИШЊИ ИЗВЕШТАЈИ

Број извештаја	Година	Датум извештаја	Датум обраде	Датум одобр.	Верзија конвертора	Максимална свла ЕМ		Објектне системе	Статус извештаја	Q
						Сла	Сла			
ГИ-2021-0063	2020	24.09.2021.	25.09.2021.	14:14	Конвертор од 13.11.20	✓	07194036	Општина Александровац	Припремљен	✗
ГИ-2021-0062	2020	17.06.2021.			Конвертор од 13.11.20	✓	06808335	ГРАД ПЕЏОКОВАЦ	У припреми	✗
ГИ-2021-0060	2018	02.04.2021.			Конвертор од 13.11.20	✓	07183807	Град Краљево	У припреми	✗
ГИ-2021-0061	2020	31.03.2021.	22.04.2021.	12:38	Конвертор од 13.11.20	✓	00335337	Градско управе града Панчево	Припремљен	✗
ГИ-2021-0057	2019	31.03.2021.			Конвертор од 13.11.20	✓	07194005	Град Крушевац	У припреми	✗
ГИ-2021-0058	2020	31.03.2021.			Конвертор од 13.11.20	✓	07194005	Град Крушевац	У припреми	✗
ГИ-2021-0059	2020	31.03.2021.			Конвертор од 13.11.20	✓	07137010	Град Ваљева	У припреми	✗
ГИ-2021-0048	2020	31.03.2021.	30.03.2021.	11:02	Конвертор од 13.11.20	✓	00179115	Град Нови Сад	Припремљен	✗
ГИ-2021-0053	2020	30.03.2021.	30.03.2021.	10:46	Конвертор од 13.11.20	✓	07179588	Општина Високоград	Припремљен	✗
ГИ-2021-0056	2020	30.03.2021.	30.03.2021.	11:28	Конвертор од 13.11.20	✓	17620541	Град Нови	Припремљен	✗
ГИ-2021-0056	2020	30.03.2021.	31.03.2021.	10:22	Конвертор од 13.11.20	✓	00079087	Општина Бања Лука	Припремљен	✗
ГИ-2021-0051	2020	29.03.2021.	30.03.2021.	9:34	Конвертор од 13.11.20	✓	20547716	IBISE SHOPPING CENTER	Припремљен	✗
ГИ-2021-0050	2020	26.03.2021.	30.03.2021.	9:49	Конвертор од 13.11.20	✓	21333387	Итали Салва & с.о. Војводина	Припремљен	✗
		24.03.2021.	26.03.2021.	12:48	Конвертор од 13.11.20	✓	07137923	Анда Гали А.Д.	Припремљен	✗

Equipment provided by the project for practical training of Energy Managers

