

European Bank for Reconstruction and Development

## Environmental and Social Impact Assessment, Climate Change Assessment and Technical Assessment for Pambukovica Dam in Serbia

Environmental and Social Action Plan (ESAP)

Reference 2015/16

Final | 12 August 2025



© Arup


This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 303066-00

**Arup d.o.o. Beograd (Savski venac)**  
Vojvode Mišića Boulevard 17/4  
BIGZ Office Building  
11000 Belgrade  
Republic of Serbia  
[arup.com](http://arup.com)

# Document Verification

**Project title** Environmental and Social Impact Assessment, Climate Change Assessment and Technical Assessment for Pambukovica Dam in Serbia  
**Document title** Environmental and Social Action Plan (ESAP)  
**Job number** 303066-00  
**Document ref** 2015/16  
**File reference** ESIA Volume II

Revision	Date	Filename		
Final	12.08.2025	Final disclosure version		
		Prepared by	Checked by	Approved by
		Name	Milos Despotovic	Aleksandar Bajovic
		Signature		
		Filename		
		Description		
		Prepared by	Checked by	Approved by
		Name		
		Signature		
		Filename		
		Description		
		Prepared by	Checked by	Approved by
		Name		
		Signature		

Issue Document Verification with Document



# Contents

---

Abbreviations	1
1. Introduction	2
1.1 About this Report	2
1.2 About this Project	2
2. Environmental and Social Action Plan	4

# Abbreviations

Abbreviation	Full Form
BMP	Biodiversity Management Plan
CESMP	Construction Environmental and Social Management Plan
CSR	Corporate Social Responsibility
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
GHG	Greenhouse Gas
GIP	Good International Practice
IFC	International Finance Corporation
IHA	International Hydropower Association
ILO	International Labour Organization
IPM	Integrated Pest Management
LEDS	Low Emission Development Strategy
MoF	Ministry of Finance
NDC	Nationally Determined Contribution
O&M	Operation and Maintenance
OESMP	Operations Environmental and Social Management Plan
PGD	Design for the Construction Permit
PoE	Panel of Experts
PR	Performance Requirements
PWMC	Public Water Management Company
RSA	Road Safety Audit
SAR	Sodium adsorption ratio

# 1. Introduction

## 1.1 About this Report

The European Bank for Reconstruction and Development (the “EBRD” or the “Bank”) has appointed Arup as a consultant (the “Consultant”) to carry out an Environmental and Social Impact Assessment (ESIA) for the proposed Pambukovica Dam.

During the process, a number of areas were identified where the project should achieve further alignment with EBRD’s Environmental and Social Policy. This report presents the measures which are required to achieve compliance with the EBRD Performance Requirements, and these measures are therefore required to be implemented as part of the loan agreement.

This report details mitigation measures to prevent, reduce or minimise environmental and social impacts, and measures to improve the current environmental and social management practices and operational performance towards compliance with the EBRD’s Environmental and Social Performance Requirements throughout the lifetime of the project. It sets out what investment is likely to be required to deliver these measures, the timeframe for delivery and the criteria by which complying with the measures can be evaluated.

## 1.2 About this Project

The European Bank for Reconstruction and Development (EBRD) is considering providing a finance to the Republic of Serbia, represented by the Ministry of Finance (“MoF”). The Project will be implemented by the Public Water Management Company Srbijavode (“PWMC” or “Srbijavode”), the national body responsible for water management, including water use and protection from pollution.

Design developed by Energoprojekt envisages development of a 27.5 m high earth embankment dam, the Pambukovica dam, on the Ub River and an irrigation network within the Ub River Valley. The dam will be a multipurpose dam impounding a total reservoir volume of 8.15 Mm<sup>3</sup>. Its intended functions are:

- Flood protection,
- Irrigation of about 2,225ha,
- Maintaining a guaranteed ecological flow in reservoir and downstream river,
- Retention of sediments.

Estimated time needed for construction of the dam is two to three years, considering the amount of work and defining the dynamics of execution of work.

Assumed dam lifetime is 80 years.

Construction and preparation of technical documentation for Pambukovica dam is planned in two phases:

- Phase 1 (to be finance through EBRD Loan, pending agreement)- Construction and operation of Pambukovica dam for flood defence purposes. For construction of the dam, and before impoundment, a 900m long section of the State Road No.21 will need to be raised above the maximum water level of the reservoir, and additional services located in the reservoir footprint relocated. Phase 1 will complete with the impoundment of the river and formation of the reservoir. Design of the dam has been prepared up to the level of Design for the Construction Permit (PGD) as defined in national legislation. Construction of upstream sediment traps is planned as part of the Phase 1.
- Phase 2 (financing yet to be confirmed) - Construction and operation of an irrigation system within Ub Municipality is now planned to begin in parallel with finalisation of Phase 1 works. This phase involves the dam and reservoir operating for both flood defence and irrigation purposes. Irrigation construction works will involve construction of the key facilities of the irrigation system primary distribution network which include pump stations, pressure pipelines and the tanks for daily balancing of the inflow. The rest

of the distribution network infrastructure is planned to be developed to full capacity in the subsequent years.

Construction of upstream sediment traps is planned as part of the overall Pambukovica Dam Project, and as part of the Phase 1. PWMC Srbijavode confirmed that the plan is to construct sediment traps in parallel with the construction of the dam. Completion is planned before start of reservoir operation.

The primary purpose of Pambukovica dam is flood protection / alleviation.

Secondary purpose of the system is to be used for irrigation of surrounding agricultural areas, benefaction of small waters and retention of sediment from upstream areas.

The Project is categorised “A” in accordance with the EBRD Environmental and Social Policy (2019).

## 2. Environmental and Social Action Plan

The following environmental and social actions are required to meet the requirements of the EBRD's Environment and Social Policy (2019) and should be delivered within the timescale indicated.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
<b>PR1 Assessment and Management of Environmental and Social Risks and Impacts</b>						
1.	<b>Project Implementation Unit</b> Establish a Project Implementation Unit (PIU) with the responsibility to manage the Project. PIU representatives should be competent to conduct comprehensive and clear reporting procedures between parties involved in this Project.  The PIU should come with a clear organigram, roles and responsibilities, E&S management positions, including following (as a minimum): <ul style="list-style-type: none"> <li>- Water Engineer</li> <li>- Environmental Specialist</li> <li>- H&amp;S Specialist</li> <li>- Biodiversity Specialist</li> <li>- Social Specialist</li> <li>- Land Acquisition Specialist</li> <li>- Stakeholder Engagement and Grievance Specialist</li> <li>- Cultural Heritage Specialist</li> <li>- (additional experts as needed)</li> </ul>	Improved E&S performance and compliance with Lenders' requirements	EBRD PR1	PWMC Srbijavode (can be cascaded to the role of PIU Support, as required)	During the Project preparation phase	PIU appointed and Lenders notified about PIU establishment.  Roles and responsibilities for implementation of E&S management defined and clearly communicated to all participants of the Project.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
2.	<p><b>E&amp;S Assessment for Phase 2</b></p> <p>Environmental and social assessment to be undertaken for the Irrigation Phase (Phase 2) of the Project in line with the EBRD Environmental and Social Policy, meeting the objectives of the EBRD Performance Requirements.</p> <p>This E&amp;S Assessment should include (but not be limited to):</p> <ul style="list-style-type: none"> <li>a) High-resolution eFlow assessment, to include impacts on downstream aquatic life, social components etc.</li> <li>b) Revision of eFlow and operational rules based on the high-resolution eFlow assessment before commencement of irrigation phase (Phase 2) to reflect ESIA requirements and ensure adequate eFlow in line with Project Standards.</li> <li>c) A Resettlement Framework to define the process of land acquisition and compensation which complies with the objectives of PR5</li> </ul>	Full understanding and mitigation of risks relevant for Phase 2 of the Project	EBRD PR1-10	PWMC Srbijavode (through PIU and PIU Support or engagement of independent consultant)	During (or before completion, at latest) of design for the irrigation system	<p>E&amp;S Assessment Report in line with the requirements of the EBRD E&amp;S Policy and Performance Requirements developed and submitted to Lenders. (approval by Lenders)</p> <p>Report to include (among other topics relevant for EBRD E&amp;S Policy):</p> <ul style="list-style-type: none"> <li>a) High resolution Eflow assessment.</li> <li>b) Review of eFlows and operational rules aligned with the Project standards, good International Practice, covering irrigation demand in Phase 2 of operations.</li> <li>c) Resettlement Framework</li> </ul>
3.	<p><b>Cumulative Impacts</b></p> <p>Review and update (if necessary) the Cumulative Impact Assessment and implement changes in plans, procedures or design:</p> <ul style="list-style-type: none"> <li>a) Before start of irrigation phase of operations</li> <li>b) In case that additional information about any additional third-party developments in the project impact area.</li> </ul>	Ensuring that cumulative impacts of the project are addressed.	EBRD PR 1	PWMC Srbijavode	<ul style="list-style-type: none"> <li>a) 3 months prior start of irrigation phase</li> <li>b) 3 months (at latest) after information about new development becomes available.</li> </ul>	Updated Cumulative impact assessment approved by Lenders.



c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
4.	<b>Project Level E&amp;S Policies</b> a) <b>Construction Phase</b> - Develop and implement Environmental and Social Policy, Human Resources Policy and Occupational Health and Safety Policy for the project construction phase in line with guidelines defined in the ESMP. b) <b>Operations Phase</b> - Develop and implement Environmental and Social Policy, Human Resources Policy and Occupational Health and Safety Policy for the project operation phase in line with guidelines defined in the ESMP.	Improved E&S performance and compliance with Lenders' requirements	EBRD PR 1	a) PWMC Srbijavode and Contractor b) PWMC Srbijavode	a) 3 months before start of contraction work. b) 6 months before start of operations	a) Environmental and Social Policy, Human Resources Policy and Occupational Health and Safety Policy for construction phase developed and under implementation. b) Environmental and Social Policy, Human Resources Policy and Occupational Health and Safety Policy for operations phase developed and under implementation.
5.	<b>Commitments Register</b> Implement all commitments defined under Commitments Register. Incorporate commitments within relevant procurement documentation for Contractor, Engineer and other consultant support as relevant Regularly review and update in case of any project planning, design, changes in Project Standards (including Serbian legislation changes).	Mitigation of the E&S risks identified through environmental and social impact assessment.	EBRD PR 1-10	Ultimate ownership – PWMC Srbijavode Individual commitments can be cascaded the Contractor (and Engineer if contracted by PWMC Srbijavode)	In line with timeline presented in Commitments Register.	Timely implementation of the commitments defined in the Commitments Register. Commitments Register updated any project planning, design, changes in Project Standards (including Serbian legislation changes)
6.	<b>ESIA Package Management Plans</b> Regularly review and update (at least annually) plans developed as a part of the ESIA Package, or in case of any planning, design or Project Standards changes: - Environmental and Social Management Plan - Stakeholder Engagement Plan (including Grievance Mechanism) - Land Acquisition Corrective Action Plan - Biodiversity Management Plan (BMP). Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.	Missing out on changes in Project risks and impacts linked to changes in planning, design, Project Standards and legislation.	EBRD PR1	PWMC Srbijavode	At least annually	ESIA Package Management Plans updated in case of any planning, design or Project Standards / legislation changes, or at least annually.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
7.	<p><b>Construction Phase Management Plans</b></p> <p>Develop Construction Environmental and Social Management Plans (CESMP), and all subplans (as defined in the ESMP Table 4) in line with requirements set out in ESIA and ESMP. Plans must cover all contractor and subcontractor activities. The CESMP must specify how the contractor will cascade requirements to subcontractors, evaluate E&amp;S issues in their selection and monitoring their performance.</p> <p>List of subplans to be developed as part of the CESMP or standalone documents:</p> <ul style="list-style-type: none"> <li>- Traffic Management Plan (including planning of out-of-gauge cargo transport routes)</li> <li>- Waste Management Plan (covering hazardous and non-hazardous waste streams)</li> <li>- Resource and Material Management Plan</li> <li>- Spill Prevention and Response Plan</li> <li>- Wastewater Management Plan</li> <li>- Stormwater Management Plan</li> <li>- Erosion and Sediment Control Plan</li> <li>- Site Restoration and Rehabilitation Plan</li> <li>- Cultural Heritage Management Plan (covering relocation of the unregistered monument identified in ESIA, chance finds procedure and relevant training) -</li> <li>- Water Environment Monitoring and Mitigation Plan</li> <li>- Cumulative Impact Management Plan</li> </ul> <p>Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.</p>	Mitigation of the E&S risks identified through environmental and social impact assessment.	EBRD PR 1	<p>PWMC Srbijavode – review and approve plans</p> <p>Contractor – develop and implement plans</p>	Before start of start of construction works on site (including any early and preparatory works)	CESMP and individual plans developed by Contractor and approved by PWMC Srbijavode (or Engineer if employed).

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
8.	<b>Operations and Maintenance Plans</b> a) Develop and implement <b>Operation and Maintenance (O&amp;M) Plan</b> in line with the requirements set out in the ESMP (Table 5), ESIA, Technical assessment Report and Operational Rules. b) Develop and implement <b>Surveyance and Monitoring Plan</b> in line with the requirements set out in the ESMP (Table 5), ESIA and Operational Rules. c) Develop and implement <b>Sediment Management Plan</b> that will define regular sediment monitoring and management, including adaptive management and contingency measures as required to retain long-term reservoir sustainability d) Regularly review (at least annually) and update such plans (including the operational rules) to account for results of routine monitoring activities as required	Mitigation of E&S impacts linked to the operations phase of the Project.	EBRD PR 1	PWMC Srbijavode	6 months before start of operation phase	a) Operation and Maintenance (O&M) Plan developed and under implementation. b) Surveyance and Monitoring Plan developed and under implementation. c) Sediment Management Plan developed and under implementation. Plans to be approved by Lenders. d) Annual Review of each plan and update if required
9.	<b>Operational E&amp;S Management Plans</b> Develop Operational Environmental and Social Management Plan (OESMP), and all subplans (as defined in the ESMP Table 5) in line with requirements set out in ESIA and ESMP. List of subplans to be developed as part of the OESMP or standalone documents: - Waste Management Plan - Spill Prevention and Response Plan - Wastewater Management Plan - Stormwater Management Plan - Erosion and Sediment Control Plan - Water Environment Monitoring and Mitigation Plan - Cumulative Impact Management Plan	Mitigation of E&S impacts linked to the operations phase of the Project.	EBRD PR 1-10	PWMC Srbijavode	6 months before start of operation phase	Operational Environmental and Social Management Plan developed and implemented. Approved by Lenders.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
10	<b>Project Implementation Capacity Assessment</b> Implement Capacity Building Plan / Program as per the findings of the Capacity Assessment Report.	Improved E&S performance and compliance with Lenders' requirements	EBRD PR 1	PWMC Srbijavode	6 months before start of operation phase	Capacity Building Plan / Program developed and implemented. Approved by Lenders.
11	<b>Capacity / Resources / ESHS Specialists / PIU</b> PWMC Srbijavode to ensure that environmental, health and safety, social, biodiversity specialists are included throughout planning, procurement, construction and operation phases, in order to ensure that relevant Project Standards, together with local legislation requirements, are included in procurement process, implemented and monitored during the Project.	Lack of E&S expertise leading to inadequate E&S performance and management during the Project implementation.	EBRD PR1	PWMC Srbijavode	Before the start of procurement, construction and operation, respectively.	Relevant environmental, health and safety, social and biodiversity specialists engaged in every/each phase (planning, procurement, construction, operation) respectively. Approved by Lenders.
12	<b>Capacity / Resources / ESHS Specialists / Contractor / Supervising Engineer</b> Tender documentation for a) the Contractor / construction works b) Engineer (if employed by the PWMC Srbijavode) to include requirements to include in their team for: - Health, Safety and Environment Manager - Social Manager - Community Liaison Officer - Biodiversity Specialist - Cultural Heritage Specialist - OHS Specialists - Environmental Specialists .	Lack of relevant expertise leading to inadequate implementation of the E&S standards.	EBRD PR1	PWMC Srbijavode	a) Prior to start of procurement process for construction works b) Prior to start of the procurement for Engineer's role	Contractor and Engineer Teams include relevant environmental, health and safety, social specialist. Approved by Lenders.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
13	<b>Change Management</b> Review all Project planning and design changes against Change Management Procedure (developed as part of the ESMP). Further actions to be defined in line with requirements of the Change Management Procedure.	Ensuring that all E&S impacts are assessed and mitigated in case of Project changes.	EBRD PR1	Owner of the process PPMC Srbijavode Changes during Construction Phase may be delegated to the Contractor by PPMC Srbijavode but reviewed and approved by PPMC Srbijavode or the Engineer	In case of Project planning and design changes, if triggered in the Change Management Procedure.	Change Management Procedure implemented. Relevant E&S risks and impacts assessed and additional mitigation measures defined (if needed). Relevant management plans updated in line with outcomes of the change management process. Changes with significant potential for E&S impacts should be report to EBRD for no-objection prior to their approval
14	<b>Procurement Requirements</b> a) Ensure that all recommendation and actions (design changes required) defined in the Technical Assessment Report are included in the procurement documentation for the Design and Build Contractor. b) Ensure that all requirements defined as part of the ESIA Package are clearly included in the procurement documentation for the Design and Build Contractor and apply to both Contractor and subcontractors. c) PPMC Srbijavode to ensure that environmental, social, health and safety, and biodiversity experts are included in the process of preparation of procurement documentation and evaluation of the proposals for the Design and Build Contractor.	Implementation of the E&S mitigation measures defined in the ESIA Package and Technical Assessment. Ensuring relevant E&S expertise during preparation of the procurement.	EBRD PR1	PPMC Srbijavode	At the procurement phase (during development of the procurement documentation)	a) Recommendation and actions defined in the Technical Assessment Report are included as requirements in the procurement documentation for the Design and Build Contractor. Design for Execution of Works (projekat za izvođenje radova) implements solutions for defined requirements (recommendations and actions). b) E&S requirements defined in the ESIA Package included in the procurement documentation. c) Environmental, social, health and safety, and biodiversity experts are included in the process of preparation of procurement documentation and evaluation of the proposals for the Design and Build Contractor.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
15	<b>Sediment Traps</b> PWMC Srbijavode to ensure that construction of sediment traps is completed at the same time as construction works for the Phase 1.	Sediment control, water quality, biodiversity impact, maintenance impacts, dam lifespan.	EBRD PR1	PWMC Srbijavode	Before start of operation phase.	Sediment traps designed, construction and operational.
16	<b>Permit Register</b> Develop a project wide E&S permit register for Construction and Operation phase and regularly review and update (at least monthly).	Ensuring implementation of E&S legal requirements.	EBRD PR1	PWMC Srbijavode  Contractor to develop and implement in construction and commissioning  PWMC Sbrjavode in operation	Before start of construction phase.  Throughout the project implementation.	Permit register developed and regularly updated.
17	<b>Reporting to Lenders</b> PWMC to ensure regular reporting to Lenders on the project progress and implementation of the ESIA Package.  Report to include progress update (in table format) on each of the ESAP and Commitments Register actions.	Regular information sharing will allow for timely reactions.	EBRD PR1	PWMC Srbijavode	Semi-annually during pre-construction (prior to construction contract award) and operation.  Quarterly during pre-construction (post contract award) and construction.	Regular submission of quarterly and semi-annual reports to the Lenders.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
18	<b>Operational Monitoring (in Phase 2)</b> Maintain data (separated between men and women and age brackets and vulnerable people) on an annual basis including: <ul style="list-style-type: none"> <li>Number of trainings provided to farmers (trainings suggested under actions defined in PR3)</li> <li>Number of additional farmers connecting to the system</li> <li>Number of ha with <ul style="list-style-type: none"> <li>drip irrigation and</li> <li>sprinkler irrigation</li> </ul> </li> <li>Water use/ha, identifying any high users and providing advice to improve efficiency and inform maintenance</li> </ul>	Ensure opportunities for women and vulnerable groups to take advantage of Project benefits.  Monitor water use efficiency	EBRD PR1	PWMC Srbijavode	Semi-annual reporting	Semi-annual reports with data (in a standardised format provided by EBRD);

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
---	--------	--	---	---	----------------------	--

PR2 Labour and Working Conditions



19	<b>Labour Management</b> Develop a Labour Management Plan which includes: <ul style="list-style-type: none"> <li>• Policies and procedures for labour management on site (recruitment procedures, working hours and overtime, contract arrangements, disciplinary, demobilisation etc.)</li> <li>• Procedures for procurement and management of subcontractors with regards to labour practices and working conditions (including health and safety) – ensure that all non-employee workers are engaged in line with both national legislation and applicable international (ILO) standards and recommendations</li> <li>• Construction Workers’ Code of Conduct</li> <li>• Plan of workers camp area and facilities on site</li> <li>• Workers accommodation (even off-site accommodation) to be in line with the international best practice (EBRD/IFC Guidelines for Workers Accommodation: processes and Standards, 2009 )</li> <li>• Grievance mechanism for the workers on site, including subcontractors and suppliers' employees</li> <li>• Develop a local employment strategy that includes Assessment of local market capacity in relation to the required workforce (skills and experience); Strategy for skill development and training – aimed at current workforce and local population; Planned announcements of employment opportunities locally with strategies to encourage women to apply; Clear communication strategy for the community with employment estimates, timeframes and skills requirements.</li> <li>• Organised training for workers on local customs and culturally appropriate behaviour, as part of induction training, to avoid conflicts with local people</li> <li>• Monitoring and Verification</li> </ul> Ensure independent labour audit of the Contractor (including subcontractors) is carried out at regular frequency (every 4 months) during construction works by an independent labour specialist in the Engineer’s team (or engaged by the Engineer).	Insufficient working conditions for the entire workforce on site	EBRD PR 2	PVMC Srbijavode to develop preliminary plan for inclusion in procurement documents for contractor and Engineer and to detail their monitoring and verification of the Contractor  Contractor to further Develop and implement PVMC Srbijavode to review and monitor implementation including ensuring audits by the Engineer	Prior to and during Construction Phase  First labour audit within 3 months of contractor mobilisation	Labour Management Plan developed and implemented.  Contractor’s progress reports include overview of implemented measures from the Labour Management Plan  Labour Audit Reports
20	<b>Gender Based Violence and Harassment (GBVH)</b> Require the Contractor to develop and implement procedures to prevent and respond to GBVH related	Lack of management of	EBRD PR 2	Contractor to Develop and implement	Prior to Construction	Sexual Harassment Policy developed and communicated to workforce

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
	<p>incidents in workforce or between community and workforce<sup>1</sup> including:</p> <ul style="list-style-type: none"> <li>• Develop and implement a sexual harassment policy applicable to their workers and those of sub-contractors</li> <li>• Provide training to the workforce regarding the policy, code of conduct, disciplinary procedures and GBVH response procedures. Dedicate training to personal such as truck drivers, security providers</li> <li>• Provide training to community liaison officers and HR personnel on how to respond to allegations of GBVH perpetrated by the workforce</li> <li>• Implement the grievance mechanism for workers and communities with dedicated reporting channels and response procedures for GBVH related complaints</li> <li>• Engage external expertise to provide such training and support on management of GBVH related complaints</li> </ul>	GBVH risks and impacts.	Serbian legislation Requirements	PWMC Srbijavode to review and monitor		
<b>PR3 Resource Efficiency and Pollution Prevention and Control</b>						
21	<p><b>Awareness raising of farmers to improve resource efficiency and pollution prevention and control (relevant for Phase 2)</b></p> <p>Training and awareness raising of farmers on codes of GIP and specifically: efficient use of fertilisers; measures to avoid salinization and water logging; integrated pest management (IPM); chemigation (for trickle irrigation systems)</p>	<p>Protection of groundwater and surface water from nitrate and phosphorus and chemicals</p> <p>Avoidance of soil salinization and clogging</p>	EBRD PR 3	PWMC Srbijavode, in collaboration with other relevant Government institutions	<p>Initial trainings provided prior to start of operation of irrigation (Phase 2).</p> <p>Training to include all relevant impacts (on farmers, and farmers on environment)</p> <p>Training to new irrigation system users as may be required during the loan period.</p>	Farmers training undertaken and recorded. Training log kept up to date.

<sup>1</sup> Contractor and Subcontractor

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
22	<p><b>Protection from waterlogging and soil salinity (relevant for Phase 2)</b></p> <p><b>a)</b> Monitoring of irrigation water and soil with respect to electroconductivity and SAR (sodium adsorption ratio)</p> <p><b>b)</b> Organize training for Farmers on sustainable use of fertilizers and pesticides, aspects of salinity and waterlogging and GIP in irrigation.</p> <p><b>c)</b> Maintenance of existing drainage system on public land (channels, surface water bodies etc.)</p> <p><i>Training defined under b) to following topics:</i></p> <ul style="list-style-type: none"> <li>• <i>field application practices in line with best management irrigation practices,</i></li> <li>• <i>minimisation, safe use, handling, storage, transport and disposal of pesticides in line with the integrated pest management (IPM) approach and EBRD PR3,</i></li> <li>• <i>measures to prevent, minimize and mitigate the negative impacts of use of fertilizers in line with good agricultural practice and introduce chemigation as an option for sustainable use of fertilizers and pesticides through the drip irrigation system</i></li> </ul>	Avoidance of soil salinization and clogging	EBRD PR 3 GIP	PWMC Srbijavode	<p><b>a)</b> Monitoring during operation of irrigation (Phase 2) (once at the beginning of the irrigation season as per monitoring requirements below).</p> <p><b>b)</b> Initial trainings provided prior to start of operation of irrigation (Phase 2). Training to new irrigation system users as may be required during the loan period.</p> <p><b>c)</b> Regular maintenance of existing drainage systems on public land during operation of irrigation following Srbijavode's existing maintenance plans for drainage systems</p>	<p><b>a)</b> Water quality monitored and logged</p> <p><b>b)</b> Farmers training undertaken and recorded. Training log kept up to date.</p> <p><b>c)</b> Drainage system operated and maintained</p>

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
23	<b>Water use efficiency (relevant for Phase 2)</b> a) PWMC Srbijavode to develop a plan for installing water meters for all users to ensure water use is monitored at the point of use and high users are identified. b) Provide advice and guidelines for excessive users for efficiency improvement. c) Regular monitoring of irrigation system should be conducted to warrant the system is properly maintained.	There is a risk of inefficient water use by irrigation system during the operation phase which would result in unnecessary water losses.	EBRD PR 3	PWMC Srbijavode (potentially in cooperation with other relevant government institutions)	a) Before start of irrigation phase b) throughout the operation of irrigation c) throughout the operation of irrigation	a) Plan for installing water meters with defined timeline of installation developed. b) Register of identified high users in place and maintained. Evidence of provided advice and guidelines kept on file (communication evidence / material developed and shared) c) Records of monitoring and system maintenance.
24	<b>Fluvial Geomorphology - Downstream change in lateral and longitudinal sediment dynamics</b> a) Undertake a baseline fluvial geomorphology survey in Ub catchment prior to start of construction. b) Regular monitoring of the Ub river downstream of the dam up to confluence with Dokmirca and Bukovica Rivers during the initial four years of project operation to monitor the reaction and behaviour of the river morphology (suspended sediment and bedload) and fish habitat to the new flow regime.	Ensuring that impact of operation on fluvial geomorphology and river biodiversity is mitigated.	EBRD PR3 and PR6	PWMC Srbijavode (baseline survey may be delegated to the future Contractor)	a) Before start of construction. b) Monitoring and reporting annually.	a) Baseline fluvial geomorphology survey completed. b) Annual monitoring undertaken and findings reported to Lenders.
25	<b>Climate Change Monitoring</b> Implement a Climate Monitoring Plan in line with the IHA Climate Resilience Guide, which will include: <ul style="list-style-type: none"> <li>Metrics and data collection protocols – high flows (floods) and mid- to low flows (irrigation demand)</li> <li>Roles and responsibilities</li> <li>Timelines and adaptive management processes</li> </ul>	Enhanced dam safety, reduced flood damage, and improved operational resilience, including irrigation requirements	EBRD PR1 and PR3	PWMC Srbijavode	Prior to completion of dam construction and reservoir impoundment (Phase 1).	Climate Monitoring Plan developed and implemented. Approved by Lenders.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
26	<b>Water Use and Drought Management (relevant for Phase 2)</b> Develop water use priorities and schedules during droughts, including: <ul style="list-style-type: none"> <li>Minimum ecological flow in line with defined in ESIA and Operational Rules</li> <li>Balancing irrigation demands with downstream ecological needs</li> </ul>	Improved irrigation efficiency, ecological flow maintenance, and equitable water distribution.	EBRD PR3	PWMC Srbijavode	Prior to start of irrigation operations (Phase 2)	Minimum ecological flow in line with defined in ESIA and Operational Rules established.  Water use priorities documented.  Annual monitoring reports produced and published.
27	<b>Water quality modelling</b> Reservoir water quality modelling to be revised based on the final/detailed design, to confirm the water quality that will be discharged from the reservoir. Update of operational rules if needed.	Risk of eFlow poor water quality discharged from the reservoir.	EBRD PR3 and PR6	PWMC Srbijavode (can be cascaded to Design and Build Contractor)	During the detailed design.	Revised water quality model. Update of operational rules based on the revised model, if required  Reviewed and approved by level.
<b>PR 4 Health, Safety and Security</b>						
28	<b>Road Safety Audit</b> Appoint an independent, qualified road safety auditor to carry out a Road Safety Audit (RSA) for state road IB-21, in accordance with EU Directive 2008/96/EC, covering all phases of the Project. Following the RSA for Phase 1, there should be mandatory inclusion of economically viable safety improvements into the design.  RSA to be conducted by a certified auditor for each phase of the project: <ul style="list-style-type: none"> <li>During the Design for Construction Permit phase,</li> <li>During the construction phase (to confirm that all design measures have been implemented)</li> <li>One year into operation.</li> </ul>	Safety risks for users addressed in the design and operational phase. Reduction of accident risks and improved road safety.	National regulatory requirements EBRD PR 4	PWMC Srbijavode (Can be cascaded down to contractor or consultant).	RSA to be completed during each of the Project development phases and during operation.	a) Road Safety Audits conducted and documented.  b) Findings and recommendations included in the design.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
29	<p><b>Construction Phase H&amp;S Management Plans</b></p> <p>Develop following plans and all subplans (as defined in the ESMP Table 4) in line with requirements set out in ESIA and ESMP. Plans must cover all contractor and subcontractor activities. The CESMP must specify how the contractor will cascade requirements to subcontractors, evaluate H&amp;S issues in their selection and monitoring their performance.</p> <ul style="list-style-type: none"> <li>- Occupational Health and Safety Management Plan</li> <li>- Emergency Preparedness and Response Plan</li> <li>- Community Health, Safety, and Security Management Plan</li> </ul> <p>Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.</p>	Mitigation of the H&S risks identified through environmental and social impact assessment.	EBRD PR 4	<p>PWMC Srbijavode – review and approve plans</p> <p>Contractor – develop and implement plans</p>	Before start of start of construction works on site (including any early and preparatory works)	Occupational Health and Safety Management Plan, - Emergency Preparedness and Response Plan and Community Health, Safety, and Security Management Plan developed by Contractor and approved by PWMC Srbijavode (or Engineer if employed).
30	<p><b>Emergency Preparedness and Response for Operations Phase</b></p> <ul style="list-style-type: none"> <li>a) Early coordination with EPRP stakeholders, including relevant authorities and define timeline for engagement during the finalisation of the EPRP.</li> <li>b) Update and finalise Emergency Preparedness and Response Plan (developed as a part of the ESIA Package) based on the final design / as build design and findings of the Capacity Assessment.</li> <li>c) Final coordination with relevant authorities and align with local, regional and national emergency preparedness and response.</li> </ul> <p><i>Note – final version of the EPRP needs to be approved by relevant authorities, as defined by relevant local legislation.</i></p>	Mitigation of emergency situations risk and impacts linked to the operations phase of the Project.	EBRD PR 1, PR 4 Good International Practice including ICOLD; World Bank Dam Safety Guidelines	PWMC Srbijavode	<ul style="list-style-type: none"> <li>a) During the disclosure period (engagement); prior to completion of disclosure period and finalisation of post disclosure ESIA Package (timeline to be defined)</li> <li>b) 12 months before start of operation phase.</li> <li>c) 6 months before start of operation phase.</li> </ul>	<ul style="list-style-type: none"> <li>a) Early coordination completed and records kept. Timeline developed.</li> <li>b) Emergency Preparedness and Response Plan developed based on the as build design and findings of the Capacity Assessment.</li> <li>c) Final version of EPRP Approved by relevant authorities and Lenders</li> </ul>

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
31	<p><b>Operational H&amp;S Management Plans</b></p> <p>Develop:</p> <ul style="list-style-type: none"> <li>- Occupational Health and Safety Management Plan</li> <li>- Community Health, Safety, and Security Management Plan</li> </ul> <p>and all subplans (as defined in the ESMP Table 5) in line with requirements set out in ESIA and ESMP.</p> <p>Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.</p>	Mitigation of H&S impacts linked to the operations phase of the Project.	EBRD PR 4	PWMC Srbijavode	6 months before start of operation phase	Operational H&S Management Plans developed and implemented. Approved by Lenders.
32	<p><b>Early Warning System Kolubara</b></p> <p>Ensure that the Early Warning System (EWS) / RNU Kolubara, which is being developed independently of the Pambukovica Dam Project and financed by Republic of Serbia, includes the Pambukovica Dam in its operational scope. The system (in particular its part relevant for the Pambukovica Dam and Ub River) must be fully completed, calibrated, and operational prior to the commencement of operations at Pambukovica.</p> <p>The EWS must include recommendations made in the Operational Rules (developed as part of the Technical Assessment), including integration of inflow monitoring, upstream and downstream water level tracking, and pre-flood drawdown protocols in line with the dam's operational rules and environmental and social (E&amp;S) safeguards.</p>	Emergency preparedness and response safety risks.	EBRD PR1 and PR4	PWMC Srbijavode	Prior to the commencement of operations at Pambukovica.	<p>Early Warning System (EWS) / RNU Kolubara (in particular its part relevant for the Pambukovica Dam and Ub River) must be fully completed, calibrated, and operational prior to the commencement of operations at Pambukovica.</p> <p>Evidence to be shared with the Lenders.</p>

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
33	<p><b>Provisions for independent panel of dam safety experts</b></p> <p>Establish Dam Safety Panel of Experts (PoE) composed of, as a minimum:</p> <ul style="list-style-type: none"> <li>Hydraulic Engineer</li> <li>Geologist</li> <li>Geotechnical Engineer / Dam Engineer</li> </ul> <p>Panel of Experts shall be established for the review of future work phases, including:</p> <ul style="list-style-type: none"> <li>Bid preparation phase and Detailed design and</li> <li>Construction and commissioning phase</li> <li>Operational phase</li> </ul> <p>Principle Objectives of Panel of Experts:</p> <ul style="list-style-type: none"> <li>review the future development of the engineering works with the specific scope of works for the above mentioned phases.</li> <li>act as an advisory body providing independent review of design, construction, safety, and operational aspects at a high-level and at key points in the Project development.</li> <li>Targeted monitoring/audit visits during design, construction, early operation.</li> <li>The PoE is accountable and provides recommendations to the Project Developer whilst retaining independence</li> </ul>	Ensuring key dam safety risk are addressed through all project phases.	EBRD PR1 EBRD PR4 ICOLD	PWMC Srbijavode <i>(contracted independent consultant)</i>	Before issuing the tender for the Design and Build Contractor  <i>Engagement from Detailed Design to Operation</i>	Independent Panel of Experts established.  Panel of Experts reports submitted to Lenders regularly (2-4 times per year, and at key Project milestones).



c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
<b>PR 5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</b>						
34	<b>Finalise and Implement the Land Acquisition Corrective Action Plan, including entitlement matrix</b> related to additional measures to ensure replacement value is achieved, support with livelihood restoration, and access to property and services	Gaps between the national requirements and EBRD ESP regarding compensation and assistance to PAPs not addressed	PR5, national legal framework	Client	a) Within the first 60 days of the ESIA disclosure period b) Within the first 90 days of the ESIA disclosure period c) Prior to the end of the ESIA disclosure period d) Prior to Land Entry	a) Disclosure of LACAP and completion of additional surveys and consultation to inform final LACAP including detailed livelihood restoration plan b) Disclose and consult on the updated LACAP and livelihood restoration plan c) Finalise the LACAP and livelihood restoration plan d) Land Acquisition Corrective Action Plan implemented.
35	<b>Temporary land acquisition</b> Contractor to develop and implement a temporary land acquisition procedure to ensure that all lease contracts are in place and payments are made prior to access to land in accordance with the agreed entitlement matrix. The procedure shall include requirements for pre-entry and exist surveys signed by the landowner and witnessed by PWMC Srbijavode.	Onerous and unfavourable clauses included in lease contracts ; Compensation not in line with PR5	PR5	Contractor; PWMC Srbijavode	Construction	Temporary land lease contracts reviewed by PWMC Srbijavode (limited duration of lease, entitlements, reinstatement to previous condition/agreed improvement, etc.)
36	<b>Ensure swift and timely compensation and corrective actions in case of damage to property</b> (encroachment on private land, damage to crops and structures, damage to public roads, etc.) in accordance with the entitlement matrix	Any damages to private and public property caused by construction activities outside the site boundaries are recorded and compensated	PR5, PR10	Contractor	Construction	External Grievance mechanism within the Stakeholder Engagement Plan. Evidence of compensation and corrective actions implemented.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
37	<b>Phase 2 Irrigation System:</b> Ensure a <b>Resettlement Plan</b> is developed in accordance with the Resettlement Framework developed at the time of E&S Assessment (refer to Action 2) and implemented during the process of land acquisition, in accordance with the objectives of PR5	Alignment with objectives of PR5 in the land acquisition process	PR5, PR10	PWMC Srbijavode	Prior to entry to land for the construction of the irrigation system and integrated into the land acquisition/expropriation process	Resettlement Plan Developed and implemented Resettlement Completion Report
<b>PR6 Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>						
38	<b>Construction Phase Biodiversity Management Plans</b> Develop and implement Biodiversity Management Plan (BMP) for construction phase and all subplans (as defined in the BAP and ESMP Table 4 and 5) in line with requirements set out in ESIA and ESMP. Plans must cover all contractor and subcontractor activities. BMP must specify how the contractor will cascade requirements to subcontractors, evaluate biodiversity issues in their selection and monitoring their performance. Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.	Mitigation of the biodiversity risks identified through environmental and social impact assessment.	EBRD PR 6	PWMC Srbijavode – review and approve plans  Contractor – develop and implement plans	Before start of start of construction works on site (including any early and preparatory works)	BMP by Contractor and approved by PWMC Srbijavode (or Engineer if employed).
39	<b>Operational Biodiversity Management Plan</b> Develop Biodiversity Management Plan (BMP) for operations phase and all subplans (as defined in the ESMP Table 5) in line with requirements set out in ESIA and ESMP. Biodiversity Management Plan for operations phase to include detailed biodiversity monitoring plan developed in line with the requirements sent out in the ESIA and ESMP (Table 6 in Chapter 6). Review and update these plans in case of any planning, design / project changes, or triggers defined in the Change Management Procedure.	Mitigation of E&S impacts linked to the operations phase of the Project.	EBRD PR 1-10	PWMC Srbijavode	6 months before start of operation phase	Operational Environmental and Social Management Plan developed and implemented. Approved by Lenders.

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
40	<b>Habitat Management</b> Develop and implement a <b>Habitat Management and Enhancement Plan</b> to ensure No Net Loss/Net Gain in Critical Habitats, including offsetting of lost habitat and restoring native woodland.  Regular reporting on progress of implementation to Lenders.	Loss of habitat	EBRD PR 6	PWMC Srbijavode – overall responsibility for development and implementation  Contractor for parts relevant for the construction phase (if transferred by Srbijavode to contractor)  Lenders – approval of the Habitat Management Plan	a) Develop the plan within the first 90 days of the ESIA disclosure period  b) Implementation in line with timeline developed as part of the plan.	a) i. Complete field-verification of biodiversity offsets, incorporate updates into ESIA package and disclose and  ii. Habitat Management and Enhancement Plan developed and approved by Lenders  b) Semi – annual detailed report on the progress of implemented of the Habitat Management and Enhancement Plan submitted to Lenders.
<b>PR8 Cultural Heritage</b>						
41	<b>Investigation of two medieval ‘stecaks’ identified in ESIA</b> a) Conduct detailed field survey of the reservoir area to identify location and analyse/assign significance of two the ‘stecaks’ in coordination with the Institute for Protection of Cultural Monuments (IPCM). b) In case that ‘stecaks’ are located within the reservoir area/footprint define mitigation / conservation measures. c) Ensure implementation of mitigation measures, including relocation of the two stecaks, in line with conservation measures defined by the Institute for Protection of Cultural Monuments.	Risk of damaging known cultural assets.	National legislation EBRD PR 8	PWMC Srbijavode (in cooperation with Institute for Protection of Cultural Monuments)	a) Before start of any construction works b) Before start of any construction works c) Before start of site clearance in the area where ‘stecaks’ are located.	a) Detailed field survey completed; inventory of all known/likely heritage assets documented. Report shared with Lenders.  b) Significance of identified cultural heritage assigned and mitigation / conservation measures defined. Report shared with Lenders.  c) Implementation of the mitigation / conservation measures completed and report of completion shared with Lenders.
42	<b>Organize and ensure relocation of unregistered cultural heritage</b> (e.g., parcel 896 KO Raduša) in coordination with Institute for Protection of Cultural Monuments (IPCM) and implement mitigation / preservation measures prescribed by the IPCM.	Risk of damaging known cultural assets.	National legislation EBRD PR	PWMC Srbijavode (in cooperation with Institute for Protection of Cultural Monuments and local communities)	Before start of the irrigation phase (Phase 2)	Relocation completed with documented stakeholder engagement and cultural continuity

c	Action	Environmental & Social Risks (Liability /Benefits)	Requirement (Legislative, EBRD PR, Best Practice)	Resources, Investment Needs, Responsibility	Timetable of actions	Target and Evaluation Criteria for Successful Implementation
<b>PR10 Information Disclosure and Stakeholder Engagement</b>						
43	<b>Implement the Stakeholder Engagement Plan</b> developed as part of the ESIA package during Project life-time including: <ul style="list-style-type: none"> <li>- Establish a dedicated community liaison team, including a specialist responsible for GBVH. If specialist with suitable experience can not be appointed, GBVH training to be provided in coordination with Lenders</li> <li>- Implement ESIA public disclosure and consultation activities</li> <li>- Establish an external grievance mechanism which interacts smoothly with the Contractor's grievance mechanism</li> </ul>	Loss of social licence from local communities due to lack of trust	EBRD PR10	PVMC Srbijavode – overall responsibility for development and implementation  Lenders – support in provision of GBVH training (if required)	Pre-construction, Construction, Operations, Decommissioning	Stakeholder Engagement Plan developed and implemented.
44	<b>Contractor to implement relevant activities from SEP.</b> <ul style="list-style-type: none"> <li>- Disclosure of information regarding planned construction activities and potential restrictions of access to public or private property and services, and the associated community safety risks</li> <li>- Appoint Community Liaison Officer</li> <li>- Establishing an External Grievance Mechanism and maintain a grievance log.</li> <li>- Ensure adequate GBVH handling and response by an appropriately trained staff</li> </ul>	Risk of project impacts on local residents not being addressed and mitigated	EBRD PR10	Contractor for parts relevant for the construction phase	Mobilisation, Construction, Decommissioning	SEP included as part of the requirements for Works contract  Contractor's Progress reports to include update of the status of SEP activities implemented by Contractor