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REPORT

Non-Technical Executive Summary of the RWCM Srem-Mačva, Sremska Mitrovica

Client: EBRD and AFD

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Abbreviations and acronyms

A&A	Description
AFD	French Development Agency
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
ESAP	Environmental and Social Action Plan
ESAR	Environmental and Social Appraisal Report
EU	European Union
H&S	Health and Safety
ISO	International Organization for Standardization
LSGU	Local Self-Government Unit
OHS	Occupational Health and Safety
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
PR	Performance Requirement
PUC	Public Utility Company
RS	Republic of Serbia
RWMC	Regional Waste Management Center
SEP	Stakeholder Engagement Plan
ToR	Terms of Reference
TS	Transfer Station

1 INTRODUCTION

The European Bank for Reconstruction and Development ("EBRD") and the French Development Agency (AFD) ("the Banks" or "the Lenders") are considering providing a sovereign loan of up to EUR 100 million to the Republic of Serbia to finance critical improvements in the solid waste management system across several secondary cities in the country, which includes construction of new facilities and procurement of new equipment at the RWMC Sremska Mitrovica ("the Project").

This Project should upgrade a significant part of the waste management system in Serbia, in line with the EU standards and the National Waste Management Programme. The two sites (Sremska Mitrovica and Pirot) cover 9 municipalities and service over 900,000 people.

The Project aims to enhance the operation of the Regional Centers with the development of the collection and primary separation of waste, by procurement of new equipment and installation of the new facilities, installation of new landfill cells and closure of used cells an increase of waste disposal capacity, an extension of landfills life span, biodegradable waste treatment, landfill gas collection and treatment, wastewater treatment, etc., all in line with the EU standards and requirements. Besides, the project implementation will lead to reducing of ongoing adverse environmental impacts and environmental risks related to the current practices and planned investments. Besides, the Project will lead to the closure of numerous official non-sanitary landfills/dumpsites across the Regions.

The RWMC is connected to Sremska Mitrovica by road 316 and to Šabac by road 21. The region is further connected to the highway E-70. The distance of the regional landfill from Novi Sad is about 60 km and from Belgrade about 75 km.

The Regional Center is located south-east of the city of Sremska Mitrovica, at the cadastral parcels 2803/6, 2792/2, 2831/3 channel, 2767/2, 2791/4, 2765/42800/1 and 2800/2 access road, in the cadastral municipality Šašinci.

It is located at about 7 km distance by air from the center of Sremska Mitrovica and about 6 km from the center of Jarak settlement of. The distance from the first residential houses in Sremska Mitrovica is about 5 km. The regional landfill is adjacent to the non-sanitary communal landfill and it is surrounded mainly by forest "Legat" towards the south and the river Sava, and the agricultural land. The distance to the river Sava is around 1 km (Figure 1). Moreover, a part of the former fish pond, next to the sanitary landfill, was used by the sugar manufacturing factory for waste disposal, while another part was used by the paper factory.

Figure 1 Macro location of the Project
(Source: Google Earth)

2 PROJECT DESCRIPTION

The regional waste management center (RWMC) consists of 5 municipalities (Ruma, Šid, Sremska Mitrovica, Bogatić and Šabac). This regional waste management area already has a RWMC, called "Srem-Mačva", with a sanitary landfill and a secondary sorting plant (not operational yet). The RWMC wishes to improve waste management through construction of new facilities and procurement of new equipment.

In addition to the existing landfill for municipal solid waste within the Regional Center, the construction of the following infrastructure for additional waste management and treatment is planned:

- construction of cell 2, including rehabilitation of the unsanitary landfill, leachate collection and treatment, landfill gas collection and treatment for cell 1 and 2, and hydrant network,
- closure of cell 1,
- procurement of mobile equipment for landfill operations,
- procurement of containers and vehicles for primary separation of waste in Ruma.

A new cell 2 is planned to be installed at the current location of the unsanitary landfill, after the relocation of the landfilled material from the unsanitary landfill to the sanitary cell 1. Company "BMD BAU" has been engaged to prepare design documentation and execution works for closure and rehabilitation of the unsanitary landfill, closure of cell 1 and construction of cell 2. Only the conceptual solution for rehabilitation of the unsanitary landfill, and conceptual design for the extension of the existing cell and installation of a new cell, based on investigation works, and the presentation of the plan for the whole project are disclosed. The rest of the design documents are under preparation.

As per the provided documents, the plan comprises the following main stages:

- Increasing capacity of cell 1,
- Rehabilitation of the old unsanitary landfill by relocation of the waste to the cell 1,
- Construction of the sanitary cell 2 at the location of the rehabilitated unsanitary landfill.

BMD BAU has conducted, or will conduct, the following activities, regarding the former unsanitary landfill:

- Geodetic works;
- Determination of border body boundaries;
  - investigative digging of trenches along the visible perimeter of the non-sanitary landfill in the width of 1-1.2 m, depending on the existing situation on the ground, up to 2 m long and about 0.5 m deep, was performed;
  - pegs were driven into the places of the exploratory trenches, which need to be recorded in order to outline the non-sanitary landfill;
- Gas monitoring;
- Determination of the depth of the disposed waste;
- Determination of the morphological composition of waste;
- Laboratory testing of liquid materials;
- Geotechnical and hydrogeological works.

The overall landfill upgrade project includes the following:

- Closing the cell 1,
- Rehabilitation of the non-sanitary landfill and construction of sanitary cell 2 in accordance with EU standards,,
- Closing the cell 2,
- Upgrade of the Leachate system,
- Upgrade of the Hydrant network,
- Road to the body of the landfill,
- Construction of new Leachate ponds,
- Mobile water (leachate) treatment plant,
- Installation of a biogas collection network for cell 1 and 2,
- Installation of a flare,
- Procurement of a mobile shredder for green waste.

As for the planned leachate system upgrade, it is understood that new ponds will be installed identical to the cell 1, to store the leachate and to invest in a mobile leachate treatment unit.

Procurement of mobile equipment required is also planned (Combined working machine-skip, Container truck with trailer, Skid steer loader, Bulldozer) for the Regional Center operation, currently missing, or required for the operation of cell 2.

Overall, the Project aims to enhance the operation of the Regional Center through improvement of primary selection, further expansion of disposal and handling capacity for communal waste and improvement of landfill gas and leachate management.

3 BACKGROUND

3.1 History of the Project development and planning

The Sremska Mitrovica Regional Solid Waste Management Project involved construction of a regional solid waste management Center (RWMC) "Srem-Mačva" to serve five municipalities (i.e. Ruma, Šid, Sremska Mitrovica, Bogatić and Šabac).

In November 2006, the City of Sremska Mitrovica and the City of Šabac concluded a Cooperation Agreement related to the establishment of a Solid Waste Management Region.

In March 2011, the Assembly of the City of Sremska Mitrovica and the Assembly of the City of Šabac passed a decision on the establishment of the PUC for the Regional Landfill "Srem-Mačva", with its headquarters in Sremska Mitrovica. The agreement stipulates that the regional system consists of a sanitary landfill "Jarak" with the accompanying infrastructure, a transfer station in Šabac and a waste separation plant. The landfill was installed in 2014 in a depression which was used as a fish pond, and after that as a non-sanitary landfill for Sremska Mitrovica and as the landfill for a paper factory and sugar manufacturing factory. The current sanitary landfill is located adjacent to the non-sanitary landfill of Sremska Mitrovica.

Prior to the construction and operation of the Srem-Mačva Regional landfill, the municipality of Sremska Mitrovica closed the municipal non-sanitary landfill, "Jarak" but its remediation and transformation into a sanitary cell are part of the RWMC project to be financed by the AFD/EBRD loan.

The municipal non-sanitary landfill, "Dudara" in the municipality of Šabac is closed and rehabilitated.

The project design for the closure of the official non-sanitary landfills in Šid, Ruma, Šabac and Bogatić should be developed as well as the execution of construction works should be developed in accordance with local law, EU standards and good practice.

3.2 Current environmental and social situation and considerations

Air Quality

Air pollution at the landfill itself is manifested through the landfill gas extraction and air pollution by particles (whether they come from waste, inert cover material or soil), raised and dispersed by air currents.

In order to control the quality of the ambient air, continual monitoring is carried out on the territory of Sremska Mitrovica by the Institute of Public Health Sremska Mitrovica. According to the Annual report on air quality from 2020, which was made in the period from January 21, 2020 to December 31, 2020, monitoring was performed at three measuring points: city's industrial zone, city's residential zone and the building of the Institute of Public Health, Sremska Mitrovica.

According to the Annual report on the state of air quality in the Republic of Serbia 2020, prepared by the Serbian Environmental Protection Agency, there were no exceedances of daily

and annual concentrations of SO_2 and NO_2 in Sremska Mitrovica. The average annual concentration of PM_{10} was not exceeded, either, while the daily limit value of PM_{10} was exceeded 48 times.
The city of Sremska Mitrovica has variable air quality, and according to the annual 2020 report, the air belonged to the first category. The results of air quality from 2020 can be used as a baseline for the planned project.

Environmental Noise

In accordance with the 2009 EIA, noise and vibration pollution can be caused by landfill mechanization. Noise in this area is a consequence of traffic flows and operation of machines in the area of the landfill.

In accordance with the Preliminary Design for the Rehabilitation of the Non-Sanitary Landfill in the Complex of the Regional Landfill for Municipal and Non-Hazardous Waste "Srem – Mačva", cadaster parcel 2803/6, cadastral municipality Šašinci from July, 2021, temporary contaminants may be piezometer drilling equipment. The noise it generates is 85 dB (A), but this effect is short-lived. It has a negative impact only during the period of works and is considered to be negligible considering the location of the works, which is far from the settlement and the population. There are no residential buildings near the landfill.

According to the Annual Report on the 2020 Results of Systematic Measurement of Noise in the Environment, conducted by the Institute of Public Health Sremska Mitrovica, in 2020 noise levels were measured at five different locations once a month, with a total of 10 months in five series (three for the day and evening, and two for the night). The measuring point closest to the Regional landfill "Srem – Mačva" is in the yard of the company "Metalfer Steel Mill" - about 4.5 km northwest of the landfill. The measurement results showed that the measured noise level during the day and evening never exceeded the noise limit value for the day/evening of 65 dB. Also, the relevant evening noise level during 10 months did not exceed the noise limit value for the evening, which is 55 dB.

Since there is no recent data from the site, and the nearest noise measuring point from the 2020 Annual report is far from the landfill location, the baseline needs to be updated with more recent data. If the site monitors ambient noise, recent results can be used as a basis for the planned project.

Biodiversity

There are no protected natural assets in the area of the Regional landfill. Protected natural asset in the immediate vicinity is the Memorial Forest "Leget".

Based on the stand conditions and soil type, the following ecological communities have been formed: white willow forest (Salicetum albae), the narrow - leaved ash forests with grey willow (Saliceto-cinereae-Fraxinetum angustifoliae), poplar forest - Black poplar (Populus nigra) and white poplar (Populus alba). These plant species are not protected by the Rulebook on the proclamation and protection of strictly protected and protected wild species of plants, animals and fungi ("Official Gazette of RS", No. 5/2010, 47/2011, 32/2016 and 98/2016). All mentioned species of trees are rated, according to the IUCN red list (European Union), as a category LC - Least Concern, except Black poplar (Populus nigra), which is in category DD – Data Deficient.

On the south side, the subject area is bordered by the habitat of strictly protected and protected species. The species of wild animals represented in the Sremska Mitrovica district are: - Red Deer (Cervus elaphus) - Roe deer (Capreolus capreolus) - Wild boar (Sus scrofa) and rabbit (Lepus europaeus). These are protected species, in accordance with the mentioned Rulebook, and their status and protection regime are regulated by regulations in the field of hunting. All mentioned species are rated, according to the IUCN red list (European Union), as category LC - Least Concern. However, the wild animals are difficult to meet at the observed location, and can mostly be found on the remote edges of Fruška Gora, north of the landfill location.

Cultural Heritage

Within the scope of the Detailed Regulation Plan of the Regional Landfill from January 2009, there is a recorded object of cultural heritage - the archaeological site "Vrbica". The Institute for the Protection of Cultural Monuments, Sremska Mitrovica, provided protection measures in order to protect the immovable cultural heritage. The protected natural area in the immediate vicinity is the Memorial - the forest "Leget" in which there is a famous place "Spomenik na polju Legetu", a monument to the fallen warriors of 1914. This cultural good is located at approximately 1.4 km southwest of the landfill. Also, approximately 1.9 km northwest of the landfill lies the archaeological site "Glac".

Soil Quality

According to the Preliminary design for Rehabilitation of the Non-Sanitary Landfill in the Complex of the Regional Landfill for Municipal and Non-Hazardous Waste "Srem – Mačva", cadaster plot 2803/6, cadastral municipality of Šašinci, investigation works on the location of the Regional Landfill "Srem-Mačva" were performed in 2021. The results of soil quality at the site show increased concentrations of copper and nickel compared to the limit values prescribed by the Ordinance on limit values of pollutants, harmful and dangerous substances in the soil ("Official Gazette of RS", No. 30/18 and 64/19).

The results of soil quality from 2021 can be used as a baseline prior to the execution of the planned project.

Surface Water and Groundwater

The river Sava is approximately 1.3 km west from the Regional landfill. Groundwater at the site of the landfill is in direct hydraulic connection with the river Sava. The influence of the river is felt at about 500 m from the shore, weakening with distance, and at 2-3 km the influence stops. The local conditions of the groundwater regime are also affected by the waters of the Mančel Channel. Groundwater levels vary depending on the season. In the research period, the highest groundwater level was 79.32 m, and the lowest 76.84 m.

Worker and public health and safety

The entire complex of the Regional Waste Management Center is fenced with a controlled entrance and exit and a security service. The same will continue during future operation.

RWMC "Srem-Mačva" operates under the Serbian regulation pertaining workers and public health and safety, following the rule of law in sectors of public and occupational health and safety, traffic standards and safety. These standards shall be implemented in procuring design, construction and operation stage of the Project. Based on the information available, workers of the PUCs currently operating in relevant municipalities are mostly equipped with the PPE and other working equipment. However, there was no evidence that workers were provided with the PPE masks to minimize the impact of air emissions and dust on their health.

Social Issues

The area of the RWMC is located east of the City of Sremska Mitrovica, at the contact point between industrial zone "East" in Sremska Mitrovica and agricultural land of the cadaster municipality Šašinci. The closest urban settlement is at 4.5 km (Sremska Mitrovica) and the closest industrial zone is at 10 km. There is an industrial zone in the vicinity of the plant, at around 2 km. The RWMC area also includes part of the Mančel Channel flow.

There are neither residential nor economic objects around the RWMC. The area is uninhabited. The only vulnerable group that could be affected by the project, indirectly through the closure of local landfills in Bogatić, Šid and Ruma, are the informal waste pickers. The available information so far does not allow for an assessment of the number of informal waste pickers.

In order to identify the number of informal waste pickers it is necessary to conduct a social baseline assessment. This assessment will be conducted prior to the closure of the official local non-sanitary landfills/dumpsites. In the case of Srem Mačva there are 4 (Sremska Mitrovica, Šid, Ruma and Bogatić) official dumpsites that will be closed, therefore should be included in this assessment. Assessment can be conducted during planned field visits or using a questionnaire that will be sent to all local PUCs in order to identify the number of informal waste pickers at exciting dumpsites. If collected data shows that the closure of the exciting dumpsites will affect the livelihood of informal waste pickers, in the next phase LARP for the improvement of the livelihood of informal waste pickers will be conducted.

All activities within this project will comply to the EBRD Environmental and Social Policy, as defined through the applicable Performance Requirements (PRs).

4 EIA PROCESS

4.1 Conducted EIA Process and public consultations

As per the disclosed documents, only EIA of the RWMC "Srem-Mačva" was developed in July 2009 according to the impact assessment procedure prescribed by the Serbian Law on Environmental Impact Assessment. It covers the sanitary landfill, cell 1 and cell 2 and the associated facilities, i.e. WWTP, secondary sorting facility, landfill gas collection and flaring system, etc.

The EIA is a comprehensive document, and provides significant information on baseline conditions, expected risks and impacts. Furthermore, it identified a number of measures to be implemented in order to prevent, minimize and mitigate possible impacts during construction and operation. However, having in mind that the EIA was prepared more than 10 years ago, and the site is obliged to apply for the IPPC permit, it is recommended to check if the EIA needs to be updated so as to properly elaborate the planned facilities.

4.2 Spatial Planning

The RWMC Srem-Mačva has been built on the location of the old Sremska Mitrovica landfill "Jarak", so there are no ownership issues.

5 SUMMARY OF POTENTIAL ADVERSE ENVIRONMENTAL AND SOCIAL IMPACTS

Overall long-term Project impacts are expected to be positive. Construction impacts of the projects will be temporary and location-specific and are not expected to have significant environmental and community impacts if adequate mitigation measures are timely defined and implemented. Although operation impacts will have a continuous impact during the RWMC operation, they are not expected to have a significant impact if environmental and social prevention and mitigation measures are implemented in accordance with the local law and project documentation.

A summary of main impacts and their characterisation is presented below. A complete list of impacts is presented in the Environmental and Social Appraisal Report (ESAR).

5.1 Impacts during the construction phase

Magnitude of most construction impacts is low, due to the fact that activities will be performed in a limited area. Only activities that will be conducted outside the Project area, or where impacts may extend off-site, are characterised with medium magnitude.

Significance of the impact is established as the portion of the environment and community that will be affected and potential level of impact. Most of the impacts' significance is assessed as low and medium. The majority of impacts during the construction phase are limited to the construction location where there is no housing. The following impacts are assessed as having potentially high impact significance:

- Impact on soil, surface water and groundwater as a result of the potential spillage or inadequate use of chemicals during the construction or operation phase, although low in magnitude, could potentially have high significance due to the potential of the hazardous substances to significantly pollute surface water and groundwater even in case of small spillages;
- Traffic safety management, due to fact that the activities during construction and the activities of regular disposal waste on the landfill will be carried out in parallel;
- Health and safety aspects of operations entail higher risks, where outcomes may be light and heavy injuries or fatalities (both occupational and community health and safety).

Most of the impacts are characterised as **reversible**, due to the sheer nature of the impact, except the following:

- Waste generation is irreversible, except in case of reuse;
- Spillage of pollutants and hazardous materials and chemicals into soil, groundwater and surface water. However, these are all small quantities and significant impacts on surface water or groundwater are not expected;
- Construction works in the area of the RWMC could have an irreversible impact on biodiversity, especially if not managed properly;
- Health and safety aspects, where irreversible outcomes may be light and heavy injuries or fatalities;
- Traffic safety impacts (in the same way as other safety impacts) could be irreversible if serious injury or fatal accident occurs. Volume of traffic will be especially increased

during the construction phase of each subproject, which will be undertaken in parallel with the existing operation of the RWMC and maybe in parallel with each other. The Contractor should develop and implement a Construction Traffic Management Plan (CTMP) to minimize risks to road users as well as local communities. All drivers should be trained, and strict speed limits should be enforced. An Emergency Preparedness and Response Plan (EPRP) should be in place for the Project, before the start of construction. It should include measures and procedures to manage any traffic and waste transport-related emergencies.

The extent of impacts is mostly localized on the construction site.

Generally, the **duration** of these impacts is limited to the construction phase and the immediate Project area.

5.2 Impacts during operation and maintenance

Magnitude of most operation and maintenance impacts will be low and medium and performed on the limited area, mostly within the RWMC. The exception is traffic safety management during operation, which is recognized as having a medium magnitude, as it goes out of the immediate area of the RWMC. Collection and transport of waste generated in the region will affect traffic safety on local and regional roads.

Significance of the impact is established as the portion of the environment and community that will be affected or the scale of the possible effect.

Due to the limited scale of the Project, most of the impacts will have low to medium significance. The majority of negative impacts during operation are limited to the operation site, given the Project area is located away from the nearby communities, i.e. 5 km from Sremska Mitrovica, and 6km from Jarak settlement. So, in the area of the RWMC there are no sensitive receptors in the immediate vicinity (schools, kindergartens, hospitals, culture and entertainment centres, etc.).

The following impacts are assessed to have **medium significance**:

- Surface water and groundwater pollution due to accidental spillage of hazardous materials/fuels/chemicals. Although these types of accidents could possibly have a significant impact, these are all small quantities and significant impacts on surface water or groundwater are not expected;
- Management of waste during RWMC operation, specifically mixed municipal waste (identification of hazardous), hazardous waste, sludge from the wastewater treatment process, and waste from the WWTP.

High significance is assigned to the following impacts:

- Improved access of the affected communities to safe disposal of municipal waste;
- Overall positive impacts on the environment as a result of Project implementation;
- Potential impact of occupational health and safety incidents during operation and maintenance could be assessed as high, depending on the severity of the injury. However, implementation of OHS national legislation requirements, as well as

international and good industry OHS standards, should limit the possible impact on occupational health and safety;

- Possible impact on traffic safety management on local roads during operation of the RWMC is assessed as high, due to the level of expected waste transport traffic and sensitivity of the recipients (all community members regarded as sensitive). These impacts are expected to be controlled through adequate traffic management, education of waste truck drivers and affected communities.

When it comes to the **reversibility** of the impacts, a number of possible impacts are regarded as irreversible:

- Waste generation is irreversible; however, it can be limited if waste is re-used;
- Pollution may be caused by spilling of pollutants and hazardous materials/chemicals into soil, ground water and surface water. Although of accidental nature and low magnitude, accidental spillage of fuels or chemicals stored in workshops (if there will be on-site vehicle maintenance) or on the WWTP or from malfunctioning, can have an irreversible impact on the environment. As already mentioned, these are all small quantities, and significant impacts on surface water or groundwater are not expected;
- Inadequate management of sanitary sewage, leachate wash-off from the RWMC plants maintenance and oily atmospheric water could lead to irreversible impacts;
- Similarly to the above, possible impacts of the absence of landfill gas control, or inadequate management of the landfill gas collection and treatment facility, as well as control and treatment of leachate from the sanitary cassettes, are assessed as irreversible;
- Although occupational health and safety aspects are of lower risks compared to those identified during construction, OHS incidents have the potential to be irreversible (fatality or disability) if OHS risks are not adequately managed;

The extent of impacts is mostly localized on the operation site, except when it comes to traffic safety management on local roads, with regard to the collection and transport of waste to the RWMC. The Operator should develop and implement an Operation Traffic Management Plan (OTMP) as a part of the Operation E&S Management Plan, to minimize the risk to road users, as well as to local communities. All drivers should be trained, and strict speed limits will be enforced. An Emergency Preparedness and Response Plan (EPRP) should be in place for the Project, before the start of operation of the new facility. It will include measures and procedures to manage any traffic and waste transport-related emergencies. The existing Emergency and Response Plan (ERP), if available for the RWMC, should be developed and updated in accordance with the local law.

Also, positive impacts to the affected communities range from local to regional, improving access to services related to safe management of communal waste.

Generally, the **duration** of these impacts is mostly associated with the life of the Project. At this point, there is no information on how long this phase will last. Duration of some impacts is assessed as limited/accidental due to their accidental nature, while the impact regarding change of use land, landscape, biodiversity is assessed as permanent.

5.3 Impacts during closure and decommissioning

The type and levels of impacts at closure and decommissioning of the Project will largely depend on the future land use of the site. There is no information available on future plans in this area and the change of the spatial planning document for the Project site.

The positive impacts the Project will have in the operation stage will be variable and these will be impacted by the strategic planning decision of the administration for future developments, depending on changes in legislation, changes in the number of inhabitants in the region, following and implementation of modern achievements in waste management, etc.

It is expected that a significant quantity of hazardous and non-hazardous waste will be generated at closure and decommissioning, and there will be a need for adequate separation, collection, treatment and disposal of waste. Grounds for discussing the waste management practice after several decades of Project life are currently unavailable.

Significant impacts are related to occupational health and safety practices, where demolition activities have innated higher risks of injuries or fatalities. The impact on employment will be low, since there is a shortage of labour force in PUCs and all employees of the RWMC could be transferred to the new location.

Furthermore, potentially significant impacts during closure and decommissioning depend on successful management of leachate and landfill gas during the Project life, as well as the amount of residual gas generated. Before the start of decommissioning and closure, an E&S assessment should be undertaken to inform the closure and decommissioning Project about E&S impacts relevant for this stage of the Project.

Apart from the impacts described above, other impacts relevant for closure and decommissioning are considered to be low in magnitude and significance, while also limited in time and space, with negligible exposure of communities.

5.4 Residual impacts

For almost all construction works, demolition and transport activities, the aim is to prevent significant effects on receptors through the use of effective mitigation measures. Experience in other similar projects shows that this is normally possible. Hence, the residual effect will normally be "not significant".

A positive residual effect of the project will be higher awareness of stakeholders about improved waste management and sustainable development thereof.
Residual impacts such as generation of solid wastes and wastewater from the construction activities are deemed insignificant (i.e. temporary and short-term). There may be a temporary increase in the number of people in the project site which may require additional spaces for transportation, food and security. The similar residual impact may happen during decommissioning. During the operation phase, residual impacts will be: leachate, landfill gas and odour.

5.5 Project benefits

The improvement of waste management in the RWMC is expected to result in:

- Decrease the disposed of waste quantity by improvement of the primary waste selection, on-site selection and processing, and biodegradable waste treatment;
- Extension of the waste disposal capacity and landfill life span;
- Air emission control, GHG emission reduction and safety risk reduction by the installation of landfill gas collection and treatment systems;
- Leachate quality control by the installation of the wastewater treatment system in RWMC Srem-Mačva;
- Adverse environmental impact reduction and control, by closing and remediation of the official non-sanitary landfill in RWMC Srem-Mačva and non-sanitary landfills/dumpsites in region.

Positive social effects of the project include:

- more sustainable development of local community due to higher awareness of stakeholders about improved waste management;
- increased trust in institutions due to better organizational performance, including human resources policy, non-discrimination and H&S standards at the workplace;
- improved regional cooperation based on the lesson learned through this project and the transfer of collected knowledge.

Overall, the Project should significantly enhance communal waste management in the Regions, reduce adverse environmental impacts, increase occupational and public safety and social effects.

6 SUMMARY OF ENVIRONMENTAL AND SOCIAL MITIGATION AND MANAGEMENT MEASURES

This chapter outlines feasible, cost-effective measures in order to avoid, minimize, mitigate or compensate for environmental and social impacts to acceptable levels and to address other environmental and social issues.

Impacts assessed at this stage of the Project development/completion imply generally low risks. Re-assessment of impacts and mitigation measures should be conducted after the development the missing designs and EIA Studies in accordance with the local law.

6.1 Construction phase

This phase of the Project development anticipates construction of new facilities (Contractor). This phase is expected to be implemented by PUC RWMC "Srem-Mačva" with the Project Implementation Unit (PIU) and support from the Ministry and local PUCs. The RWMC and the PIU should be assisted by PUCs from Ruma, Šid and Bogatić in the part of the Project related to procurement of vehicles and containers for primary separation in these municipalities.

Obligations PUC RWMC/PIU:

- Establish an ethical wall in permitting processes, to avoid conflicts of interest;
- Procure services from licensed companies for construction works, installation of the plant and equipment pursuant to standards of the public procurement regulations that have performance requirements of the Lenders embedded;
- Public procurement of vehicles and equipment should be in line with EU (Green Public Procurement) GPP criteria for transport and should meet legally required and international standards on air emissions, noise, safety, etc. [1]
- In the Call for Proposal (CfP) for Engineer and Contractor, it is necessary to include all E&S requirements (as will be defined in the future EIA Study, the ESAP);
- Establish monitoring and supervision for the implementation of Occupational Health and Safety measures, in line with the applicable OHS regulation during construction and operation;
- Ensure transparency when engaging a construction company in an open manner and in compliance with relevant laws;
- Ensure works within the Project to be performed in parallel to the greatest possible extent;
- Ensure continuity and safe disposal of generated waste in the existing sanitary cassettes in line with the applicable environmental regulation;
- Ensure development of project documentation for rehabilitation and constriction, including the EIA Study, in the shortest possible time;
- Supervise the implementation of community safety and security measures during construction;
- Inform the public of environmental and OHS measures and monitoring results during construction work and preparatory works;

[1] Rodríguez Quintero R. et al., Revision of the EU Green Public Procurement Criteria for Transport, EUR 29635 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92- 79-99080-9, doi:10.2760/700836, JRC115414.

- Biodiversity survey of the area should be undertaken/updated to form the biodiversity baseline and define Biodiversity Management Plan, if needed, before the start of construction activities;
- Provide an update to the existing environmental "zero stage baseline" (surface water and groundwater quality) with more recent data and establish "zero stage baseline" for soil, air quality and noise (not provided in the available documentation), surface water and ground water, prior to the start of the construction works at the RWMC, during the mobilization stage;
- Allocate budget for the above services.

PUC RWMC/PIU shall also be responsible for the following:

- Implementation of the requests for environmental protection provided by the Lenders and other institutions. Also, Law on Environmental Protection ("Official Gazette of the RS", No. 135/04, 36/09, 72/09, 43/11, 14/16, 76/18 and 95/18), Law on Environmental Impact Assessment ("Official Gazette of the RS", No. 135/04 and 36/09) and other local laws should be implemented during construction and operation;
- Implementation of the ESHS requirements into procurement documentation, ToR for construction and construction contract specifications;
- Provision of environmental monitoring supervision via consulting services;
- Preparation of relevant (quarterly reports) reports on the progress of implementation of environmental and health and safety (and social) requirements (national, international, Lenders', good international practice).

The Contractor is obliged to:

- The Contractor will be responsible for implementing environmental and health and safety mitigation measures during preparation and construction works;
- The Contractor should appoint environmental and health and safety specialist(s) who will be responsible for day-to-day implementation and management of the Contractor's environmental and health and safety responsibilities;
- Prepare the Contractor's Site-Specific Environmental and Social Management Plan (CESMP). The CESMP shall to define detailed mitigation measures in line with requirements of future EIA Studies (prepared and approved in line with the national legislation procedure and requirements), ESAP, construction contract, EU Directives, Lenders' requirements and good international practice;
- As a minimum, the CESMP shall include following sub-plans and procedures: Organisational structure, roles and responsibilities for ESHS management; Labour Management Plan; Waste Management Plan; Pollution Prevention Plan; Traffic Management Plan; OHS Management Plan; Community H&S Management Plan; Design change procedure/plan; Supply chain Management Plan/procedure; Monitoring Plan; type of reports and reporting frequency;
- Prepare the Health and Safety Management Plan as a part of the CESMP (listed above) or as a stand-alone document;
- The Contractor will be responsible to develop Emergency Preparedness and Response Plans in line with requirements and risks identified in the EIA Studies (prepared and approved in line with the national legislation procedure and requirements), ESAP and other relevant legislation before the commencement of works. The Emergency Preparedness and Response Plan should be submitted to the Project Supervision Consultant for approval;

- Perform all project activities pursuant to the Health and Safety Management Plan, national legislation and Lenders' requirements regarding health and safety;
- Ensure safe disposal of generated waste in line with the applicable environmental regulations and include hazardous waste;
- Pursuant to Article 109 of the Law on Cultural Heritage ("Official Gazette of the RS", No. 71/94, 52/11 (other law), 99/11 (other law)), the obligation of the Contractor and the Project, if he encounters an archaeological site or archaeological objects, is to immediately stop the works and inform the competent Institute for Protection of National Monuments and take measures so that the find is not damaged, destroyed and preserved at the place and position in which it was discovered;
- In accordance with the provisions of the Law on Waters ("Official Gazette of the RS", No. 30/10, 93/12, 101/16 and 95/18 (other law)), it is prohibited to discharge untreated wastewater generated at the construction site into the environment and the final recipient;
- The Contractor will ensure that the budget for implementation of the required mitigation measures and monitoring activities defined in the CESMP is included in Project costs as a separate item.

6.2 Operation and maintenance phase

This phase of the Project development anticipates the operation of the RWMC and the associated maintenance. This phase will be implemented by the PUC RWMC "Srem-Mačva" as Operator, except for the containers and vehicles for primary separation in Ruma, Šid and Bogatić where respective PUCs will be responsible for operation and maintenance of these equipment.

PUC RWMC/Operator shall:

- Establish Operations Management System in line with the internationally recognized standards (ISO standards 14001 and 45001 and its required documents, plans and procedures). Certification is not mandatory;
- Develop Operations Environmental and Social Management Plan (OESMP), which will include all necessary environmental and health and safety sub-plans/procedures before the start of operation of additionally constructed facilities;
- As a minimum, the OESMP shall include the following sub-plans and procedures: Waste Management Plan; Soil and groundwater contamination monitoring and management; Leachate treatment and monitoring; Pollution Prevention Plan; Biodiversity Management Plan; OHS Management Plan; Traffic Management Plan; Community H&S Management Plan; Security personnel requirements; Grievance mechanism; Information disclosure and stakeholder engagement; E&S Monitoring Plan. Existing plans shall be updated;
- Assure that the operators of the new equipment and vehicles are trained for safe work;
- Ensure that Public procurement of vehicles and equipment should be in line with EU GPP criteria for transport;
- Ensure that all heavy-duty vehicles (HDVs)[2] used in carrying out the service must meet at least Euro V;

[2] HDV with a maximum mass over 3500 kg such as waste disposal trucks have standards for their engines usually referred to as EURO I – VI, originally introduced in Directive 88/77/EEC43, being revised by Directive 2005/55/EC44.

- As part of the Operations Management System, the Operator should establish a Safety Management System which will ensure preparation and implementation of the Emergency Preparedness and Response Plan in line with requirements in EIA Studies (prepared and approved in line with the national legislation procedure and requirements), ESAP and under respective national and EU legislation; Update the existing EPRP, if available, to reflect the operation of new facilities to be constructed as part of this Project;
- The Operations Safety Management System and Emergency Response Plans will ensure coordination and communication between the RWMC and relevant regional and national authorities in case of accidental situations;
- Update its organizational structure to ensure adequate capacity for operation of the new facilities constructed and equipment procured as part of the Project;
- Review and update the Monitoring Program of the RWMC once new facilities become operational, in line with the applicable national legislation, EU directives, Lenders' requirements and ESAP;
- The Operator is obliged to manage waste in accordance with the provisions of the national and EU legislation, including all requirements and measures defined in the EIA Studies (prepared and approved in line with the national legislation procedure and requirements) and ESAP;
- Allocate budget for the above services;
- Assure transparency in employment procedure. Employment process is to be run in an open way and in compliance with relevant laws.

6.3 Closure and decommissioning

This phase of the project anticipates potential demolition of objects and decommissioning of equipment.

PUC RWMC / Operator / LSGU shall:

- Procure design development for closure and decommissioning of the existing non-sanitary landfill;
- Procure design development for closure of all official non-sanitary landfills which will not be used after the start of operation of. Design development shall include E&S findings and Technical assessment which should be undertaken to inform the design development;
- Procure design development for closure and decommissioning of the existing facility. E&S and Technical assessment should be undertaken to inform the design development;
- In the case of transfer to a new location, prepare an employment plan that will inform current employees about the new employment opportunity in a timely manner;
- Procure licensed operators for demolition;

Regulation 595/200945 sets the emission standard for EURO VI. EURO V is the current legal standard, with EURO VI coming into force from 2013. In between EURO V and VI is the voluntary EEV (enhanced environmentally friendly vehicle) emission standard. The compliance of HDVs with Euro VI is measured as mg per kWh delivered by the engine, and therefore, those results are only valid to evaluate compliance and not to compare different vehicles. For this reason, the criterion must set the technologies able to outperform Euro VI, i.e. natural gas, plug-in hybrid, electric and hydrogen vehicles.

- Ensure and monitor environmental, OHS, and community safety performance during closure and decommissioning;
- Establish a mechanism for control of implementation of health and safety regulation;
- In case of permanent cessation of work, the Operator is obliged to safely and efficiently remove the installed equipment and devices from the site, as well as all the remaining deposited material. Any waste should be removed in line with national and EU legislation requirements;
- Allocate budget for the above services.

Demolition contractor / other contractors:

- All provisions relevant for the Contractor in construction stage are relevant for future demolition contractor or any other contractors appointed to perform construction works relevant for the operation of RWMC or closure of non-sanitary landfills.

6.4 Residual impacts and social impacts

Environmental and social impacts are expected during construction, operation, and closure of the site. The residual impacts mentioned chapter in 5.4 will be visible to the PUC RWMC/PIU/Ministry through environmental monitoring, received grievances, and monitoring of the performance by contractors/operators. Listed measures are of generic character, and will be implemented ad hoc, most probably.

PUC RWMC/PIU/Ministry shall:

- Ensure environmental, OHS and communal inspection, if and when needed;
- Monitor implementation of corrective actions, if and when ordered;
- Regularly implement SEP and thus raise awareness of the local population about improved environment protection;
- Inform the public on the implementation of corrective measures, in case of grievances.

A positive residual effect of the project will be higher awareness of stakeholders about improved waste management and sustainable development thereof.

7 MONITORING AND SUPERVISION

This Chapter provides a description of how environmental and social impacts and issues will be monitored and managed in practice, including an indication of how the Project will be supervised by the Lenders and governmental agencies.

No information has been provided about the provision of the Project Implementation Unit (PIU). Due to the (limited) available capacity of the Public Utility Company RWMC Srem-Mačva and the Ministry, it is highly advisable that a PIU is established by the Ministry in order to manage and monitor the implementation of the Project. The PIU should include experienced waste, environmental, health and safety and social specialists, civil engineers, economists and legal experts to ensure implementation of the Project in line with design documentation, national and EU legislation, as well as good international practice and other relevant industry standards.

Based on the information provided, it is expected that the Supervision Consultant will be contracted to supervise the construction activities.

7.1 Construction

PUC RWMC/PIU/Ministry shall:

- Ensure that records of environmental and OHS monitoring and supervision of operators are kept on file;
- Agree with the Contractor and Supervising Engineer (through service contracts) the frequency and content of E&S reporting;
- Report to the Lenders in line with Lenders' requirements, as a minimum at least once a year, if not otherwise agreed;
- Ensure that experienced waste, environmental and health and safety specialists are included in the monitoring and supervision of construction and activities;
- Allocate resources in manpower for the above services.

The Lenders shall:

- Develop a comprehensive evaluation checklist, in line with benchmarks that will be proposed by the Project and approved by the Lenders;
- Develop a Reporting Plan for PUC RWMC Srem-Mačva/PIU/Ministry based on the proposed benchmarks;
- Ensure that experienced waste, environmental and health and safety specialists are included in the monitoring and supervision of operational activities;
- Engage with a Project monitoring specialist in order to ensure that the Project meets all requirements.

7.2 Implementation and maintenance

Throughout the loan period, PUC RWMC/PIU/Ministry shall report in line with the requirements of the Annual Environmental Report. PUC RWMC/PIU/Ministry shall allocate adequate resources for reporting.

The Lenders may require reporting in shorter time frames (half-year or quarterly), depending on the time schedule of the approved benchmarks.

The Lenders may require independent monitoring of the implementation of E&S requirements during the operation phase.

7.3 Closure and decommissioning

Although closure and decommissioning of the RWMC is expected after the completion of the loan agreement, the Operator should ensure implementation of all relevant E&S provisions in line with national and EU legislation, good international practice and other relevant industry standards during the closure and decommissioning phase of the Project.

8 COMMUNICATIONS

During construction and operation anyone may raise a grievance with the PUC "Srem-Mačva". All grievances should be based on written forms (Annex I in the ESAR), which can be filled in by any affected person or organization and submitted to PUC "Srem-Mačva". The PUC "Srem-Mačva" will look into all grievances officially received and within 15 days inform the author about the actions taken. The acknowledgement will specify a contact person, their reference indicator and an anticipated target date for resolution.

In case when the grievance is not connected to the PUC's activity, the grievant will receive an explanation in written form and the grievance will not be further processed.

In all other cases, the PUC will investigate whether they have failed to work to the intended standard and, if so, identify measures that may be taken to prevent further occurrences. Upon resolution, if the grievant considers the grievance to be satisfactorily resolved, the PUC would appreciate sharing this with him/her, by signing a Statement of Satisfaction.

The grievance mechanism will be made public throughout the public consultation process, and will be maintained during preparation, construction and operation activities. Grievances will be monitored by the Deputy Director of PUC "Srem-Mačva", Mr. Nenad Tomić.

PUC "Srem-Mačva" may contact the grievant at a later stage to ensure that its activities continue to pose no further problems.

The Grievance can be submitted in several ways:

- Send a completed Grievance Form (see appendix) to the address on the back of the form,
- Contact the responsible person for OHS, FP and environmental protection Jovan Kovačić,
- Send an email to the indicated address: office@srem-macva.rs or jovan.kovacic@srem-macva.rs,
- Call the PUC Srem-Mačva directly, on a confidential phone line at +381 22 810 099 or +381 62 758 193,
- It is also possible to leave a completed Grievance Form in the PUC Mailbox.

As described above grievance process has several steps:

1. Receiving a complaint;
2. Grievance acknowledgement;
3. Investigation of the cause of grievance;
4. Resolution of the grievance;
5. Follow-up, if needed.

Upon approval of the SEP, its location will be publicly announced.

www. envico.rs

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